Combating Tobacco Use in Military and Veteran Populations

Stuart Bondurant and Roberta Wedge, Editors; Committee on Smoking Cessation in Military and Veteran Populations; Institute of Medicine

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Board on Population Health and Public Health Practice

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"Knowing is not enough; we must apply.
Willing is not enough; we must do."
—Goethe

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WENDY K. MARINER, JD, LLM, MPH, Professor of Health Law, Bioethics and Human Rights, Boston University School of Public Health, Professor of Law, Boston University School of Law
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EDWARD P. WYATT, Founder, EWyatt Consulting, LLC
DOUGLAS M. ZIEDONIS, MD, MPH, Professor and Chair of the Department of Psychiatry, University of Massachusetts Medical School

STUDY STAFF

ROBERTA WEDGE, Study Director
RENEE WLODARCZYK, Associate Program Officer
PATRICK BAUR, Research Associate
JOSEPH GOODMAN, Senior Program Assistant
NORMAN GROSSBLATT, Senior Editor
CHRISTIE BELL, Financial Officer
HOPE HARE, Administrative Assistant
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This report has been reviewed in draft form by persons chosen for their diverse perspectives and technical expertise in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards of objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We thank the following for their review of this report:

Greg Connolly, DDS, Harvard University School of Public Health
Michael Eriksen, PhD, Georgia State University
Michael C. Fiore, MD, MPH, University of Wisconsin School of Medicine and Public Health
Jack Henningfield, PhD, Pinney Associates
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Anna M. McDaniel, DNS, RN, FAAN, Indiana University School of Nursing
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Barbara K. Rimer, DrPH, University of North Carolina
Steven A. Schroeder, MD, University of California, San Francisco

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations, nor did they see the final draft of the report before its release. The review of the report was overseen by **Robert S. Lawrence, MD,** Johns Hopkins Bloomberg School of Public Health, and **Willard G. Manning, PhD,** The University of Chicago. Appointed by the National Research Council, they were responsible for making certain that an independent examination of the report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of the report rests with the author committee and the institution.

PREFACE

The image of the battle-weary soldier in fatigues and helmet, fighting for his country, has frequently included his lit cigarette. Even today, when almost two of three military personnel do not use tobacco, the cultural icon of a smoking GI endures as demonstrated by the recent *Time* magazine cover of a solder in Afghanistan with a cigarette in his hand. Although smoking rates have declined in the US military over the last 50 years, some surveys indicate that tobacco use is on the rise among young military members and that deployment to Iraq and Afghanistan is resulting in even higher levels of tobacco use among these troops. Thus, these troops are essentially putting their lives at risk twice: once in service to their country, and once in service to tobacco. Tobacco use is a long-term engagement—it kills slowly and insidiously. It not only causes suffering from cardiovascular and respiratory diseases and multiple cancers but impairs military readiness, reducing performance and endurance. And exposure to secondhand smoke can affect the health of fellow warriors and family alike. The good news is that tobacco use can be stopped, and there are many avenues of support for those who wish to quit.

Comprehensive tobacco-control programs have shown that it is possible to prevent people from starting to use tobacco and to help those who do use it to stop. The programs—which have been implemented in many states, such as California and Massachusetts—have demonstrated that raising the price of tobacco products, restricting or even eliminating areas where people can use tobacco, educating the public about the harmfulness of tobacco, and working with advocacy groups can lead to reduced tobacco consumption in all segments of the tobacco-using public. Those programs affect broad swaths of society, but individual tobacco users must also be addressed. Easy access to treatment and comprehensive programs are needed to help people cope with their nicotine addiction and to provide them with tools to quit using tobacco. The tools include nicotine-replacement therapy and other cessation medications, and behavior modification and other forms of counseling. Systematic evaluation of program processes and outcomes is also important.

The Department of Veterans Affairs (VA) and the Department of Defense (DoD) have been engaged in reducing tobacco use among their respective veteran and military populations for many years, but their goal of being tobacco-free has not been met. To help them reach their goal, the VA, in cooperation with the DoD, asked the Institute of Medicine to convene a committee to provide guidance on what policies should be modified or established to prevent and reduce tobacco use and how tobacco-control programs might be improved. In response to this request, the IOM established the Committee on Smoking Cessation in Military and Veteran Populations to prepare this report. The committee was impressed by the dedication of many people in VA and the DoD who have been working to promote tobacco cessation in their departments. But the committee was also concerned that, given the adverse effects of tobacco use on military readiness and health, it does not have higher priority in either department and that senior leadership has not been more active in advocating a tobacco-free military and eventually a tobacco-free veteran population. The committee hopes that this report will demonstrate the need for Congress to support VA and DoD in their efforts to become tobacco-free.

The committee thanks the many people who generously responded to its requests for information and its invitations to make presentations: Kim Hamlett-Berry, Lawrence Deyton, Jean Beckham, W. Clint McSherry, Timothy Carmody, Tammy Czarnecki, Michael Valentino, Sonya Duffy, Scott Sherman, and James Schaefer of VA; David Arday and Priscilla Pazzano of DoD; Brad Taft and Cynthia Hawthorne of the US Army; Mark Long of the US Navy; Kathy Green and G. Wayne Talcott of the US Air Force; Lynn Pahland and Cathy Ficadenti of the US Marine Corps; Thomas Berger of Vietnam Veterans of America; C. Keith Haddock of the HOPE

Health Research Institute; Ruth Malone and Elizabeth Smith of the University of California, San Francisco; and Ali Goldstein of Kaiser Permanente.

The committee appreciates the hard work of the Institute of Medicine staff members who made its work possible, including Renee Wlodarczyk and Jennifer Saunders for literature searches and background research, Joe Goodman for meeting and travel arrangements, and Roberta Wedge, whose patience, tolerance, and diligence were models, whose insights and judgments were beacons, and whose initiatives were drivers of the work. Finally, the committee thanks the dedicated members of the US armed services and the veterans who have served this country. We hope that this report helps them to live long, healthy lives.

Stuart Bondurant, MD
University of North Carolina School of Medicine
Chair, Committee on Smoking Cessation in Military and Veteran Populations

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SUMMARY

Since the 1960s, tobacco use has declined in the United States, including the military, but rates of smoking remain higher in the military than in the general population. In 2005, 32% of active-duty military personnel and 22% of all veterans smoked, compared with just over 20% of the US adult population. The prevalence of smoking is over 50% higher in military personnel who have been deployed than in those who have not, and an increasing number of service members use smokeless tobacco.

Tobacco use has broad implications for both the Department of Defense (DoD) and the Department of Veterans Affairs (VA). It adversely affects military readiness; harms the health and welfare of military families, retirees, and veterans; and costs the nation millions of dollars in health care and lost productivity each year. Tobacco use has been implicated in higher dropout rates during and after basic training, poorer visual acuity, and a higher rate of absenteeism in active-duty military personnel in addition to a multitude of health problems, such as cardiovascular and respiratory diseases and cancer. DoD and VA are working toward reducing tobacco consumption by military personnel and veterans, respectively, and each has initiated several tobacco-control efforts.

The military and veteran populations are not representative of the general US population: military populations are overwhelmingly male, younger, and healthier; and veteran populations served by the VA health-care system are predominantly male, older, and of lower socioeconomic status and tend to have poorer general health than the military population or the general population. Many military personnel and veterans have been deployed to war zones or participated in peacekeeping missions in conflict areas, and those experiences may influence tobacco use.

Many military tobacco users eventually enter the VA health system or the DoD TRICARE system. Most tobacco-related diseases take years to develop, so those two health-care systems bear much of the burden of care, and each has a vested interest in assisting active-duty and retired military personnel and veterans in quitting the use of tobacco. It was in response to DoD's and VA's need to determine what the medical and public-health records can document as best practices for reducing tobacco consumption by military and veteran populations that the Institute of Medicine (IOM) was asked to conduct a study.

CHARGE TO THE COMMITTEE

DoD and VA asked IOM to convene a committee to recommend ways for the two agencies to work together to improve the health of active-duty and veteran populations with regard to tobacco-use initiation and cessation. The agencies asked that the committee consider the following:

- Identify policies and practices that might be used by DoD and VA to prevent initiation of smoking and other tobacco use in the military.

- Identify policies or potential barriers that might inhibit broader implementation of evidence-based tobacco-use cessation care in DoD and VA.
- Identify opportunities for increased access to evidence-based programs for cessation of smoking and other tobacco use in VA and DoD.
- Evaluate changes, including changes in policy, that could help to lower rates of smoking and other tobacco use in military and veteran populations.
- Identify policies and practices that address unique tobacco-use prevention and cessation needs of special populations in DoD and VA, including such populations as people who have other substance-use or psychiatric disorders, people who have chronic medical comorbidities, and women.
- Recommend research approaches to reducing initiation of tobacco use and promoting cessation of tobacco use.

In response to that request, IOM convened the Committee on Smoking Cessation in Military and Veteran Populations, which wrote this report.

COMMITTEE'S APPROACH TO ITS CHARGE

The committee held two information-gathering sessions with representatives of the DoD TRICARE Management Activity (part of the Military Health System, MHS), the Air Force, the Navy, the Army, VA, and veterans service organizations and with experts in smoking-cessation programs and policies. In addition, literature searches were conducted, and information was requested directly from DoD and VA.

To evaluate the current policies and programs systematically and provide guidance for future directions for tobacco control in VA and DoD, the committee first identified what constitutes the evidence base that forms the best practices; in general, these are successful programs and approaches used in the general US population. The committee then attempted to determine whether DoD and VA were using those best practices by reviewing published studies of tobacco use in military and veteran populations; DoD and VA instructions, directives, and regulations; and other information sources, including Web sites. If the best practices were not being used, the committee identified possible obstacles to their implementation and made recommendations for overcoming them from policy and programmatic perspectives. It also developed a research agenda for DoD and VA.

SCOPE OF THE PROBLEM

The US military and dependent population consists of nearly 3.5 million people: about 1.1 million Army, 500,000 Air Force, 470,000 Navy, 215,000 Marine Corps, family members, and more than 800,000 civilian employees. Although smoking prevalence dropped from 51% in 1980 to 32% in 2005 in the armed services, there has been an upturn in consumption in the last decade. Cigarette-smoking and use of smokeless tobacco are most prevalent in the Army and the Marine Corps and least prevalent in the Air Force. Smoking is also more prevalent among military men than among women and personnel 18–25 years old.

There are more than 24 million US veterans, of whom 6.7 million are enrolled in the VA health-care system. Of the 6.7 million, 45% are 65 years old or older, 41% are 45–64 years old, and fewer than 1 million (14%) are less than 45 years old. Most of the veterans using the VA health-care system served during the Vietnam era (1965–1974). VA estimates that 75% of disabled and low-income veterans use the VA system. About 22.2% of all veterans enrolled in the VA health-care system are current smokers.

Tobacco use adversely affects military performance. Military personnel who smoke have reduced physical-performance capacity, lower visual acuity, and poorer night vision than nonsmokers. Smoking is associated with hearing loss and increased risks of motor-vehicle

collisions, physical injury, and hospitalization. Nicotine withdrawal can also impair performance as a result of irritability, restlessness, anger, difficulty in concentrating, anxiety, depressed mood, and decreased performance on cognitive tests.

Short-term health effects associated with smoking include respiratory infections; adverse postoperative effects, delayed wound healing, and increased risk of postoperative hemorrhage; acute peptic ulcer disease; and periodontal disease. Smokers who become ill have more serious illnesses, are more likely to be hospitalized, and have more work-loss days. The long-term adverse health effects of tobacco use are well known and affect virtually every organ system. Smoking is causally linked to cancer, particularly lung cancer, and to a variety of other diseases, including stroke, cardiovascular disease, chronic obstructive pulmonary disease (COPD), diabetes, and infectious diseases. About half of all lifelong smokers will die prematurely from a complication of smoking.

Smokeless tobacco delivers as much nicotine as does cigarette-smoking, and although it does not expose the user to the toxicants in tobacco smoke, its use maintains nicotine addiction, promotes continued smoking, and causes oral and pancreatic cancer and periodontal disease.

The societal costs of tobacco use are enormous. Tobacco-related costs to the MHS were estimated to be $564 million in 2006, primarily for care of people who had cardiovascular disease or respiratory problems. Military retirees and their dependents incur greater tobacco-related health costs than do active-duty military or their dependents. Considerable costs are also associated with productivity losses due to smoke breaks and absenteeism. Tobacco use affects and increases training costs for new recruits; tobacco users are less likely to complete basic training and more likely to leave the military earlier. At the same time that tobacco results in high health-care costs and productivity losses for DoD, the department earns substantial net revenues from the sale of tobacco products in military commissaries and exchanges, and this creates an impediment to any policy that might make tobacco less accessible in those venues. In 2005, $88 million of the $611 million in tobacco sales supported military morale, welfare, and recreation activities.

In 2008, VA spent over $5 billion to treat COPD. More than 80% of COPD is attributed to smoking.

FACTORS THAT INFLUENCE TOBACCO USE

The decision to use tobacco depends on many factors, from such personal ones as self-image to such societal ones as easy access to cigarettes. Using a socioecologic approach to examine the factors that encourage and sustain tobacco use in military and veteran populations, the committee concluded that tobacco use is the result of the interplay among individual attributes (for example, genetic makeup and demographics), interpersonal factors (such as family and colleagues), community influences (including work and educational settings), and larger societal influences (such as political factors and commercial advertising). In the case of military personnel and veterans, those factors are in operation before entry into the military system and throughout different phases of military life, including recruitment, training, active duty, deployment, and discharge or retirement. At the individual level, nicotine addiction and physical and mental comorbidities contribute to the persistent use of tobacco. At the interpersonal level, peer and family influences and the role of tobacco in facilitating social connections are important. Leadership attitudes toward tobacco use in DoD and VA, their organizational structure, and their current practices and policies may contribute to the lack of progress in tobacco control. Congressional mandates, economic constraints, and military conflicts also affect the ability of DOD and VA to become tobacco-free.

TOBACCO-CONTROL PROGRAMS

The use of evidence-based best practices for tobacco control has been widely promoted and has succeeded in reducing tobacco use in the United States. Reducing tobacco use poses special challenges because tobacco products are legal and easy to acquire, highly addictive, and heavily promoted by the tobacco industry. About 50% of current everyday smokers attempt to quit each year, but only 4–7% of those are successful. Creation of a tobacco-free culture thus could be enhanced by development of an environment that encourages abstinence, denormalizes tobacco use, and makes a variety of prevention and cessation services available.

Successful comprehensive tobacco-control programs with demonstrable, albeit incomplete, effectiveness have been developed and implemented by numerous organizations, including the National Cancer Institute and the Centers for Disease Control and Prevention; state governments, including those of California and Massachusetts; and commercial organizations. The programs use a combination of educational, clinical, social, and regulatory strategies to denormalize tobacco use. Comprehensive tobacco-control programs vary in target audience, size, funding sources, and administrative oversight and governance, but they share several key components that contribute to their success: the development and implementation of a strategic plan, dynamic leadership, effective and enforceable policies, communication interventions, adequate resources, appropriate therapeutic interventions (including those for special populations), surveillance and evaluation of effectiveness, and management capacity to bring about change in response to the evaluation. If implemented in constructive harmony, those key components can provide DoD and VA with the capacity to develop and operate their own tobacco-control programs.

Communication interventions can increase tobacco users' awareness of the benefits and means of tobacco cessation, educate potential users about the hazards posed by tobacco, and change social norms and attitudes toward tobacco. Public-education campaigns can inform consumers about cessation medications or other interventions, such as quitlines. Conversely, the advertising of tobacco products, particularly aimed at young adults, can increase demand for tobacco products.

Smoking restrictions are most effective when they apply to a variety of public and private settings, when they ban tobacco use completely rather than partially, and when they are strictly enforced. Many governments, businesses, education institutions, and health-care facilities have adopted and enforce tobacco-free policies.

The tobacco retail environment encompasses the accessibility of tobacco products and the promotion of tobacco products, both at the point of sale and through advertising. Increased tobacco prices, restricted access to products, and decreased out-of-pocket costs for treatment all reduce consumption. Increasing tobacco prices is one of the most effective mechanisms both to prevent tobacco use and to fund tobacco-control efforts. However, as tobacco taxes and tobacco-free regulations have increased, tobacco manufacturers have responded with the development and promotion of new tobacco products, particularly varieties of smokeless tobacco. The advertising of those products increases their consumption.

Studies show that the rate and duration of tobacco abstinence are increased when cessation interventions are used, but only about 21% of smokers who attempted to quit for at least 1 day in the preceding year used a cessation medication. Behavioral interventions shown to have some consistent effectiveness include brief advice and assistance from a health-care provider during routine health-care visits, multisession telephone counseling, and face-to-face group and individual treatment. Those interventions are most effective when combined with pharmacologic treatments approved by the Food and Drug Administration (FDA). Combined interventions can result in long-term abstinence rates of more than 30%. Effectiveness has a dose-response relationship: multisession intensive interventions achieve significantly higher abstinence rates than brief interventions. FDA-approved tobacco-cessation medications are primarily nicotine-replacement therapies (such as nicotine gum or patch), bupropion, and

varenicline. The Public Health Service (PHS) clinical-practice guideline *Treating Tobacco Use and Dependence: 2008 Update* provides an evidence base for tobacco-cessation treatments.

Treatment effectiveness is irrelevant if tobacco users are not aware of treatment options, cannot access them, cannot afford them, or do not use them when they are available. Tobacco-cessation interventions can be delivered in many settings and formats. Health-care providers can inform patients about the health effects of tobacco use and counsel them about treatment options during routine appointments, patients can be referred to proactive or reactive telephone quitlines for counseling and often medications, and patients can access computer-based programs that offer counseling, support, and medications. Evidence-based systems-level interventions that are particularly effective include tobacco-use identification systems, provider education, reminder systems with feedback, and dedicated staff. For patients who are willing to quit, an evidence-based algorithm known as the 5 A's uses a decision tree to help health-care providers to

- Ask patients about tobacco use.
- Advise current users to quit.
- Assess smokers' willingness to quit.
- Assist smokers who are willing to quit by providing appropriate tobacco-dependence treatments.
- Arrange followup for smokers who want treatment.

That algorithm can be used by all health-care providers, including physicians, nurses, psychologists, health educators, dentists, and pharmacists. For patients who are unwilling to quit, health-care providers can use motivational interviewing to increase future cessation attempts. Motivational interviewing can follow the 5 R's: relevance (encourage patient to explain why quitting is relevant to them), risks (ask patients to explain the adverse effects of tobacco use), rewards (ask patients to identify the benefits of quitting), roadblocks (ask patients about the barriers to their quitting), and repetition (use a motivational intervention each time a patient is seen).

Many populations of tobacco users may be reluctant to quit, find it hard to quit, or be at greater risk for adverse health outcomes from tobacco use; these special populations include people who have psychiatric and medical comorbidities, deployed military personnel, and hospitalized people. Tobacco addiction is much more prevalent in people who have mental illness, including schizophrenia, major depression, posttraumatic stress disorder (PTSD), and alcohol abuse. That is of concern given the increased numbers of veterans returning from the conflicts in Iraq and Afghanistan with PTSD and the number of Vietnam veterans who have PTSD. The PHS clinical-practice guideline provides evidence-based treatment protocols for many special populations.

The issue of relapse from tobacco abstinence is well known; as many as 75% or 80% of smokers who quit tobacco use will relapse within 6 months. Relapse-prevention interventions include social support, use of medications, and avoidance of smoking cues.

Comprehensive tobacco-control programs also require surveillance information to help staff to modify the programs to meet changing needs or to address disparities. Surveillance can indicate whether policies are being enforced, medications are being correctly prescribed, quitlines are being used, public-education campaigns are reaching target audiences, interventions are improving health outcomes, and funds are being spent appropriately. Established performance measures should be used to monitor program improvements. Surveillance tools should be designed and operated to provide the necessary foundation for program evaluation, which should be periodic and thorough and whose results should be disseminated publicly.

DEPARTMENT OF DEFENSE TOBACCO-CONTROL ACTIVITIES

DoD and each of the armed services have a stated goal of a tobacco-free military, but tobacco-control efforts have not been given high priority by the Office of the Assistant Secretary of Defense for Health Affairs, OASD(HA), or the individual services' Office of the Surgeon General. There have been recent signs, however, that tobacco control is receiving more attention with the rollout of DoD's "Quit Tobacco. Make Everyone Proud" public-education campaign. DoD policies to prevent smoking and encourage cessation are outlined in the Code of Federal Regulations, Title 32, Part 85, which charges each armed service to develop its own health-promotion plans. The service plans typically cover where military personnel may use tobacco, requirements for access to tobacco-cessation programs, and specifications about the role of commanders and staff in promoting tobacco cessation and deglamorizing tobacco use.

In 1999, the Alcohol and Tobacco Advisory Counsel in the OASD(HA) developed a Tobacco Use Prevention Strategic Plan that outlined goals and tasks; metrics and objectives; policy, program, practice, and resource requirements; and a timeline. That plan, which is still in effect, has eight goals:

- Reduce smoking rates by 5% per year and reduce smokeless-tobacco use to 15% by 2001.
- Promote a tobacco-free lifestyle and culture through education and leadership.
- Educate commanders in how to encourage healthy and tobacco-free lifestyles.
- Promote the benefits of nonsmoking and provide tobacco counteradvertising.
- Decrease accessibility by increasing tobacco prices and by restricting smoking areas and use.
- Have the MHS identify users and provide targeted interventions.
- Have the MHS provide effective cessation programs.
- Continually assess best practices in tobacco-use prevention.

The strategic plan covers many of the key components that make up a comprehensive tobacco-control plan, including the existence of a strategic plan itself, policy review and development, public-relations and education activities, the use of evidence-based tobacco-cessation interventions, and surveillance and evaluation. It also has requirements for specific policies on tobacco pricing, access, and restrictions of when and where tobacco can be used on installations.

The committee found that DoD and the services had not been able to achieve the goal of reducing smoking rates or rates of smokeless-tobacco use. Tobacco use declined overall from 1980 to 2005, but there has recently been an increase in consumption, possibly because of increased tobacco use by deployed troops.

DoD and the services have promoted tobacco-free lifestyles through public-education campaigns, commander training, a complete ban on tobacco use during basic military training in all the services, and prohibition of tobacco use by training instructors in the presence of students. Tobacco use is addressed in health-education programs, including those for commanding officers. The services also encourage—but do not require—that commanders lead by example with regard to tobacco use. The Air Force has been the most successful in reducing tobacco use, particularly among officers.

Tobacco counteradvertising is a complex issue in the military and is not consistent among the services. DoD's counteradvertising campaign "Quit Tobacco. Make Everyone Proud" includes a Web site, posters, games, and educational materials tailored to young military men. DoD tobacco-cessation activities conducted by health-promotion personnel include health fairs, Web sites, and other activities that raise the profile of tobacco cessation. The committee was unable to determine whether public-affairs staff are engaged in tobacco counteradvertising, but it noted that many of the services' newsletters and Web sites contain articles on tobacco-control activities.

Reaching the goal of decreasing the accessibility and availability of tobacco products by pricing and tobacco-use restrictions will require actions beyond the authority of DoD. DoD does not have complete autonomy with regard to the pricing of tobacco products and is subject to Congressional oversight on this issue. Tobacco products are offered at a discount in military commissaries and exchanges, and the committee believes that DoD should not subsidize an activity that adversely affects military readiness and health. The committee finds that DoD and the services have restricted tobacco use to designated areas on installations but believes that primary and secondary exposure to tobacco smoke could be reduced if the restrictions were extended to decrease the number of such areas, extend the tobacco ban from basic military training to technical training, and prohibit tobacco use in medical-treatment facilities.

The committee commends DoD for its efforts in identifying tobacco users. All the armed services require that the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* be used by health-care providers. The guideline, a joint effort of VA and DoD, is modeled on the 2000 PHS clinical-practice guideline *Treating Tobacco Use and Dependence*. It provides a military and veteran focus for tobacco-cessation interventions. All service members are to be asked about their tobacco status during their annual physical and dental examinations, and the information is to be included in the patients' medical records. DoD's success in providing targeted interventions to tobacco users is less clear. Although the guidelines call for health-care professionals to advise patients to quit tobacco use and at least refer them for treatment if they indicate willingness to make a quit attempt, adherence to this practice is not monitored. Targeted interventions are available and are described in the VA/DoD guideline. The treatment options used by the services are variable, and their long-term effect on abstinence rates in active-duty personnel or their families has not been evaluated.

The committee believes that DoD should provide a nationwide quitline for military personnel and their families in addition to the computer-based program "Quit Tobacco. Make Everyone Proud". A national quitline would offer consistency regardless of where service members were stationed. Quitline counselors should be trained to deal with military-specific issues, such as deployment and PTSD.

Many installations make available tobacco-cessation programs that include counseling and medication, but not all do. The committee is pleased to note that the 2009 DoD appropriation bill included a provision for TRICARE, part of the MHS, to cover smoking-cessation treatment for its beneficiaries. The committee hopes that that coverage will include treatment for smokeless-tobacco use, a growing problem in the military.

DEPARTMENT OF VETERANS AFFAIRS TOBACCO-CONTROL ACTIVITIES

VA has long been engaged in efforts to promote tobacco cessation in veterans. VA researchers have been at the forefront of advances in tobacco-cessation treatments. Nevertheless, veterans served by the VA health-care system continue to have higher rates of tobacco use than their general-population counterparts, although not as high as those of military personnel. That suggests that many veterans quit using tobacco, but with tobacco use increasing in the military, it is likely that many new veterans accessing the VA health-care system will also be tobacco users, especially those who have been deployed in Iraq and Afghanistan.

Like DoD, VA has many components of a comprehensive tobacco-control plan already in place, including effective and enforceable policies, communication mechanisms, surveillance activities in the form of performance measures, and periodic evaluation of tobacco-control practices. VA has developed a National Smoking and Tobacco Use Cessation Program, and it has recently strengthened its Smoke-Free Policy for VA Health Care Facilities. But in its efforts to become entirely tobacco-free, the department has been thwarted by congressional legislation that requires VA medical facilities to have designated smoking areas for veterans and employees. The committee finds that such a requirement prevents VA from protecting its patients,

employees, and visitors from possible exposure to secondhand smoke and prevents it from promoting the health of its more vulnerable patients, those who smoke.

Virtually all the VA medical centers (VAMCs) have some form of tobacco-control program, although the programs are not standardized or uniform. Each VAMC must designate a smoking and tobacco-use cessation lead clinician to be the point of contact for all clinical and other communications on tobacco cessation. However, the committee finds that that position is typically not full-time, and the lead clinicians may have other responsibilities that take precedence. The committee also finds that the availability of tobacco-cessation services in VA community-based outpatient clinics (CBOCs), other than the required access to medications and brief counseling, is highly variable: some CBOCs have trained staff who offer group or individual counseling, and others only refer patients to outside community services.

Use of the *VA/DoD Clinical Practice Guideline for the Management of Tobacco Use* has been encouraged by the VA Office of Public Health Policy and Prevention, and it has been included in the National Smoking and Tobacco Use Cessation Program. The guideline highlights the effectiveness of using the 5 A's for each patient. VA has been successful in ensuring that all patients are asked about their tobacco status, are advised to quit, and are referred to a tobacco-cessation program; these prompts are included in patients' electronic medical records and are performance metrics for evaluating VA health-care providers. But adherence to the guidelines beyond the minimal effort required by the prompts in the medical records is variable.

VA appears to offer a broad array of tobacco-cessation counseling interventions to patients, but there is little information on the effectiveness of these interventions for veterans. The guidelines do not specify particular tobacco-cessation programs to be used, and VA uses several standard programs, including those of the American Cancer Society and the American Lung Association. The committee does not know whether VA tailors the programs to address special needs of veterans.

The VA/DoD clinical-practice guideline and the PHS guideline provide recommendations for evidence-based treatment of special populations that seek medical care at the VA. Those populations include older patients, hospitalized patients, and patients who have mental-health disorders. The committee believes that the guidelines provide a good treatment framework.

The committee believes that veterans would benefit from a national VA quitline for tobacco, possibly supplemented by a computer-based cessation campaign similar to the DoD "Quit Tobacco. Make Everyone Proud" Web site. A national quitline has the advantage of consistency of service regardless of where veterans are. Quitline counselors should be trained to deal with veteran-specific issues, such as PTSD. Evidence shows that people who have mental-health disorders are willing and able to engage in tobacco cessation and should be encouraged to do so. The committee believes that VA should assess whether quitline counselors can provide tobacco-cessation medications to veterans as in the private sector without the need for veterans to obtain prescriptions from their health-care providers, particularly for over-the-counter medications, such as nicotine-replacement therapy.

Performance measures that assess health-care providers are a good start for improving care, but the effect of that care on patient outcomes might be even more important. The committee believes that VA should evaluate the long-term effect of its tobacco-cessation programs on abstinence rates. Such information would help to show where programs could be improved or replaced.

FINDINGS AND RECOMMENDATIONS

DoD and VA have made many strides toward reducing tobacco use in military and veteran populations, respectively, and their efforts have generally been associated with a decrease in smoking. But tobacco use continues to impair military readiness and cause substantial morbidity and mortality in military personnel, their families, and veterans. The

committee believes that although DoD and VA are actively engaged in developing, identifying, and implementing tobacco-cessation programs, they lack a comprehensive tobacco-control program. Table S-1 summarizes the committee's findings and recommendations.

TABLE S-1 Findings and Recommendations for the Department of Defense and the Department of Veterans Affairs

Findings	Recommendations
Tobacco use in the US military and veteran populations exceeds that in the general population. Tobacco use: • Impairs military operational readiness. • Is a cause of increased morbidity and mortality in active-duty military personnel, retirees, veterans, and family members. • Results in increased health-care costs for tobacco users and their families, DoD, VA, and the general public. • Creates a patient pipeline from DoD to VA.	
DoD and the armed services have stated goals of being tobacco-free but have not achieved those goals.	The goal of a tobacco-free military service may be achieved incrementally. DoD and the armed services can use several mechanisms to intensify their efforts to reach the goal: • Set a specific date by which the military will be tobacco-free and make compliance in all the armed services mandatory. Require each service to develop and enforce a timeline for achieving tobacco-free status. • The military academies, officer-candidate training programs, and university-based ROTC programs should become tobacco-free first; followed by new enlisted accessions, and then all other active-duty personnel.
Tobacco control does not have a high priority in DoD or VA. Neither department has instituted a comprehensive tobacco-control program. Existing programs are not comprehensive, standardized, or consistently enforced.	DoD, the armed services, and VA should raise the priority given to tobacco control throughout their organizations. DoD, the armed services, and VA should develop comprehensive, integrated tobacco-control programs with timelines for benchmarks and strategies for achieving them. The departmentwide plans should encompass tobacco-use restrictions, sales restrictions (in DoD only), communication interventions, treatment interventions (including those for special populations), treatment delivery (such as clinical settings, quitlines), surveillance mechanisms, and periodic program evaluations.
Tobacco use by military personnel and veterans is not denormalized.	DOD and VA should take the following actions to denormalize tobacco use: • Eliminate tobacco use on military installations and in VA medical facilities using evidence-based practices and for the DoD, a phased-in approach. • Eliminate the sale of tobacco products on all military installations. At the very least, prohibit the sale of tobacco products in Army and

Findings	Recommendations
	Air Force commissaries (Navy and Marine Corps commissaries do not sell tobacco products). • Should tobacco products be sold at military installations (exchanges and package stores), they should be priced at least on par with local civilian retail prices and preferably higher than the average prices in the community. Funds generated by the differential pricing should be used for tobacco-control activities. • Enforce equal work breaks for all employees.
DoD and VA have many components of a comprehensive tobacco-control programs in place, but they lack: • Effective, committed, and supportive leadership at the highest levels of the departments. • A chain of accountability for program execution. • Engaged and properly trained staff in all health-care and health-promotion facilities. • Adequate resources, including infrastructure and funding of all facilities. • Sufficient performance metrics to drive program improvement.	As part of a comprehensive tobacco-control program, DoD and VA should: • Place authority for developing tobacco-control policies and strategies in a single high-level entity in DoD. In VA, the secretary and the under secretary for health should actively promote tobacco cessation. • Ensure that the surgeon general of each armed service and individual installation commanders are accountable for DoD program implementation and enforcement and that VISN directors are accountable for VA program implementation and enforcement. • Educate all DoD and VA health-care and health-promotion staff in tobacco-control practices and train health-care providers in the 5 A's. • Provide all DoD and VA staff and patients with barrier-free access to tobacco-cessation services if they use tobacco. • Ensure that there are adequate resources, including infrastructure and funding, at all facilities. • Inventory tobacco-cessation programs at each military installation and DoD and VA medical facility, and ensure that a trained tobacco-cessation counselor is available in each facility. • All DoD and VA health-care providers, including counselors, should be able to provide brief counseling and nicotine-replacement therapy to patients. • Report publicly and regularly on the performance of their tobacco-control programs, adherence to clinical-practice guidelines, and tobacco-cessation rates.
DoD and VA have established many best practices in tobacco cessation. Widespread adoption of the practices is essential for predictable and consistent tobacco-cessation services in DoD and VA.	The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* should be updated and harmonized with the Public Health Service clinical-practice guideline on tobacco management. DoD and VA should develop and implement standards for the content and evaluation of tobacco-cessation counseling.
There is a strong association between tobacco addiction and mental-health problems, including anxiety disorders (such as PTSD), mood disorders (such as depression and bipolar disorder), schizophrenia, and substance abuse (alcohol and illicit drugs).	DoD and VA should follow the VA/DoD and Public Health Service guidelines for treating tobacco use in patients who have mental-health disorders. Mental-health professionals should receive training in tobacco-cessation treatment and provide assistance to any patients who are willing to try to quit.
Legislative support is essential for a comprehensive tobacco-control	Congress should: • Repeal the Veterans Health Care Act of 1992 (PL 102-585, §526) to

Findings	Recommendations
program in DoD and VA.	allow VA health-care facilities to become completely tobacco-free. • Expand the 2009 National Defense Authorization Act Section 713, "Smoking Cessation Program Under TRICARE", to include smokeless-tobacco cessation treatment. • Direct DoD to sell tobacco products at prices at least equal to and preferably greater than local civilian retail prices.
DoD and VA research contributes to identifying effective tobacco-control programs, particularly for special populations, such as those with mental-health and substance-abuse problems.	DOD and VA should develop and fund a joint comprehensive research plan on tobacco control in military and veteran populations.

RESEARCH AGENDA

The committee was struck by several gaps that might be filled with appropriate research by DoD and VA. Of critical importance is the lack of information in both organizations about the success of their tobacco-cessation programs, particularly long-term abstinence rates. Without such information, it is difficult to assess which programs are working for military personnel, retirees, and their families, and for veterans and what might be done to improve them.

Research should be addressed to finding healthy substitutes for tobacco as a stress and boredom reliever during deployment. Deployed personnel use more smokeless tobacco; DoD should fund research on the determinants of smokeless tobacco use, on its long-term health effects, and on interventions to reduce its use.

The VA has conducted considerable research on tobacco use by veterans who have mental-health disorders, particularly PTSD, but more work needs to be done. Research should focus on the timing of interventions and on the use and possible interactions of tobacco-cessation medications and psychiatric medications. Given the number of veterans and military retirees with comorbid medical and psychiatric conditions, the committee recommends that DoD and VA consider jointly funding research on the effects of tobacco use on these conditions and on tobacco-cessation interventions for these populations.

The committee concludes that although DoD and VA have demonstrated a continuing commitment to the health of military personnel and their families and of veterans, respectively, particularly with respect to tobacco control, much remains to be done. Given the effects of tobacco use on military readiness and on the health of military personnel, retirees, families, and veterans, the time has come for DoD and VA to assign high priority to tobacco control.

1

INTRODUCTION

Tobacco use is the most preventable cause of death in the world (WHO, 2008). Each year, over 400,000 Americans die of tobacco-related causes, including military personnel and veterans. In 2005, 32% of active-duty military personnel and 22% of all veterans smoked, compared with just over 20% of the US adult population. The prevalence of smoking is over 50% higher in military personnel who have been deployed than in those who have not. In addition, an alarmingly high number of service members use smokeless tobacco. Because tobacco use is greatest among the youngest service members, the health effects will be greatest among older veterans as the population ages. Thus, reducing the number of tobacco users in the military will reduce the number of veterans with tobacco-related health problems.

Tobacco use has broad implications for both the Department of Defense (DoD) and the Department of Veterans Affairs (VA). It adversely affects military readiness, harms the health and welfare of military retirees and other veterans, and costs our nation millions of dollars in lost productivity and increased health care. In addition to the multitude of health problems that tobacco use causes, such as cardiovascular and respiratory diseases and cancer (US Surgeon General, 2004, 2006), it has been implicated in higher dropout rates during basic training,[1] poorer visual acuity, a higher rate of leaving the service during the first year, and a higher rate of absenteeism in active-duty military personnel. In 1995, about one-sixth of deaths in the DoD population (including military retirees) were attributed to smoking; cardiovascular disease, neoplasms, and respiratory disease accounted for virtually all these deaths (Helyer et al., 1998).

Since the 1960s, as the deleterious effects of tobacco have become more widely known, its use in both military and civilian populations has decreased. In 1964, almost half the US general population smoked, as did an equal proportion of military personnel; by 2005, the proportion had decreased by more than half in the general population but was still 32% in military personnel (DoD, 2006). The sharp drop in the prevalence of tobacco use was the result of numerous national and state programs tailored to schools, businesses, and health-care facilities, such as a national education campaign aimed specifically at youth most at risk for tobacco initiation, a public-health campaign highlighting the dangers of smoking and of secondhand smoke, advances in treatment for tobacco use, prohibition of the use of tobacco products in public and private areas by facilities and locales, explicit recognition of the rights of nonsmokers to a tobacco-free environment, and the efforts of many states to curb tobacco use through increased taxes.

Many of the education campaigns and restrictions on tobacco use have been extended to DoD and VA and have resulted in a decrease in tobacco use among service members and

[1]Military recruits who enlist in one of the four branches of the US military begin their service by attending basic training or boot camp, which lasts for 8–12 weeks, depending on the branch of service. The specific term used to describe this training varies among the branches. For simplicity, we use the term *basic training* to describe entry-level training in connection with all branches of the US military.

veterans. Recently, however, possibly as a result of deployments to Iraq and Afghanistan, tobacco use has increased among soldiers and marines serving in and returning from those areas.

The military and veteran populations differ in some respects from the general US population. For example, military populations are overwhelmingly male, younger, healthier, and less educated; veteran populations are predominantly male, older, and of lower socioeconomic status and are more likely to be in poorer general health than either the military population or the general population. The populations considered in this report include military retirees and, to a lesser extent, spouses and dependents; the veteran populations considered are primarily men and women eligible to receive health care through the Veterans Health Administration. This unique combination of demographic factors may require some modification of general-population tobacco-control programs to address the specific needs of military and veteran populations.

Despite the obvious benefits to military readiness and to the health of service members and veterans of reducing tobacco use, there is a perceived right among deployed military personnel to use tobacco. For instance, some military and civilian decision-makers do not believe that those willing to risk their lives for their country should be told or even be encouraged to quit using tobacco, particularly while they are deployed to a war zone. In addition, as a result of congressional interest, tobacco-industry influence, and a culture that does not stigmatize tobacco use, tobacco products are readily available and sold at a discount in military commissaries and exchanges. The contradiction between health promotion and tobacco use was observed by Smith et al. (2007): "The military is unique as a tobacco retailer: it pays for the health consequences of tobacco use for many of its customers, making it perhaps the only tobacco retailer consistently losing money. Unlike most retailers, the military has a special interest in its patrons, whose fitness is necessary to the military's mission."

Many military tobacco-users will eventually enter the VA health system or the DoD TRICARE health-care system. Those two health-care systems bear much of the burden of care; thus, each has a vested interest in assisting active-duty and retired military personnel and veterans to stop using tobacco.

The use of smokeless tobacco is increasing in military populations, particularly among young men deployed to Iraq and Afghanistan; many young military personnel use both cigarettes and smokeless tobacco. Although most young people who use cigarettes or smokeless tobacco have begun to do so by the age of 18 years, many young people in the military initiate tobacco use, including dual use (use of both smoked and smokeless tobacco), after they complete basic training, during which there is servicewide prohibition of tobacco use.

Although overall tobacco use in DoD personnel is about 32%, it varies considerably among the services. In 2005, over 38% of the men and women in the Army, over 36% of Marine Corps personnel, and 32% of Navy personnel were current tobacco-users. Only the Air Force at 23.3% had a tobacco-use rate similar to that of the civilian population (DoD, 2006).

Tobacco use in the veteran population is also widespread, partly because of the higher rates of disability, psychiatric disorders, and morbidities. Although the overall prevalence of smoking in veterans enrolled in the VA health system is only slightly higher than that in the general population, the prevalence of smoking in veterans with mental-health disorders is 2–3 times higher than that in the general population (VA, 2004).

CHARGE TO THE COMMITTEE

Although DoD and the VA are promoting tobacco-free and tobacco-cessation efforts, substantial challenges in reducing the prevalence of tobacco use in their populations remain. The challenges range from the ingrained smoking habits of new recruits to congressional requirements for smoking areas at VA medical facilities. In the face of such obstacles, DoD and VA struggle to identify and implement the most effective approaches to reach populations at high risk of tobacco use. To overcome those challenges, DoD and VA asked the Institute of Medicine (IOM) to convene a committee to identify ways to maximize the efficacy of their

current tobacco-free and smoking-cessation programs and to provide guidance on what future modifications might be most effective. DoD and VA requested that the IOM committee offer recommendations as to how the agencies could work together to improve the health of both active-duty and veteran populations with regard to the initiation and cessation of tobacco use. Specifically, the agencies asked that the committee:

1) Identify policies and practices that might by used by DoD and VA to prevent initiation of smoking and other tobacco use in the military.
2) Identify policies or potential barriers that might inhibit broader implementation of evidence-based tobacco-use cessation care in both DoD and VA.
3) Identify opportunities for increased access to evidence-based smoking and other tobacco-use cessation programs in VA and DoD.
4) Evaluate changes, including changes in policy, that could help to lower rates of smoking and other tobacco use in military and veteran populations.
5) Identify policies and practices that address unique tobacco-use prevention and cessation needs of special populations in DoD and VA, including those with psychiatric or substance-use disorders, those with chronic medical comorbidities, and women.
6) Recommend research approaches for reducing initiation of tobacco use and promoting tobacco-use cessation.

In response to the agencies' request, IOM convened the Committee on Smoking Cessation in Military and Veteran Populations, which wrote this report. In reviewing the original statement of task, the committee felt it appropriate to modify the language slightly from "smoking" to "tobacco" so that all tobacco products, particularly smokeless tobacco, would be included; the statement of task above reflects the committee's modifications. The committee did not modify the language used in the various studies cited in the report; if a published study indicated that smoking was the focus, the committee cited the study as being about smoking, not tobacco use. The committee was not tasked with assessing the implications of tobacco use on veterans' disability claims or compensation. And it did not review the health effects of exposure to secondhand smoke in detail or consider policies and programs to reduce exposure to it. The committee recognized, however, that reducing the use of tobacco by military personnel and veterans would inevitably reduce exposure of their dependents, colleagues, and others to secondhand smoke.

COMMITTEE'S APPROACH TO ITS CHARGE

The committee had several goals: to review current efforts by DoD and VA to reduce tobacco use and dependence; to make recommendations for a comprehensive approach to control of tobacco use that would lead to eliminating tobacco use and dependence in all military personnel and veterans in the VA or DoD system; to help DoD become tobacco-free by preventing initiation, thus improving the health and readiness of military personnel and eventually improving veteran health; to help military personnel who do use tobacco to quit and remain abstinent; and to help veterans in the VA health-care system to avoid or quit using tobacco. The committee also hoped to provide additional tobacco-cessation guidance to military personnel and veterans who have such conditions as posttraumatic stress disorder and other mental-health problems.

The committee began its work by holding two information-gathering sessions with representatives of the VA, DoD TRICARE Management Activity, the Air Force, the Navy, the Army, experts in the area of smoking cessation programs and policies, and veterans' service

organizations. In addition, literature searches were conducted, and the committee reviewed relevant documents; information was also requested and obtained directly from DoD and VA.

The committee assessed current tobacco-use policies and practices in DoD, VA, and other organizations, such as Kaiser Permanente; addressed such issues as treatment, existing policies, programs, infrastructure, and special populations; and made recommendations for improving efforts. The committee was asked to focus on evidence-based tobacco-control programs and policies in its report and interpreted this to mean assessment of policies, programs, and activities that used appropriate methods and whose results were published in widely accepted and used peer-reviewed journals. To evaluate the current policies and programs systematically and provide guidance for future directions for tobacco control in VA and DoD, the committee first identified the evidence base that forms the best practices; in general, the evidence base consists of successful programs and approaches used in the general US population. The committee then determined whether DoD and VA were using those best practices or a similar approach. If not, the committee identified possible obstacles to their implementation and made recommendations on how to overcome them from both a policy perspective and a programmatic perspective, including identification of who must implement the recommendations. If the practices were in use, the committee attempted to determine whether they were being used effectively, and what possible modifications might be necessary to increase their effectiveness for particular DoD and VA populations. The committee found that there was a lack of information on whether the tobacco control policies and regulations established by the DoD were in fact enforced on military installations and, if so, to what extent. There was also a lack of information on tobacco cessation programs for the DoD, the armed services, and individual military installations. The committee found the presentations from the representatives of each of the armed services on current practices regarding tobacco control to be very helpful, but the committee was aware that the representatives did not provide a comprehensive assessment of what tobacco control activities occur throughout their service and on individual military installations. The VA has conducted surveys and held forums that provide more helpful information on the tobacco-control activities at some VA health facilities and these resources are cited throughout this report.

The committee considered how general tobacco-control strategies used in aiding regions, states, and even nations in decreasing tobacco use and dependence could be specifically tailored to DoD and VA. *Tobacco control* is used for a broad array of tactics that reduce tobacco use through policies and prevention and treatment interventions; efforts range from the population to the local agency level. The strategies recognize the need for systems change and for a comprehensive plan to address the unique aspects and complexities of DoD and VA.

Most tobacco-control specialists have a public-health orientation and focus on mechanisms to reduce tobacco use and its consequent health-care burden at the population level. They work to reduce or prevent tobacco use on a large scale—the national, state, or regional scale. Examples of effective population-scale policies and interventions include increasing the cost of tobacco products, bans and restrictions on tobacco use, reducing out-of-pocket costs for treatment of tobacco addiction, counteradvertising campaigns, telephone quit lines, and multicomponent smoking-cessation campaigns (VA, 2004). The focus of tobacco control is often different for health-care providers, who deal with nicotine dependence on an individual level. For example, they attempt to help soldiers or veterans who have smoked a pack of cigarettes a day for 10 years to quit. Their concerns are related to whether a person is receptive to the idea of quitting, whether the pharmacy carries the appropriate addiction therapies, and whether the person will go to the suggested counseling sessions. Tobacco-treatment specialists are also an integral component in the continuum of tobacco-control interventions. In addition to treatment, there is a need for system change at the local level to enact program changes that will increase the likelihood of health providers helping users to quit. Local program change implies culture change and requires strong leadership; clear patient, staff, and environmental goals; strategic plans that include specific objectives and tactics; and policies to promote the sustainability of the change efforts.

A comprehensive tobacco-control plan in VA and DoD will require system change and should consider tobacco-control tactics at both the macro level and the micro level. In this report, the committee discusses the need for an integrated and comprehensive plan for DoD and VA to use in developing and implementing the necessary policies and programs to eventually achieve a tobacco-free military and veteran population. In addition to a comprehensive plan, there is a need to identify which programs and treatments are most beneficial for treating nicotine dependence in the various military and veteran populations; clear evidence-based practices for the general population are available. And there is a need to continue research in VA and DoD settings to improve treatments for those with co-occurring mental disorders.

To achieve those goals, it will be necessary to institute changes in DoD and VA at numerous levels and in several domains. The points at which change must occur vary from the highest levels of influence (such as the secretary of defense or the secretary of veterans affairs) down to the individual military member and veteran. Effective changes require numerous functional components, such as organizational capacity, adequate human and material resources, coherent and enforceable policies, and effective and appropriate communication. The committee has attempted to provide structured guidance for DoD and VA on what must be done to identify the necessary changes at all levels; implementation of the recommendations would ideally achieve a comprehensive and integrated tobacco-control program that improves the readiness of the military and the health of military personnel, veterans, and their families.

The committee acknowledges and commends the efforts of VA and DoD in working to develop and implement tobacco-control programs. Many of the programs are based on those developed by such organizations as the American Lung Association and the American Cancer Society; however, the latter programs were not tailored to military and veteran populations. The committee recognizes that it is seeing only a snapshot of the policies and programs being used by DoD and VA; programs vary among services, among military installations, and within each VA medical facility.

Numerous national and international organizations have considered the issue of tobacco use and have developed comprehensive programs to aid in its reduction. For example, IOM, the National Quality Forum, the Public Health Service (PHS), the Agency for Healthcare Research and Quality, the National Cancer Institute (NCI), the American Cancer Society, the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO) have all provided guidance on tobacco-control policies and practices. The committee found several reports to be important reference points for its deliberations, including the recent IOM report *Ending the Tobacco Problem: Blueprint for the Nation* (IOM, 2007), PHS's *Clinical Practice Guideline: Treating Tobacco Use and Dependence: 2008 Update* (Fiore et al., 2008), CDC's *Best Practices for Comprehensive Tobacco Control Programs* (CDC, 2007), NCI's *ASSIST: Shaping the Future of Tobacco Prevention and Control* (NCI, 2005) and *Evaluating ASSIST: A Blueprint for Understanding State-level Tobacco Control* (NCI, 2006), and WHO's *Building Blocks for Tobacco Control: A Handbook* (WHO, 2004). Although both CDC and NCI provide a framework for developing and implementing a comprehensive tobacco-control program, the committee found that many aspects of the frameworks were not applicable to DoD or VA; rather, they were intended for states or local governments. Neither department has taxing capability, both must answer to Congress for any substantial changes in operations, military and veteran populations are not representative of the general US population, and their missions differ from those of state or local governments. Furthermore, DoD and especially VA have populations with a high prevalence of comorbid health problems such as psychiatric disorders (particularly PTSD), which may make them more susceptible to tobacco addiction, and cardiovascular, pulmonary, and other diseases that may make them more susceptible to adverse health effects of tobacco use. Therefore, although the committee discusses the use of numerous evidence-based methods for effective tobacco-cessation programs, the unique characteristics of DoD and VA make parallels difficult.

In some cases in which there is no direct evidence to support specific findings and recommendations; the committee has used its expert judgment making its findings and recommendations.

ORGANIZATION OF THE REPORT

Chapter 2 provides background information on why tobacco use is of concern for DoD and VA. It discusses impairment of military readiness and the short-term and long-term health effects of tobacco use. The short-term effects are of great importance for military personnel; the long-term effects will be evident in retired military personnel and their dependents and in veterans, especially older ones. Also highlighted is the resulting increase in health-care costs to military personnel, veterans, and the US taxpayer. Chapter 3 explains the socioecologic model that the committee uses to identify the levels at which change must occur for an effective tobacco-control program to be developed and implemented. The levels are applicable to both DoD and VA and range from the individual (soldier, airman, sailor, marine, or veteran) to the societal (government departments and the civilian population); a comprehensive program will be successful if change is implemented throughout all the described levels. In Chapter 4, the committee presents the evidence that supports the need for a comprehensive program for tobacco control in DoD and VA. The chapter describes the key components of comprehensive programs developed by other organizations, such as state governments, that have proved successful in reducing tobacco consumption in other populations: communication interventions, such as counteradvertising and public-education campaigns; tobacco-use restrictions in the workplace, educational settings, and outdoor spaces; the tobacco retail environment; tobacco-cessation interventions, such as counseling and medication; delivery mechanisms for the interventions, such as quitlines, clinical settings, and computer-based programs; tobacco-cessation approaches for special populations, such as those with mental-health disorders and comorbid medical conditions; relapse-prevention approaches; and surveillance and evaluation. In Chapter 5, the committee looks at DoD through the lens of a comprehensive tobacco-control program and examines what policies, programs, and services the department already has in place that meet the requirements with respect to each of the key components. It also identifies barriers in and outside DoD to the development of a comprehensive program and current policies and practices that might be leveraged to improve prevention of tobacco use and improve tobacco-cessation rates in military personnel who use tobacco. In Chapter 6, the committee takes the same approach to VA with an emphasis on tobacco cessation and the treatment of veterans who have mental-health disorders. Finally, Chapter 7 summarizes the policy and program changes identified in the preceding chapters. It highlights the recommendations that the committee believes will enable DoD and VA to develop and implement a comprehensive, integrated tobacco-control program to reduce tobacco use in military and veteran populations and their dependents, and it identifies future research that could ensure that the programs are effective and that the needs of special populations for tobacco-cessation treatment are met.

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2

SCOPE OF THE PROBLEM

In this chapter, the committee describes why tobacco use is of concern to both the Department of Defense (DoD) and the Department of Veterans Affairs (VA). Specifically with respect to the military, tobacco use impairs readiness, decreases performance, and reduces productivity of active-duty and civilian personnel. In veteran populations, it exacerbates pre-existing health problems and leads to new ones, and it results in increased absenteeism and decreased productivity. Military personnel who use tobacco may eventually enter the VA health system; this means more and sicker veterans who require medical care and, consequently, increases in health-care costs. Tobacco use is also associated with short-term and long-term health problems in all users and in those exposed to secondhand smoke.

Although the adverse effects of tobacco use may be reduced by improving smoking-cessation services, the issues surrounding tobacco use extend beyond helping people to quit. They include keeping those who do not use tobacco from doing so in the future and helping those who have quit from starting to use again.

TOBACCO USE IN MILITARY AND VETERAN POPULATIONS

This report considers the impact of tobacco use on the three military branches in the DoD—the Army, the Air Force, and the Navy. The Marine Corps is a second armed service in the Department of the Navy, but it has a different culture, demographic, and mission and is therefore generally considered a separate entity in the report. The Coast Guard, which has been moved from the Department of Defense to the Department of Homeland Security, is not considered in this report.

Demographics of the Military Population

The total US military population consists of nearly 3.5 million people in all branches, including 800,000 civilian personnel. The military is volunteer-based, and all services are more ethnically diverse today than before 1973 (see Table 2-1a) (DoD, 2006b). As of March 2008, over 1.1 million US troops have served in Iraq and Afghanistan: 806,964 Army personnel (including 146,655 in the Army National Guard and 74,461 in the Army Reserve), 194,401 Marine Corps personnel, 30,868 Navy personnel (including 7,028 reservists), and 70,136 Air Force personnel (Stars and Stripes, 2008). Tables 2-1 and 2-2 summarize the demographics of the US military population, including reservists[2] and family members.

[2]Ready reserve only; for the purposes of this report, the standby and retired reserve components of all military branches have been excluded. All demographics for reserve and National Guard members are reported only for the selected reserve, that is, those members of the ready reserve who train throughout the year and participate in annual

TABLE 2-1 Demographic Profile of the Military Community

	Army	Navy	Marine Corps	Air Force
Active duty	502,790	345,098	180,252	344,529
Reserve[b]	189,975	70,500	39,489	74,075
Guard[b]	346,288	—	—	105,658
Total	1,039,053	415,598	219,741	524,262
Dependents	About 1,400,000	About 580,000	About 200,000	About 760,000
Female Personnel (% of total service)				
Active duty	14.0	14.5	6.2	19.7
Reserve[a]	23.3	20.3	4.7	23.9
Guard[b]	13.5	—	—	18.0
Total	15.5	15.5	5.9	19.9
Minority-Group Personnel (% of total service)				
Black	18.6	17.3	9.9	13.4
Hispanic	9.8	12.4	13.0	5.7
Asian	3.2	6.4	3.2	3.6
American Indian	0.9	3.7	1.8	0.8
White	67.4	60.1	72.1	76.4
Married Personnel (% of total service)				
Active duty	54.7	55.0	45.2	60.6
Reserve[a]	47.5	61.9	30.6	59.1
Guard[a]	46.5	—	—	57.0
Total force	50.7	56.2	42.6	59.7
Personnel With Children (% of total service)				
Active duty	46.2	42.4	30.1	45.8
Reserve[a]	40.2	51.8	20.7	50.4
Guard[a]	40.2	—	—	48.7
Total force	43.1	44.0	28.4	47.0
Single Parent Personnel (% of total service)				
Active duty	6.5	5.1	2.7	4.8
Reserve[a]	8.5	9.6	2.9	9.5
Guard[a]	8.2	—	—	8.5
Total force	7.4	5.9	2.7	6.2

SOURCE: Adapted from DoD (2006b).
[a]Includes only members of the selected reserve.

active-duty training exercises. Demographic profiles of the individual ready reserve and the inactive National Guard—the other two components of the ready reserve—were not available.

TABLE 2-2 Age of the Military Community (years)

	Army	Navy	Marine Corps	Air Force
Active-Duty Officers (%)				
25 and under	14.3	12.3	15.3	13.9
26–30	20.9	20.7	23.3	22.1
31–35	21.4	20.0	24.3	21.0
36–40	19.6	20.0	20.6	19.6
41 and over	23.8	27.1	16.4	23.4
Active-Duty Enlisted (%)				
25 and under	52.1	50.1	72.4	45.5
26–30	19.9	20.1	14.2	21.0
31–35	13.0	13.4	7.1	13.1
36–40	9.7	10.5	4.2	11.9
41 and over	5.3	5.9	2.1	8.4
Guard and Reserve Officers (%)[a]				
25 and under	5.5	0.6	0.7	1.2
26–30	9.2	4.6	4.9	7.4
31–35	14.8	2.8	17.1	14.3
36–40	23.3	31.5	31.1	23.8
41 and over	47.3	60.6	46.2	53.5
Guard and Reserve Enlisted Members (%)[a]				
25 and under	43.4	17.9	72.8	23.0
26–30	16.0	15.1	15.0	14.8
31–35	9.5	18.9	6.0	13.3
36–40	12.2	24.2	3.7	16.4
41 and over	18.8	23.8	2.5	32.5
Retirees				
Retired with 20+ years of active service	438,590			
Retired with 20+ years reserve service	260,737			
Total	778,682			

SOURCE: Adapted from DoD (2006b); retiree information from Army (2006).
[a]Includes only members of the selected reserve.

Demographics of the Veteran Population

In 2008, there were an estimated 26.5 million US veterans, 7.8 million of whom were enrolled in the VA health-care system. Of the 7.8 million, 45.1% are at least 65 years old, 41.0% are 45–64 years old, and 13.9% (fewer than 1 million) are under 45 years old. In 2000, about 7.5% (1.6 million) of the veterans enrolled in the VA health-care system were women. The largest group of veterans using the VA health-care system (36%) consists of those who served during the Vietnam era (1965–1974), followed by those who served between the Korean and Vietnam wars (1955–1964) (29%), military personnel who served between Vietnam and the 1990–1991 Gulf War (23%), and those who served in World War II (19%), Korea (18%), and

during the Gulf War era (1991-2001) (13%). Of those using the VA health-care system, 60% have no private or Medigap insurance; and two-thirds of veterans enrolled in the VA health-care system have an annual income of less than $20,000/year. Of enrolled veterans, 84% are white, 10% are black, 4.6% are American Indian or Alaskan Native, 0.7% are Asian, and 0.5% are native Hawaiian and other Pacific Islander (VA, 2006b).

In 2004 (the most recent year for which data are available), the national unemployment rate of VA enrollees was estimated to be 15.6%, which is substantially higher than the average annual unemployment rate of 5.5% in the general population. VA attributes that high rate to higher rates of disability. A 2007 survey of recently separated veterans, most of whom had served in Iraq or Afghanistan, found that 18% were unemployed; of those who were employed, 25% earned less an $22,000/year (Abt Associates, 2008). In 2005, nearly 67% of the veteran enrollees in the VA health-care system were married, 15% were divorced, 9% had never been married, 7% were widowed, and 2% were separated from their spouses (VA, 2006b).

Tobacco Use in Military Populations

Centers for Disease Control and Prevention (CDC) estimates of smoking prevalence in the general population show that 19.8% of adults in the United States were smokers in 2007, a slight decline from 20.8% in 2006 (CDC, 2008b). Smoking prevalence was higher among men (22.3%) than among women (17.4%) (CDC, 2008b).

Although tobacco use has declined since World War II among military personnel, it remains an important issue for DoD and VA. A series of surveys of health-related behaviors in active-duty military personnel showed that tobacco use within the 30 days before a survey decreased from 51.0% in 1980 to 32.2% in 2005 (see Figure 2-1); this trend was observed consistently among all the services (DoD, 2006a). Smoking rates in 2005 among 18–25 year old military men (42.4%) and women (29.2%) (overall rate, 40.0%) were higher than the overall rate among their civilian counterparts (35.4%) (see Table 2-2) (DoD, 2006a). Despite the decline, there has recently been an increase (within the preceding 30 days) from 1998 (29.9%) to 2005 (32.2%) among the services (DoD, 2006a).

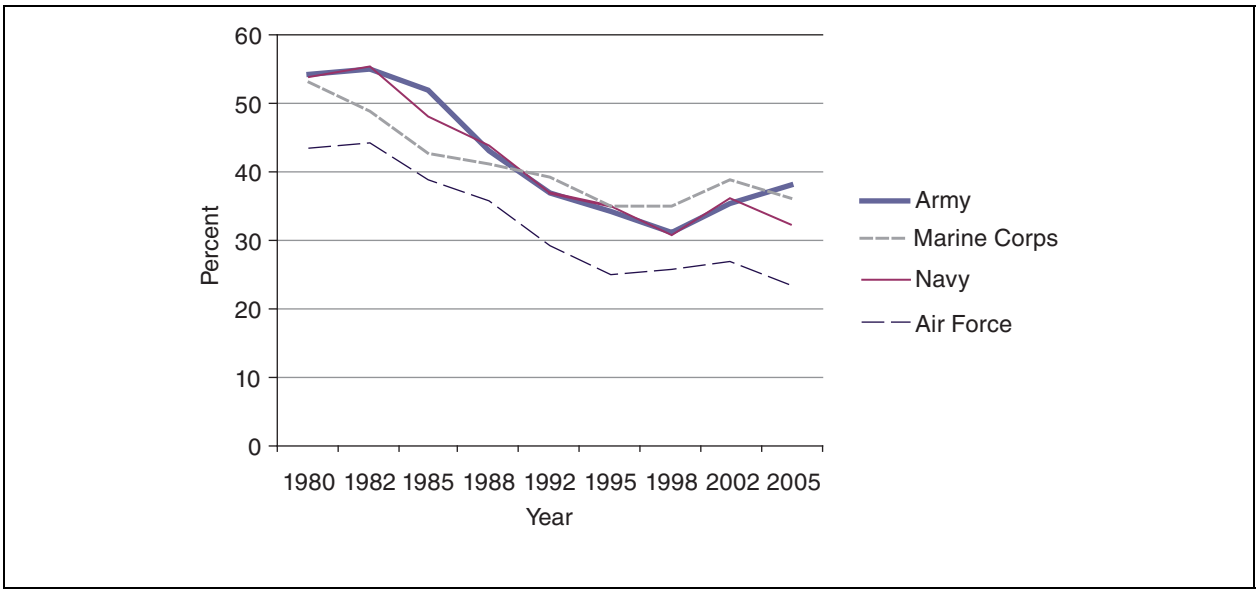

FIGURE 2-1 Cigarette use in preceding 30 days, by service (1980–2005).
SOURCE: DoD (2006a).

In the general population, lower levels of education and living below the poverty line are associated with a higher prevalence of smoking in all age groups (Agrawal et al., 2008; Barbeau et al., 2004). The Institute of Medicine noted that in the general population the most vulnerable subpopulations for long-term smoking are young people who start smoking early, people who have low socioeconomic status (SES) or are less well educated, and some racial and ethnic minorities (IOM, 2007).

Associations in the military parallel those in the general population as tobacco use is more prevalent among military personnel who are younger, less well educated, and of lower SES. Current cigarette use in the military is more likely among men, those who are white, have less than a college education, are younger than 34 years old, and are enlisted versus officers (Bray and Hourani, 2007; DoD, 2006a; Haddock et al., 1998). Age at which daily smoking begins is typically in the few years prior to age of entry into the military—that is prior to 20 years of age (see Figure 2-2). A 1998 survey of 2,002 Naval recruits, half of whom were 18 years of age, found that 51% of all the recruits had used tobacco in the 30 days prior to enlistment, primarily cigarettes (38%) or cigars and pipes (27%), with less smokeless tobacco use (12%); most cigarette smokers averaged about 0.5 packs per day (Ames et al., 2002). A 2003 survey of 15,556 male Marine Corps recruits (mean age 19.5 years) completing basic training found that 40.4% were users of a tobacco product in the 30 days prior to entering the military, primarily cigarettes; 7.6% used only smokeless tobacco and 18.4% used both smokeless tobacco and cigarettes (Trent et al., 2007). Careerists in the enlisted ranks were significantly more likely to be current smokers and heavy smokers compared with careerist officers (Cunradi et al., 2008). In a study of military retirees (1,371 men and 1,095 women) only 131 men and 75 women were current smokers, although 418 of the women and 928 of the men were ex-smokers (Talcott et al., 1998). In a survey of 589 Air National Guard members, the overall smoking prevalence was 19%, with the heaviest smokers (one or more packs per day) being enlisted personnel in the middle and highest pay grades; there was no smoking reported among the junior officers (Messecar and Sullivan, 2001).

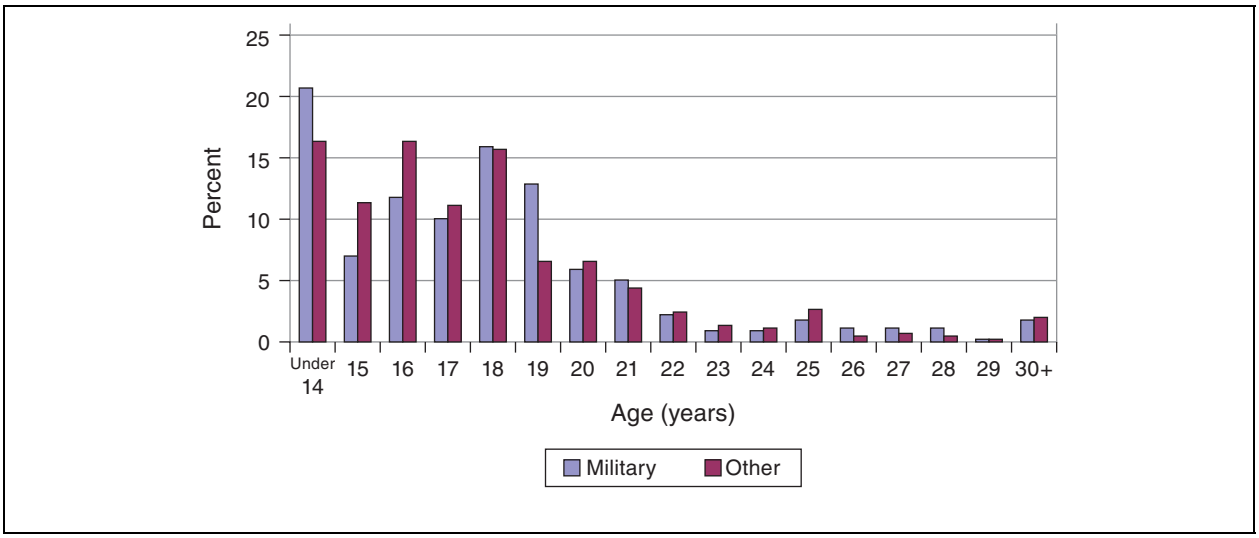

FIGURE 2-2 Age (years) at initiation of daily smoking by people who reported ever smoking for 30 consecutive days.
SOURCE: Adapted from SAMHSA (2008).

Tobacco use varies greatly among the services (see Table 2-3) (Conway, 1998). Army personnel (37.3%) and Marine Corps personnel (35.7%) had a significantly higher prevalence of cigarette-smoking than DoD civilians (28.9%); the Air Force, however, had a significantly lower prevalence (23.2%) than civilians. Rates of heavy smoking (one pack a day or more) were also

higher in the Army, Navy, and Marine Corps (9.9–15.3%) than in the Air Force (7%). Smoking initiation after entering the military was highest in the Marine Corps (21.6%), followed by the Army (20.5%) and the Navy (18.7%), and lowest in the Air Force (14.5%). The highest rates of cigar and pipe use reported during the preceding 12 months were in the Marine Corps (36.7%) and the Army (30.0%) (DoD, 2006a).

TABLE 2-3 Tobacco Use in the Military (%)

	Army	Navy	Marine Corps	Air Force
Cigarette use and nicotine dependence[a] in preceding 30 days				
Any smoking	38.2	32.4	36.3	23.3
Heavy smoking[b]	15.3	9.9	11.1	7.0
Nicotine dependence	10.8	6.4	9.5	4.8
Prevalence of cigarette-smoking in preceding 30 days by sex and age				
Men				
18–25 years old	49.0	37.8	42.8	37.0
26–55 years old	31.4	25.9	24.8	16.2
All ages	39.4	29.8	36.3	23.3
Women				
18–25 years old	31.7	27.0	29.1	28.1
26–55 years old	19.2	18.6	19.7	18.3
All ages	26.0	22.2	26.6	22.8
Cigarette-smoking initiation in the military[c]				
Men[d]	21.6	19.1	21.7	14.9
Women[d]	13.5	16.0	20.4	12.8
Total[d]	20.5	18.7	21.6	14.5
Men (current smokers)[e]	36.7	36.1	40.5	40.3
Women (current smokers)[e]	34.6	38.1	39.7	33.7
Total (current smokers)[e]	36.5	36.3	40.5	39.0
Smokeless-tobacco initiation in the military among men[f]				
18–25 years old	22.9	12.5	11.1	17.5
26–55 years old	14.2	8.4	6.9	10.3
Total	18.7	10.2	8.5	13.7
Smokeless-tobacco use				
Any smokeless-tobacco use in preceding 12 months	27.7	16.7	33.0	14.5
Any smokeless-tobacco use in preceding 30 days	18.8	11.1	22.3	9.2
Cigar or pipe use				
Any cigar or pipe use in preceding 12 months	30.0	24.5	36.7	21.5

SOURCE: Adapted from DoD (2006a).
[a] Nicotine dependence defined as score of 5 or more on Fagerstrom Nicotine Dependency Assessment.
[b] Heavy smoking defined as smoking one or more packs per day.
[c] Persons who started smoking after joining military.
[d] As percentage of total DoD population, whether current smokers or not.
[e] As percentage of those who identified themselves as current smokers at time of survey.
[f] Persons who started using smokeless tobacco after joining military.

According to the *2005 DoD Survey of Health Related Behaviors among Active Duty Military Personnel* (DoD, 2006a), from 1995 to 2005, the prevalence of smokeless-tobacco use (snuff and chewing tobacco) increased from 13.2% to 14.5%. In 2005, the Marine Corps (22.3%) and the Army (18.8%) reported the highest rates of smokeless-tobacco use (during the preceding 30 days), and the Navy (11.1%) and Air Force (9.2%) the lowest. Most users of smokeless tobacco are men 18–24 years old (DoD, 2006a; Ebbert et al., 2006). A recent study published by Vander Weg et al. (2008) assessed the prevalence of use of alternative forms of tobacco—including bidis, cigars, kreteks (clove cigarettes), pipes, and smokeless tobacco—in a population of Air Force recruits. The authors found that 18.5% of the study population was using an alternative form of tobacco before basic training, including 6.7% who used smokeless tobacco. Men were more likely than women to use smokeless tobacco before basic training, as were whites compared with Asians, Pacific Islanders, blacks, or Hispanics. Higher income was significantly correlated with smokeless-tobacco use in the study population. Participants who had some education beyond high school were less likely to use smokeless tobacco than those with only a high-school education (Vander Weg et al., 2008).

Tobacco Use in Veteran Populations

In a 2005 survey of the VA enrollee population, 71.2% reported that they smoked at least 100 cigarettes during their lifetime; 22.2% were current smokers, a slightly higher proportion than the 19.8% of the general population (VA, 2006b); and 28.1% said that they had never smoked. Most current veteran smokers are 45–64 years old, and most make less than $36,000 a year (VA, 2006b). Higher rates of disability and psychiatric disorders in the veteran population may contribute to higher tobacco use and its health effects. Klevens et al. (1995) noted that the prevalence of ever smoking was 74.2% in veterans and 48.4% in nonveterans. Of those who had not started smoking before the age of 18 years, veterans were more likely than nonveterans to report ever and current smoking (Klevens et al., 1995). Of veterans with access only to the Veterans Health Administration, 25.7% are smokers, compared with 10.8–13.8% of those with access to at least one type of Medicare (fee for service or a health-maintenance organization) (Keyhani et al., 2007).

HEALTH EFFECTS OF TOBACCO USE

In 1964, the US surgeon general published a landmark report *Smoking and Health* that implicated smoking as the cause of a variety of health effects (US surgeon general, 1964). Since then, other reports on smoking from the surgeon general (2004, 2006) and numerous studies have confirmed that smoking causes a multitude of short-term and long-term health effects in people of all ages. The surgeon general has also issued reports on the effects of smoking in women (2001) and on the effects of secondhand smoke on children (2007). Table 2-4 summarizes some of the health hazards associated with tobacco use, many of which are discussed in this chapter.

TABLE 2-4 Health Hazards Posed by Tobacco Use

Health Hazards
Cancer (see Table 2-6)
Cardiovascular disease
Sudden death
Acute myocardial infarction
Unstable angina
Stroke
Peripheral arterial occlusive disease (including thromboangiitis obliterans)
Aortic aneurysm
Pulmonary disease

Lung cancer
Chronic bronchitis
Emphysema
Asthma
Increased susceptibility to pneumonia and to pulmonary tuberculosis
Increased susceptibility to desquamative interstitial pneumonitis
Increased susceptibility to and morbidity from viral respiratory infection
Gastrointestinal disease
Peptic ulcer
Esophageal reflux
Reproductive disturbances
Reduced fertility
Premature birth
Low birth weight
Spontaneous abortion
Abruptio placentae
Premature rupture of membranes
Increased perinatal mortality
Oral disease (smokeless tobacco)
Oral cancer
Leukoplakia
Gingivitis
Gingival recession
Tooth staining
Other
Non-insulin-dependent diabetes mellitus
Impaired wound healing
Osteoporosis
Cataract
Amblyopia (loss of vision)
Age-related macular degeneration
Premature skin wrinkling
Aggravation of hypothyroidism
Altered drug metabolism or effects

SOURCE: Adapted from US Surgeon General (2004).

Short-Term Effects of Tobacco Use

In addition to the widely acknowledged long-term health consequences of tobacco use such as cancer and cardiovascular disease (CVD), tobacco use also adversely affects performance and health on a much shorter time scale. Being tobacco-free is an essential component of physical fitness and provides myriad advantages to military personnel in terms of readiness and performance. In the sections below, the committee considers the performance and short-term health consequences of tobacco use that are of most importance for active-duty military personnel. Box 2-1 at the end of the section summarizes the effects of tobacco use on military readiness and short-term health.

Effects on Military Readiness and Performance

The effects of smoking on military readiness was extensively reviewed in a 1986 report from the US Army Aeromedical Research Laboratory (Dyer, 1986); the sections below summarize that report's major findings and update the literature with additional information from the few new studies available on the subject. The committee was surprised and dismayed by the

lack of recent research on the effects of tobacco use on military readiness, given the number of tobacco users in the military and the need for military readiness during the last decade.

Nicotine Withdrawal

Smoking may impair performance both through direct exposures to nicotine, carbon monoxide (CO), and other tobacco-smoke toxicants and through nicotine withdrawal. Nicotine withdrawal refers to the effects of being unable to take in nicotine when a smoker would usually do so because of lack of tobacco or restrictions on its use. Regular intake of nicotine produces changes in brain chemistry and function, as described in detail in Chapter 3, causing the brain to become dependent on nicotine for normal functioning. In the absence of nicotine, brain function becomes abnormal, leading to withdrawal symptoms, which may include irritability, restlessness, anger, difficulty in concentrating, anxiety, depressed mood, and impaired performance in a variety of attentional, reaction-time, and other cognitive tasks (Sommese and Patterson, 1995). The potential adverse consequences of nicotine withdrawal on military performance, specifically cognitive functions and activities, is discussed below. Although most research indicates that nicotine acts as a stimulant to improve or maintain performance in simple perceptual and reaction-time tasks, there is evidence that smoking results in short-term impairment of performance in complex information-processing tasks (Spilich et al., 1992).

Physical-Work Capacity and Endurance

Smoking impairs strength and physical endurance in part by exposing the smoker to CO, which reduces the oxygen-carrying capacity of blood. Smoking also causes chronic pulmonary inflammation and impairs blood-vessel endothelial function, reducing the vascular dilation associated with physical activity. In most studies, maximal oxygen consumption, reflecting aerobic capacity, is generally similar in young (18–24 years old) smokers and young nonsmokers (Chevalier et al., 1963; Knapik et al., 2001; Krumholz et al., 1965; Maksud and Baron, 1980; Montoye et al., 1980). Older smokers have lower aerobic capacity than older nonsmokers (Raven et al., 1974). Among younger smokers, the immediate effects of smoking are reduced maximal oxygen consumption and exercise duration compared with performance in the same person when he or she has not been smoking (Hirsch et al., 1985). Reductions of 5–10% in maximal aerobic power and endurance have been estimated in young male smokers compared with nonsmokers (Astrand and Rodahl, 1970).

Smokers have lower physical-performance capacity than nonsmokers as assessed by scores on the Army physical-training test (running, pushups, and situps) (Zadoo et al. 1993), the Navy physical-readiness test (Conway and Cronan, 1992), and other physical tests (Cooper et al., 1968; Gordon et al., 1987; Marti et al., 1988; Hartling, 1975; Jensen, 1986). In some studies, smokers respond less well to physical training, with a smaller increase in endurance over the course of the training program compared with nonsmokers (Blair et al., 1984; Cooper et al., 1968; Frayser, 1974; Hoad and Clay, 1992).

Night Vision and Hearing

Most studies indicate that smokers have slower dark adaptation and lower visual acuity in dim lighting after smoking than nonsmokers (McFarland, 1970); one study, however, showed that night vision improves in smokers immediately after smoking although those smokers were not compared with nonsmokers (Gramberg-Danielsen et al., 1974, cited in Dyer, 1986). Poorer night vision in pilots who were smokers than in nonsmokers has been reported (Durazzini et al., 1975). One study found that visual sensitivity improved in smokers after several hours of nonsmoking (Luria and McKay, 1979).

Smoking has been strongly associated with accelerated hearing loss during aging. In a cross-sectional US population study (Cruickshanks et al., 1998), smoking was associated with a 70% increase in hearing loss compared with that in nonsmokers; the magnitude of the hearing loss appears to be dose-related in middle-aged men (Uchida et al., 2005). A meta-analysis indicated that smoking increases the risk ratio for hearing loss to 1.33 in cross-sectional studies, 1.7 in cohort studies, and 2.39 in case–control reports (Nomura et al., 2005). Smoking also appears to interact with noise in further inducing hearing loss (Pouryaghoub et al., 2007).

Smoking causes hearing loss predominantly in middle-aged and older people, but the risk of hearing loss is also strongly increased by smoking in people under 35 years old (Sharabi et al., 2002). Thus, smoking, particularly in combination with noise, which is common in the military, can result in hearing impairment in active-duty personnel.

In summary, there is some evidence that smokers perform more poorly than nonsmokers in low-light conditions. It is not known whether that impairment is related to smoking or to nicotine withdrawal. In either case, the visual performance of soldiers in combat could be impaired in low illumination situations. There is strong evidence that smoking accelerates hearing loss associated with aging and interacts with ambient noise to increase this risk.

Vigilance and Cognitive Function

Visual and auditory vigilance is important in military performance, particularly during tedious tasks in which detection of infrequent events is critical, such as watch duty. In general, nicotine appears to enhance vigilance in repetitive tasks acutely, and nicotine deprivation is associated with substantial decrements in vigilance and cognitive function (Hirshman et al., 2004; Mancuso et al., 2001). Thus, in deployment circumstances in which military personnel are unable to smoke, nicotine withdrawal may impair performance.

Motor-vehicle driving simulation studies show that deprived smokers have longer reaction times and more driving errors than nonsmokers and nondeprived smokers (Heimstra et al., 1967). Similar findings have been observed in various reaction-time tasks (Frankenhaeuser et al., 1971; Myrsten et al., 1972). Smoking allows better performance in the later stages of vigilance tasks (Wesnes and Warburton, 1978). Nonsmokers outperform nicotine-deprived smokers in rapid information-processing tasks (Taylor and Blezard, 1979). Hill et al. (2003) reported that subjects who had never smoked cigarettes outperformed current smokers significantly in two cognitively demanding tasks: block design and free recall. Poorer performance was correlated with higher frequency and longer duration of cigarette-smoking. Performance in less demanding tasks, such as general knowledge and word comprehension, was not significantly different between the two groups. Nonsmoking university students were better able than nonsmokers to detect signals in an auditor-vigilance task (Tong et al., 1977).

Aviation Performance

Pilots require a high level of cognitive function, vigilance, short reaction time, and rapid decision-making for optimal flight safety. Pilots who are regular smokers may experience withdrawal effects during flight that may impair performance and threaten safety (Sommese and Patterson, 1995). Mertens et al. (1983) examined the effects of not smoking for 4 hours on 17 habitual smokers who were taking the Civil Aeromedical Institute multiple-task performance battery at a simulated cabin altitude of 6,500 ft. Not smoking impaired performance, particularly tracking performance, a function that is thought to be important in flying (Mertens et al., 1983). Giannokoulas et al. (2003) studied 20 experienced pilots in the Greek Air Force who smoked an average of 21 cigarettes per day. Pilots were given computerized mental-arithmetic, visual-vigilance, and image-recall tasks in conditions of ad libitum smoking and after 12 hours of tobacco abstinence on separate days. Cigarette abstinence was associated with impaired performance in all tasks; there were significant decrements in the mental-arithmetic and image-recall tasks. Given that pilots need to retain and evaluate multiple conditions and make quick decisions, the authors of the study concluded that abrupt cessation of smoking is likely to be detrimental to flight safety (Giannakoulas et al., 2003). A 1994 CDC report found that performance disruption would not be a significant impairment for most flight personnel for 4 hours following the last cigarette and that nicotine replacement medications could alleviate withdrawal symptoms associated with longer periods of deprivation (Fiore et al., 1994).

Diving

Military diving is highly demanding with respect to both general physical endurance and respiratory function. Longitudinal and cross-sectional studies have found decreased pulmonary function, as measured by forced expiratory volume in 1 second and other pulmonary-function tests, in divers who smoke compared with divers who do not smoke (Dembert et al., 1984;

Tetzlaff et al., 2006). Obstructive airways disease secondary to smoking would be expected to be hazardous during diving in general.

Diving-related symptoms of decompression illness are more severe in smokers. Severe decompression illness may include alteration in consciousness and balance, bladder or bowel control problems, motor weakness, visual symptoms, or convulsions. There is a dose-response relationship between intensity of smoking and severity of decompression symptoms. Thus, divers who smoke are at increased risk for both aggravation of acute obstructive lung changes and decompression illness (Buch et al., 2003).

Accidents and Injuries

Smoking has been associated with an increased risk of motor-vehicle collisions in a number of studies (Hutchens et al., 2008; McGuire, 1972),. The incidents may be the result of increased reaction times in smokers who are deprived of nicotine (Heimstra et al., 1967). Smokers are more likely than nonsmokers to have motor-vehicle collisions at night and are less likely to wear seatbelts (Grout et al., 1983). Lighting or manipulating cigarettes, or dealing with falling ashes could divert a smoker's attention from driving. However, one study found that smoking improves the driving performance of habitual smokers; there may be an optimal nicotine dose for the enhancement of cognitive and psychomotor function (Sherwood, 1995).

Smoking before basic military training is a significant risk factor for exercise-related injuries for both men and women (Jones and Knapik, 1999). Altarac et al. (2000) found that during Army basic training, the odds ratio (OR) for any injury occurrence was 1.27 (95% confidence interval [CI], 0.82–1.95) for men who smoked 0.5–1 pack of cigarettes per day and 1.96 (95% CI, 1.27–3.03) for women compared with nonsmokers; men and women who smoked more than a pack per day had injury ORs of 2.03 (95% CI, 1.22–3.38) and 1.28 (95% CI, 0.63–2.59), respectively. The adjusted risk ratio for time lost during basic training was 3.1 for men and 2.0 for women who smoked compared with nonsmokers, and there was evidence of more injuries in those who smoked more cigarettes per day (Knapik et al., 2001). Daily use of smokeless tobacco, but not cigarettes, was a significant risk factor (OR, 2.3; 95% CI, 1.0–5.4) for foot blisters in cadets at the US Military Academy during a 21-km march (Knapik et al., 1999).

Smoking has been linked to accidents in military workplaces. Recent disturbing examples of accidents linked to smoking include fires. In July 2008, a fire onboard a US nuclear-powered aircraft carrier was attributed to unauthorized smoking that ignited flammable liquids and other combustible material that was improperly stored in an adjacent space; the carrier required $70 million in repairs as a result of the accident, and several sailors were injured (Associated Press, 2008). In November 2008, 20 men were killed onboard a Russian nuclear submarine when Freon gas was released after a fire alarm was triggered; it has been suggested that the fire could have been ignited by a cigarette that was lighted near a safety gauge that switched on the fire-extinguishing system (Isachenkov, 2008).

Absenteeism, Presenteeism, and Lost Productivity

Numerous studies have documented that military and civilian smokers have higher numbers of days of work loss per year than nonsmokers as a result of illnesses (primarily respiratory tract infections), alcohol and substance abuse, and accidents (Athanasou, 1979; Holcomb and Meigs, 1972; Wilson, 1973). British soldiers who smoked had a 30% higher rate of hospital admissions than nonsmokers (Crowdy and Sowden, 1975), and German soldiers who smoked had a 44% greater number of days associated with being bedridden for illness than nonsmokers (Schmidt, 1972). Smokers also have a higher prevalence of depression and other mental illnesses that has been associated with more frequent absenteeism due to "affective distress" (Parkes, 1983).

A study of 87,991 active-duty US Army men and women (26% current smokers, 16% former smokers, and 58% never smokers) found that the risk of being hospitalized for causes other than injury or pregnancy was 30% and 25% higher in men and women who smoked, respectively, than in nonsmokers; 7.5% of the hospitalizations for men and 5.0% of the hospitalizations for women were attributed to smoking (Robbins et al., 2000). Smokers were

more likely to receive a diagnosis of alcohol dependence, chest pain, or lumbar intervertebral disk disease than nonsmokers. There was a 60% (men) and 15% (women) greater risk of lost workdays due to hospitalization and a 7% and 54% greater risk of lost workdays related to injuries in those who smoked than in nonsmokers. The authors estimated that if the entire male US Army population became nonsmokers, the number of days of lost duty not related to injury would decrease by 18.3% after 2.5 years.

Studies have also linked presenteeism—decrease in on-the-job performance due to health problems—to tobacco use. A survey of 28,902 US workers found that loss of productive time because of health was twice as high in smokers as in nonsmokers. The adjusted loss of productive time in people who smoked at least one pack of cigarettes per day was about 75% higher than in nonsmokers (Stewart et al., 2003). Bunn et al. (2006), in a study of smoking effects on productivity in a large sample of US employees, found that current smokers missed more work and reported more unproductive time at work than former smokers and nonsmokers; current smokers lost a mean of 76.5 h/year, nonsmokers, 42.8 h/year, and former smokers, 56 h/year.

Halpern et al. (2001) evaluated work productivity in 96 airline employees. The employees were categorized as never smokers, former smokers, and current smokers. Absenteeism was significantly ($p = 0.03$) higher in current smokers than in former smokers. Although objective measures of productivity did not differ significantly between the groups, productivity perceived by others was lowest for current smokers, highest for never smokers, and in between for former smokers; the productivity of former smokers increased with duration of abstinence.

The specific economic burdens placed on DoD by abseentism and productivity loss are discussed later in this chapter.

Effects on Health

The 2004 US surgeon general's report *The Health Consequences of Smoking* found a causal relationship between smoking and several short-term health effects. The health effects included increased risk of infectious disease, poor asthma control, periodontitis, peptic ulcer disease, and adverse surgical outcomes. Those and other health effects associated with tobacco use are briefly considered in the following sections.

Infection

Smoking is a major risk factor for acute respiratory tract and other systemic infections; active and passive smoke exposure increases the risk of infection (see Table 2-5) (Arcavi and Benowitz, 2004). The mechanisms by which smoking increases risk are multifactorial and include structural and immunologic alterations (US Surgeon General, 2004). Smoking suppresses immune responses and impairs host defenses, such as removal of contaminants from the respiratory tract (Mehta et al., 2008). It also produces a chronic inflammatory state, including chronic bronchitis and aggravation of asthma. Smokers are more likely to become ill with and die from influenza and bacterial pneumonia (US Surgeon General, 2004); those who become ill have more serious illnesses, are more likely to be hospitalized, and lose more workdays.

Smoking has been associated with increased risk of Legionnaire's disease, meningococcal meningitis, tuberculosis, and other infectious diseases (Arcavi and Benowitz, 2004). Smoking is a substantial risk factor for pneumococcal pneumonia, especially in patients with chronic obstructive pulmonary disease (COPD). Smoking is strongly associated with invasive pneumococcal disease in otherwise healthy adults and a nearly twofold increased risk of community-acquired pneumonia, with 32% of the risk attributable to smoking (US Surgeon General, 2004).

TABLE 2-5 Smoking and Infection

Type of Infection	Odds Ratio (95% CI)
Pneumococcal pneumonia	2.6 (1.9–3.5)
Legionnaire's disease	3.5 (2.1–5.8)
Meningococcal disease	2.4 (0.9–6.6)
Periodontal disease	2.8 (1.9–4.1)
Common cold	1.5 (1.1–1.8)
Influenza	2.4 (1.5–3.8)
HIV infection	3.4 (1.6–7.5)
Tuberculosis	4.5 (4.0–5.0)

SOURCE: Adapted from Arcavi and Benowitz (2004).

The risk of developing and the severity of viral infections including the common cold, influenza, and varicella pneumonia are also increased in smokers. Influenza infections are more severe with more cough, acute and chronic phlegm production, shortness of breath and wheezing in smokers. Influenza infections produce more work-loss days in smokers compared to non-smokers. Smokers are at greater risk of developing varicella pneumonitis compared with nonsmokers (US Surgeon General, 2004). Smokers are also at greater risk for developing and dying of tuberculosis than nonsmokers (Lin et al., 2007).

Impaired Wound Healing

Smoking is causally associated with adverse postoperative effects and delayed wound healing. In particular, nicotine impairs skin-flap survival and increases wound complications after surgical procedures by constricting blood vessels in the skin (Siana et al., 1989). Potential mechanisms include impairment of epithelialization, decrease in oxygen delivery, microvascular injury, and effects on inflammatory cells and thrombotic mechanisms. Impairment of clearance of secretions, alteration in immune function and collagen synthesis, and underlying tobacco-related diseases—such as COPD and altered cardiovascular function—also contribute to postoperative complications.

Smokers who underwent elective hip or knee surgery and who received a smoking-cessation intervention had a substantially lower rate of wound complications and cardiovascular complications than surgical patients who smoked and received usual care (Lindström et al., 2008; Møller et al., 2002). Some studies have shown that smokers undergoing ambulatory surgery have significantly higher rates of respiratory complications and wound infections than nonsmokers (Myles et al., 2002). Smokers also have higher rates of complication after lung surgery and after hepatic and renal transplantation (Pungpapong et al., 2002; Slama et al., 2007).

Smoking was associated with an increased risk of postoperative hemorrhage in adults treated in a US military hospital. Bleeding episodes after uvulopalatopharyngoplasty occurred in 10.9% of smokers and 3.3% of nonsmokers ($p = 0.006$), possibly as a result of general poor wound healing complicated by the drying and irritating effects of smoking (Demars et al., 2008).

Peptic Ulcer Disease

Smoking can cause acute peptic ulcer disease because it impairs the protective barrier in the stomach (US Surgeon General, 2004). Smoking may also increase the likelihood of gastric Helicobacter pylori infection, which is involved in the pathogenesis of peptic ulcer disease (Maity et al., 2003).

Periodontal Disease

Smoking and use of smokeless tobacco both cause periodontal disease (Bergström, 2004) (smokeless tobacco is discussed later). The mechanisms include immune suppression, reduction of local blood flow, and the local toxic effects of tobacco smoke in the mouth. According to National Health and Nutrition Examination Survey III, after adjustments for age, race, income,

and education level, current smokers were 4 times more likely than nonsmokers to have periodontitis (Johnson and Guthmiller, 2007). One study found that two-thirds of new cases of periodontal attachment loss could be attributed to smoking (Thomson et al., 2007). Periodontal disease showed a dose-response relationship with smoking in young Israelis leaving military service (Vered et al., 2008).

Acute Eosinophilic Pneumonia

Acute eosinophilic pneumonia (AEP) is a rare, often life-threatening form of pneumonia believed to be an allergic response to an environmental exposure (Janz et al., 2009). Smoking is known to be a risk factor for AEP (Vassallo and Ryu, 2008). Shorr et al. (2004) identified 18 cases of AEP, two of which were fatal, in the 183,000 soldiers deployed in Iraq during March 2003–March 2004. All 18 patients smoked tobacco, and 14 of them had started smoking only recently. The Stars and Stripes military newspaper reported that at least 36 troops deployed in or near Iraq developed AEP from 2003 to 2008; 27 of them had begun smoking shortly before developing AEP (Mraz, 2008). It is hypothesized that the effects of smoking on pulmonary defenses or immune responses interact with such environmental exposures as windborne dust to trigger AEP (Shorr et al., 2004).

BOX 2-1 Effects of Smoking on Military Readiness and Performance

Tobacco use affects military readiness by

- Impairing physical endurance and performance capacity.
- Impairing visual performance, dark adaptation, and night vision.
- Accelerating age-related hearing loss and potentially interacting with noise-induced hearing loss.
- Impairing vigilance and cognitive function (nicotine withdrawal).
- Increasing risk of motor-vehicle collisions and other accidents.
- Increasing work absenteeism (due to illness, accidents, and alcohol and substance abuse).
- Increasing risk of lower respiratory tract infections.
- Increasing risk of peptic ulcer disease.
- Impairing wound healing.
- Increasing postoperative complications.
- Increasing risk of periodontal disease.
- Possibly increasing risk of AEP.

Long-Term Health Effects

Since the publication of the surgeon general's seminal 1964 report on smoking, research has confirmed that smoking causes cancers of the esophagus, larynx, oral cavity and pharynx, stomach, pancreas, lung, cervix, kidney, and bladder and causes acute myeloid leukemia (IOM, 2007). It also causes a variety of other diseases, including stroke, atherosclerosis, cardiovascular disease, COPD, and such infectious diseases as influenza, and it increases the risk of infection (US Surgeon General, 2007). In short, a lifelong smoker has a 1-in-2 chance of dying prematurely from a complication of smoking. As a result of the 1964 report and later reports from the surgeon general and public-health campaigns, there has been a substantial decline in the use of tobacco in the US population. Smoking rates dropped from more than 42% before 1964 (CDC, 2009) to less than 20% today. Nevertheless, tobacco use continues to be the number 1 cause of preventable death in the United States and is a major cause of chronic disease, disability, and death in military veterans (IOM, 2007). This section briefly reviews long-term

health consequences of smoking (see Table 2-4); for a detailed review, the reader is referred to the surgeon general's recent reports on smoking and health (US Surgeon General, 2004, 2007).

Cancer

Smoking is the greatest preventable cause of cancer and is responsible for 30% of cancer deaths (ACS, 2008). Lung cancer is the leading cause of cancer mortality in the United States; 90% of lung-cancer cases in men and 80% in women are attributable to smoking (US Surgeon General, 2004). The risk of lung cancer and other cancers is proportional to the number of cigarettes smoked per day and the duration of smoking (US Surgeon General, 2004). However, even quitting smoking at the age of 50 years can reduce the lifelong risk of lung cancer by half. Workplace exposure to asbestos, as may occur in military construction and maintenance workers and mechanics, synergistically increases the risk of lung cancer posed by smoking. Alcohol use also acts synergistically with smoking to cause oral laryngeal and esophageal cancer (see Table 2-6). Cervical cancer is more common in women who smoke. Smoking is responsible for 20–30% of leukemia cases in adults, including lymphoid and myeloid leukemia (CDC, 1989). Smoking was associated with an increase in risk of colorectal cancer in men and women in a meta-analysis of 36 studies (Kenfield et al., 2008). Exposure to such industrial solvents as benzene, with which military personnel may work, presumably adds to the effect of the benzene in tobacco smoke in causing leukemia (US Surgeon General, 2004).

TABLE 2-6 Smoking and Cancer Risk[a]

	Population-Attributable Risk (%)[b]		
Cancer	**Men**	**Women**	**Average Relative Risk**
Lung	87	70	15.0–30.0
Urinary tract	46	27	3.0
Oral cavity	73	46	4.0–5.0
Oropharynx,hypopharynx	—	—	4.0–5.0[c]
Esophagus	72	56	1.5–5.0
Larynx	82	72	10.0[c]
Pancreas	21	23	2.0–4.0
Nasal cavity, sinuses, nasopharynx	—	—	1.5–2.5
Stomach	27	12	1.5–2.0
Liver	—	—	1.5–2.5
Kidney	38	5	1.5–2.0
Uterine cervix	—	12	1.5–2.5
Myeloid leukemia	22	11	1.5–2.0

[a]Adapted with permission from Vineis et al. (2004); IARC (2004).
[b]Data from CDC (2008a).
[c]Synergistic interaction with alcohol use.

Cardiovascular Disease

About one-third of smoking-related deaths in the United States result from cardiovascular disease (CDC, 2008a). Smoking causes 20% of cardiovascular deaths in the United States; it increases the risk of coronary heart disease, including acute myocardial infarction; sudden death; stroke; and peripheral vascular disease, including abdominal aortic aneurysm (Burns, 2003). Smoking accelerates atherosclerosis, causes endothelial injury and dysfunction, and increases blood coagulation, thereby promoting acute ischemic events (US Surgeon General, 2004). Smoking delivers CO to the blood, which reduces the capacity of hemoglobin to carry oxygen and impairs the release of oxygen from hemoglobin to body tissues; this results in functional

anemia. Concentrations of carboxyhemoglobin, which binds to red blood cells and competes with oxygen, are typically 5–10% in smokers and 1% in nonsmokers. Reduction in oxygen delivery secondary to CO exposure reduces maximal exercise capacity in otherwise healthy smokers and reduces exercise capacity even further in people who have impaired exercise capacity because of angina pectoris, intermittent claudication, or COPD (US Surgeon General, 2004).

Smoking also interacts with other cardiac risk factors to increase the risk of cardiovascular disease. It increases heart rate, transiently increases blood pressure, and increases the complications of hypertension, including coronary heart disease and chronic renal disease. It also produces insulin resistance and increases the risk of non-insulin-dependent diabetes, which is another risk factor for coronary heart disease and chronic renal disease. Smoking is associated with an atherogenic lipid profile (higher low-density lipoprotein and lower high-density lipoprotein concentrations, with more oxidized low-density lipoprotein), which aggravates the adverse effects of genetic factors, diet, or diabetes on blood lipids. Women who use oral contraceptives and smoke have a substantially increased risk of myocardial infarction and stroke, particularly if they are over 35 years old (US Surgeon General, 2004).

After acute myocardial infarction, the risk of recurrent myocardial infarction or death is much higher in current smokers than in former smokers. Smoking increases morbidity and mortality in patients with heart failure. Smoking cessation reduces mortality at least as much as does taking medications for heart failure (US Surgeon General, 2004).

Chronic Lung Disease

More than 80% of cases of COPD in the United States are attributed to smoking. Smoking also increases the risk of respiratory infection, including pneumonia, and results in greater disability from viral respiratory tract infection. Pulmonary disease caused by smoking includes the overlapping syndromes of chronic bronchitis, emphysema, and airway obstruction (US Surgeon General, 2004). Smoking also causes premature onset of decline in lung function and accelerates the age-related decline. Sustained smoking abstinence results in a return of the rate of lung-function decline to that of a never smoker (US Surgeon General, 2004).

Smoking may contribute to the development of asthma, but this potential link is confounded by the increased rate of pulmonary infections in smokers. Among asthmatics, current smokers experience more severe asthma, that is, more frequent symptoms and attacks. Exposure to secondhand smoke has been associated with increased risk of asthma in nonsmoking adults.

Smoking is associated with other pulmonary disorders, including respiratory bronchiolitis and desquamative interstitial pneumonia (Craig et al., 2004), interstitial lung disease (US Surgeon General, 2004), Langerhans cell histiocytosis (Ryu et al., 2001), and cryptogenic fibrosing alveolitis (Hubbard et al., 2000).

Other Health Effects of Tobacco Use

Numerous other health effects that may affect military personnel health and readiness are caused by or have been associated with smoking (US Surgeon General, 2004). As mentioned previously, smoking causes duodenal and gastric ulcers, and is also associated with esophageal reflux symptoms, delays the rate of ulcer healing, and increases the risk of relapse after ulcer treatment. It increases the risk of osteoporosis and causes a reduction in the peak bone mass attained in early adulthood, and it increases the rate of bone loss in later adulthood. Smoking antagonizes the protective effect of estrogen-replacement therapy on the risk of osteoporosis in postmenopausal women. It can cause cataracts and increases the risk of macular degeneration. Smoking reduces the secretion of thyroid hormone and may increase the severity of clinical symptoms of hypothyroidism. It also interacts with a variety of drugs—such as insulin, antihypertensive drugs, a number of psychiatric drugs, and some cancer chemotherapeutic agents—by accelerating drug metabolism or by the pharmacologic interactions of nicotine and other constituents of tobacco with other drugs (US Surgeon General, 2004). Smoking is also

associated with poor reproductive outcomes in women, including reduced fertility and low–birth-weight babies (US Surgeon General, 2004).

Health Effects of Secondhand Smoke

Exposure to secondhand smoke is a well-established cause of death, illness, and annoyance in nonsmokers (US Surgeon General, 2007). Secondhand smoke contains the same toxic constituents as mainstream smoke, some of which are present in higher concentrations than in mainstream smoke. Some constituents of secondhand smoke persist at high concentrations for many hours after smoking has ceased (Singer et al., 2002; Singer et al., 2003).

In nonsmoking adults, secondhand-smoke exposure is associated with an increased risk of lung cancer and acute myocardial infarction (MI) and a 20–30% excess risk of coronary heart disease (Chen and Boreham, 2002). Meta-analyses showed that secondhand smoke increases the risk of acute MI by 31% (Barnoya and Glantz, 2005) and the risk of lung cancer by up to 20% (IARC, 2004). Several recent studies have found that implementation of smoke-free indoor-air regulations results in a rapid decline in the risk of acute MI and other acute cardiovascular events (Pell et al., 2008). Secondhand smoke also increases the severity of some infectious diseases, such as influenza, and increases the risk of invasive pneumococcal disease. Secondhand smoke is associated with aggravation of allergies and asthma and with reduction in pulmonary function.

Parental smoking can cause pneumonia and bronchitis in young children. Exposure appears to interact with acute respiratory infection in the first year of life and increases the incidence of childhood asthma and middle ear infection. It also increases the risk of sudden infant death syndrome (US Surgeon General, 2007). Children born to mothers who smoke or who are exposed to secondhand smoke have reduced lung volumes compared with nonexposed (US Surgeon General, 2007).

Health Effects of Smokeless-Tobacco Use

The most widely used smokeless-tobacco products in the United States are moist snuff and chewing tobacco. Moist snuff is available both as loose tobacco and in small packets (sachets) that are placed between the lip and the gum. Smokeless tobacco delivers as much nicotine to the user as does smoking but does not expose the user to all the toxicants generated by the combustion of tobacco (Wennmalm et al., 1991). About 3% of American adults use smokeless tobacco; the prevalence is much higher in men (6%) than in women (0.4%) (CDC, 2007).

Smokeless tobacco poses two types of health risks: its constituents directly affect health, and, perhaps more important with respect to disease risk, its use maintains nicotine addiction and promotes continued smoking. For example, some smokers use smokeless tobacco to satisfy their need for nicotine when smoking is restricted but continue to smoke when smoking is permitted.

The direct harm caused by use of smokeless tobacco must be viewed in relation to specific products, which differ markedly in the composition and content of carcinogens and other toxicants. All smokeless tobacco delivers carcinogens, such as tobacco-specific nitrosamines, that are formed from nicotine in the curing process (Hecht, 1998). IARC (2007) finds that there is sufficient evidence that smokeless-tobacco use causes cancers of the oral cavity and pancreas. One study of Swedish men compared those who used snus (moist snuff) with those who had never used any tobacco; snus users had a higher rate of pancreatic cancer (relative risk [RR], 2.0; 95% CI, 1.2–3.3) but not of oral cancer (RR, 0.8; 95% CI, 0.4–1.7) or lung cancer (RR, 0.8; 95% CI, 0.5–1.3) (Luo et al., 2007). A recent systematic review of 11 studies, however, found that smokeless tobacco use was not associated with an increased risk of pancreatic cancer (RR, 1.03; 95% CI, 0.71–1.49) (Sponsiello-Wang et al., 2008). Smokeless tobacco is associated with dental problems, including caries. Smokeless tobacco users are twice as likely as nonusers to have severe active periodontal disease (Fisher et al., 2005).

Two studies of Swedish smokeless-tobacco users found no increased risk of cardiovascular disease, stroke, or sudden death compared with nonusers (Hergens et al., 2005; Huhtasaari et al., 1999), although other studies have shown an increased risk of cardiovascular disease, including hypertension and myocardial infarction, particularly in those who combine smokeless tobacco with tobacco-smoking (Bolinder et al., 1994; Johansson et al., 2005). The reason for the discrepancy is unclear.

In summary, smokeless-tobacco use poses a health risk to military personnel and veterans in that it causes oral and pancreatic cancer and periodontal disease, maintains tobacco use, and may increase the risk of cardiovascular disease.

ECONOMIC IMPACTS

The societal costs of tobacco use in the military and veteran populations are expansive. They include the costs of treating military and veteran tobacco users for tobacco-related illnesses, health-care costs for those exposed to secondhand smoke, and the costs associated with lost productivity of military and veteran tobacco users. The economic impacts of tobacco use also include revenues to DoD from tobacco-product retail sales on installations, which are used to partially fund morale, welfare, and recreation (MWR) activities for military personnel and their families. MWR activities are support and leisure services designed to enhance the lives of military personnel, retirees, family members, and civilian employees; programs include child-care, recreational activities, sports, and travel.

Impacts on the Department of Defense

In 2008, the DoD assistant secretary for health affairs stated, “Every year, tobacco use leads to unnecessary compromises in the readiness of our troops and costs the Department of Defense millions of dollars in preventable health care costs.” Furthermore, DoD spends over $1.6 billion a year on tobacco-related medical care, increased hospitalization, and lost days of work (DoD, 2008). Tobacco use by military personnel has two major economic effects on DOD: the cost of health care for military personnel—active-duty, retired, and dependents—and the cost of lost productivity.

Health-Care Costs

Helyer et al. (1998) estimated the direct health-care costs for prevention and diagnosis of and treatment for tobacco-related diseases in US military personnel in 1995 to be $584 million—mostly for hospitalization (77%) and physician fees (18%). Over 9,200 hospital-bed days for active-duty personnel were attributed to tobacco-related diseases, or about 10% of total DoD hospital-bed days and 1.5% of all active-duty hospital-bed days (Helyer et al., 1998). Tobacco-related medical costs amounted to $20 million in a 1997 CDC study of smoking in active-duty Air Force personnel, or 6% of total Air Force medical-system expenditures (CDC, 2000); the study was based on a health-assessment survey of 5,164 active-duty Air Force TRICARE Prime enrollees who were 17–64 years old in 1997, and about 26% of the men and 27% of the women smoked.

In 2006, about 4.3 million people were enrolled in the DoD Military Health System TRICARE Prime program (active-duty personnel and their dependents and military retirees under 65 years old and their dependents). The annual cost of health care for those enrollees is $12.8 billion. Dall et al. (2007) conducted a financial analysis to determine the costs to TRICARE Prime for treating health problems associated with being overweight and obese, with high alcohol consumption, and with tobacco use in this population. About 1.4 million (47%) of all TRICARE Prime adult enrollees (17–64 years old) were current or former smokers, 19% were former smokers (no cigarettes in the preceding 30 days and at least 100 cigarettes in their lifetime), 17% were light smokers (1–14 cigarettes/day), 7% were moderate smokers (15–24

cigarettes/day), and 3% were heavy smokers (at least 25 cigarettes/day). An estimated 179,000 enrollees (mostly young men) were smokeless tobacco users; the prevalence of pipe and cigar smokers was low. The annual medical cost to TRICARE Prime to treat comorbidities associated with tobacco use was $564 million or 4% of the total expenditures; the greatest expenditures were due to 61,367 cases of cardiovascular disease ($255 million) and 94,419 cases of respiratory problems ($150 million). Other major costs were associated with 4,808 cases of cancer ($81 million), 11,686 cases of cerebrovascular disease ($72 million), and 150 cases of newborn health conditions ($2 million). In 2006, direct treatment for tobacco use amounted to $4.3 million for 18,869 tobacco users, or about $228 per tobacco user per year. When the costs of treating all medical conditions associated with tobacco use were averaged, retirees and dependents incurred greater medical costs due to tobacco use ($321) than did active-duty enrollees ($104) or their dependents ($106). However, the total average for active-duty personnel rose to $150 when nonmedical costs, such as lost productivity, were included (Dall et al., 2007).

Lost Productivity and Training Costs

As discussed previously, the total cost to DoD extends beyond that associated with medical treatment for tobacco-related disease and direct costs of treatment for tobacco use (medications and counseling). It also includes time lost to smoking breaks, increased absenteeism due to illness, presenteeism, and reduced productivity at work.

Helyer et al. (1998) estimated that in 1995, the cost of lost productivity of active-duty US military personnel due to smoking breaks (30 min/day for 220 workdays/year) was over $345 million. Those smoking breaks were considered to be in excess of the regular breaks that most workers take each day and amounted to 14,900 person-years (based on an 8-h day) (Helyer et al., 1998). CDC (2000) estimated that in 1997 workday losses attributable to smoking by active-duty Air Force personnel (about 25% of the men and 27% of the women were smokers) amounted to 893,128 days on the basis of 250 workdays/year, or the equivalent of 3,573 full-time employees (FTEs); these workdays represented about $87 million in lost productivity. One study (Zadoo et al., 1993), however, found that in 1990 smoking was not associated with an increased number of sick calls or time off from duty among soldiers (enlisted, noncommissioned, and officers).

Dall et al. (2007) calculated that moderate to heavy smoking was associated with greater absenteeism in the DoD TRICARE Prime enrolled population—356,000 FTE days lost per year—and 30,000 FTE days lost as a result of below-normal work performance. That amounted to $54 million in productivity lost to DoD. Smokers also indicated greater intent to leave military service, but this could not be statistically correlated with tobacco use.

Tobacco use also affects and increases training costs for new recruits; failure to complete basic training costs the government about $16,000 per recruit (at the time of the study) (Snoddy and Henderson, 1994). During a 13-week training cycle, which included over 649 recruits at the US Army Infantry Training Center, there were 1,023 visits to medical facilities. One-third of the trainees had no medical visits, but overall there were 1.58 visits/trainee and a mean of 4.53 (± 8.49) days/person lost or with reduced training time. A history of tobacco use was the only predictor of an increased number of medical visits ($p = 0.006$) and of time lost for medical problems ($p = 0.036$) during training; both previous injury and cigarette-smoking were correlated with a greater likelihood of not completing the training course ($p = 0.023$) (Snoddy and Henderson, 1994).

Klesges et al. (2001) reported that tobacco use was associated with early discharge from the Air Force. In a study of 29,044 Air Force recruits in 1995–1996 who were followed for 12 months, 19.4% of smokers and 11.8% of nonsmokers were prematurely discharged (RR, 1.795; 95% CI, 1.676–1.923). The premature discharges resulted in $18 million in excess training costs for the Air Force and over $130 million for all four services (Klesges et al., 2001). Conway et al. (2007) found that women who were daily smokers before entering the Navy had poorer job performance than nonsmokers, as demonstrated by early attrition before serving a full-term enlistment, and were more likely to have a less-than-honorable discharge, had more demotions and desertions, achieved a lower paygrade, and were less likely to re-enlist. Early discharge from

the military has also been associated with smoking in other countries, such as Sweden (Larsson et al., 2009).

Tobacco Sales on Military Installations

DoD, through its exchanges and commissaries, provides active-duty and retired armed service members and their families with access to a wide array of consumer goods at reduced prices relative to the private market. Military exchanges are the primary venues for the sale of nonfood merchandise, including tobacco products. According to DoD Instruction 1330.09 (December 7, 2007), exchanges have the dual mission of providing merchandise and services and of generating earnings that help to fund military MWR programs, including child care for dependents of military personnel. Exchanges are supported solely by nonappropriated funds, which are derived from the sale of goods and services to DoD military and civilian personnel and their family members. The nonappropriated funds are used to support MWR programs.[3]

As authorized by Congress (10 United States Code [USC] Section 2486 (a)), military commissaries are equivalent to commercial grocery stores and sell similar merchandise. Unlike military exchanges, commissaries are supported by congressionally appropriated funds and sell goods at actual product cost to the military plus a 5% surcharge (10 USC Section 2484 (d)(e)). Commissaries have authority to sell tobacco products under 10 USC Section 2484 (b)(8). Since 1996, tobacco products have been sold at commissaries on consignment from exchanges;[4] under 10 USC 2484(3)(a), exchanges are the vendors for tobacco products in commissaries. On most installations, commissaries and exchanges are independent entities and can price their products independently. Table 2-7 shows an example of the variety of pricing of tobacco products at an Army exchange and commissary and at nearby civilian tobacco retailers. In a few cases in which a substantial number of active-duty members and their families do not live on the military installation, the commissary and the exchange are combined into a hybrid store. Many installations also have small stores, akin to civilian convenience stores, that are run by the exchanges and that sell tobacco, alcohol, and snacks. Tobacco is not sold in commissaries on Marine Corps installations and is sold in only two commissaries on Navy installations.

TABLE 2-7 Price List ($) for Cigarettes and Smokeless Tobacco at and near an Army Installation

Tobacco Type	Exchange Price	Commissary Price	Retail Store A (outside installation gates)	Retail Store B (several miles from gates)
Cigarettes A, 1 pack	5.91	Sells cartons only	6.48	5.54
Cigarettes A, carton (10 packs)	52.88	47.03	Sells packs only	50.99
Cigarettes B, 1 pack	6.62	Sells cartons only	7.13	6.09
Cigarettes B, carton	56.48	50.46	Sells packs only	52.09
Chewing tobacco, 1 can	4.50	Sells rolls only	5.59	6.19
Chewing tobacco, 1 roll (5 cans)	22.50	21.43	Sells cans only	Sells cans only

SOURCE: Cynthia Hawthorne, US Army, personal communication, May 6, 2009.

[3]According to written testimony to the House Armed Services Committee by Alphonso Maldon, Jr., assistant secretary of defense (force management policy), on March 15, 2000, exchanges designate about 70% of their profits to MWR programs.

[4]According to Defense Commissary Agency Directive 40-5 (June 26, 1992—Administrative Reissuance Incorporating Changes Through Change 4, August 1, 2000), this policy became effective on November 1, 1996. The reason for the decision was "to support DoD efforts to enhance military readiness by discouraging smoking and promoting healthier lifestyles" (DeCA Directive 40-5, Chapter 6, Tobacco Products, 6-1(a)).

DoD, which sells products to both military personnel and veterans at armed services exchanges and commissaries, had tobacco revenue in excess of $611 million in 2005. About 70% of the profits go to MWR activities and in 2005 amounted to over $83 million (see Table 2-8).

TABLE 2-8 2005 Tobacco Sales Revenue for DoD

Source	AAFES[a]	NEXCOM[b]	MCX[c]	Total
Exchanges (including package stores)	$344,566,620	$127,216,525	$40,150,000	$511,933,145
Commissaries[d]	$154,132,028	$3,097,445	$0	$157,229,473
Total tobacco sales	$498,698,648	$130,313,970	$40,150,000	$669,162,618
Revenue to MWR programs[e]	$66,548,746	$15,511,476	$1,300,000	$83,360,222

SOURCE: Office of the Deputy Under Secretary of Defense for Military Community and Family Policy (September 11, 2008).

[a]AAFES = Army and Air Force Exchange Service.
[b]NEXCOM = Navy Exchange Service Command.
[c]MCX = Marine Corps exchange.
[d]All tobacco sales in commissaries are exchange consignment sales.
[e]Sales and revenue to MWR programs are for exchange FY 2005 (retail fiscal year February 1, 2005–January 31, 2006).

Individual Costs

Pyle et al. (2007) assessed the cost of buying tobacco for active-duty junior enlisted military personnel who responded to the *2002 DoD Survey of Health Related Behaviors among Active-Duty Military Personnel*. Tobacco use may consume as much as 10% of an enlisted person's base pay. Tobacco users experienced more financial strain and stress than nonusers (OR, 1.89; 95% CI, 1.18–3.03); those who smoked two or more packs per day experienced the greatest stress as a result of money problems in the preceding year (OR, 7.49; 95% CI, 3.51–15.97) (Pyle et al., 2007). The money problems may be of particular concern to young military families. Armour et al. (2007) found that food insecurity (that is, inability to afford enough food for a healthy lifestyle) was more pronounced in low-income families of tobacco users than in low-income families that did not use tobacco: the former spent a large share of their income on tobacco products (Armour et al., 2007).

Impacts on the Department of Veterans Affairs

The cost of tobacco use for VA is primarily for the health care of veterans with tobacco-related diseases (with a few exceptions, health-care costs for dependents are not covered by the VA health-care system). Those costs can include the cost of tobacco-cessation medications approved by the Food and Drug Administration, costs for staff to lead programs and conduct counseling, and costs for staff training.

According to the Congressional Budget Office, 7.4 million veterans were enrolled in the VA health-care system in 2004, or about 30% of the total population of veterans (Congressional Budget Office, 2005). In 2005, VA medical funding exceeded $28.2 billion. According to a 2006 Congressional Research Service report, the VA budget for medical services in FY 2007 was $22.44 billion in the Military Quality of Life and Veterans Affairs Appropriations Act, 2006 (PL109-114) (Panangala, 2006).

Veterans in priority group 5 make up the largest population of veterans receiving care through VA (about 35%); their medical costs are about 40% of the VA budget. Veterans in priority group 1 are less than 10% of the enrollees but cost almost 20% of the budget; the most expensive veterans are in priority group 4 (housebound), which makes up only 3% of the population but requires almost 15% of the budget (see Table 2-9 for definitions of VA priority groups) (Congressional Budget Office, 2005).

TABLE 2-9 Health-Care Priority Groups

Priority Group	Description
1	Veterans with service-connected disabilities (SCDs) rated 50% or more disabling
2	Veterans with SCDs rated 30% or 40% disabling
3	Veterans who are former prisoners of war; were awarded the Purple Heart; were discharged for an SCD; have SCDs rated 10% or 20% disabling; or were disabled by treatment or vocational rehabilitation
4	Veterans who are receiving aid and attendance benefits or are housebound; and veterans who have been determined by the Department of Veterans Affairs (VA) to be catastrophically disabled
5	Veterans without SCDs or with noncompensable SCDs rated zero percent disabling living below established VA means test thresholds; veterans who are receiving VA pension benefits; and veterans who are eligible for Medicaid benefits
6	Veterans of either World War I or the Mexican Border War; veterans seeking care solely for disorders associated with exposure to chemical, nuclear, or biological agents in the line of duty (including, for example, Agent Orange, atmospheric testing, and Project 112/SHAD); and veterans with compensable SCDs rated 0% disabling
7	Veterans with net worth above the VA means test threshold and below a geographic index defined by the Department of Housing and Urban Development (HUD)
8	Veterans with net worth above both the VA means test threshold and the HUD geographic index

SOURCE: Adapted from VA (2008).

Disease-specific costs attributable to tobacco use are high; for example, VA spent about $5.2 billion in 2008 on health care for veterans with COPD (see Table 2-10 for additional disease-related costs) (Kim Hamlett-Barry, VA, personal communication, February 26, 2009). An economic analysis conducted by VA indicated that as of 2003, "the percentage of total health-care costs associated with smoking in the VA health-care system could range from 8.31-23.81%." When VA was considering a waiver for the copay required for smoking-cessation treatment, the analysis found that the time to recoup the costs associated with the waiver (that is, lost revenues from copays) was about 2 to 5 years (VA, 2006a).

TABLE 2-10 Cost ($) of Tobacco-Related Illness to VA in 2008

Disease	VA health care costs attributable to smoking[a]
COPD	5,202,546,555
Arteriosclerosis	1,313,707,302
Heart failure	819,735,182
Cancers of lung, trachea, bronchus	732,264,868
Aortic aneurysm	394,811,894
Oral cancers	265,517,063
Stroke	95,736,078
Atherosclerosis	41,132,033

SOURCE: Disease categories adapted from US Surgeon General (2004); cost data supplied by VA (Kim Hamlett-Berry, VA, personal communication, February 26, 2009).

[a]Numbers reported here include all VA health-care costs for people with these conditions and are therefore not mutually exclusive in that some may have multiple conditions. Assigned on basis of annual spending for persons with the condition multiplied by the share of smoking-attributable mortality from that condition, according to p. 860 of surgeon general's 2004 report, *The Health Consequences of Smoking*.

Over the next 10 years, the net present value (NPV) of preventable smoking-attributable health-care expenditures is $19.685 billion for the entire VA population—an average of $21,444 per current VA smoker. Over the next 15 years, those numbers jump to $30.909 billion and $33,670 per tobacco user. Lee and Volpp (2004) report that "sensitivity analyses varied the ratio of health costs incurred by ex-smokers relative to those of current-smokers. A ratio of 0.8 yielded a total 10 year NPV of $15.643 billion ($17,040 per current VA smoker); a ratio of 0.2 yielded $26.544 billion ($28,915 per current VA smoker)." Within the next 10–15 years, substantial funds could be directed toward tobacco-cessation programs, which could reduce tobacco use without increasing net expenditures (Lee and Volpp, 2004).

To assess the cost to VA of smoking-cessation aids (SCA), Jonk et al. (2005) determined the pharmacy costs for SCAs from 1998 to 2002. They estimated that during that time about 30% of the veterans in the VHA were smokers and that 7% of them were receiving prescriptions for SCAs—primarily nicotine patches. Eighteen sites were included in the study, of which eight restricted SCAs to veterans who were participating in smoking-cessation programs and 10 had no restriction on who might receive prescriptions. Sites that restricted prescriptions for SCAs to those enrolled in smoking-cessation programs provided SCAs to only about half as many veterans as did unrestricted sites (5.4% vs 9.6%) and spent about one-half to two-thirds as much per smoker. Specifically, in 2002 the restricted sites spent about $19,500 per 10,000 veterans for SCAs, and the unrestricted sites $56,000 per 10,000 veterans. Outpatient pharmacy expenditures increased from $1.8 billion in 1999 to $2.3 billion in 2002; the costs of the SCAs decreased from about 0.56% of the pharmacy costs in 1999 to 0.37% in 2002 (or from about $160/patient in 1999 to $112/patient in 2002). In short, the costs are considerably less burdensome than those needed to cover the many health issues related to tobacco use (Jonk et al., 2005).

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3

FACTORS THAT INFLUENCE TOBACCO USE

The decision to use and continue to use a tobacco product depends on many factors, from such personal ones as self-image to such societal ones as easy access to cigarettes. In this chapter, the committee uses a socioecologic framework (Figure 3-1) to examine the factors that encourage and sustain tobacco use in military and veteran populations. On the basis of a socioecologic approach (Figure 3-1), the committee posits that health behaviors result from the interplay between personal attributes (such as genetic makeup, demographics, and learning history) and the health resources and constraints that exist in the environmental settings in which a person lives (McLeroy et al., 1988; Stokols, 1992; Hovell et al., 2009; Sallis et al., 2008). Those factors interact with each other to affect health behaviors (Sallis et al., 2008) and, ultimately, the health of a population. Their influence is cumulative and unfolds throughout the life course of individuals, families, and communities (Booth et al., 2001; IOM, 2001). The factors are in operation before people enter the military system and throughout different phases of their military life, including recruitment, training, active duty, deployment, and discharge or retirement. The analysis focuses specifically on the patterns and levels of tobacco use found among those populations (Lindheim and Syme, 1983) and the role of social, cultural, and institutional contexts in shaping behaviors that can result in tobacco use (Sallis et al., 2008).

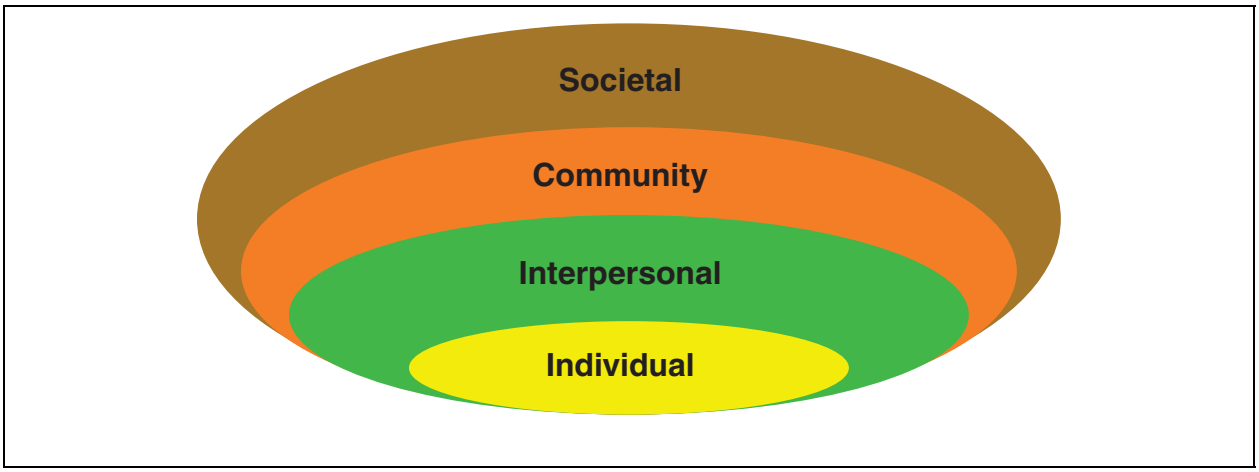

FIGURE 3-1 The socioecologic model of levels of influence on behavior. Individual factors include biologic characteristics and personal history. Interpersonal factors include interactions with peers, intimate partners, and family. Community factors include schools, workplaces, and other organizations where social relationships can occur. Societal factors are social and cultural norms; health, economic, educational, and social policies; and religious and cultural belief systems (CDC, 2007).

On the basis of the socioecologic perspective, reducing tobacco use in military and veteran populations will require coordinated, multilevel interventions that address the numerous determinants of use. Creating a tobacco-free environment in the Department of Defense (DoD) and the Department of Veterans Affairs (VA) and addressing the broader factors that influence smoking and the use of smokeless tobacco in the military and in veterans at the population level may be more cost-effective than focusing solely on behavioral and pharmaceutical interventions at the individual level (IOM, 2001). Intervention efforts to prevent tobacco-use initiation and promote cessation will need to be implemented at the multiple outlined levels (IOM, 2001). Individually oriented interventions will be most effective when the environment in which people live and make choices is in synchrony with the knowledge and behaviors addressed in the programs. Environmental and policy changes will be most effective when they are combined with programs that motivate and educate people to respond to the changes (Kumanyika, 2007).

Progress made in tobacco control in the general population has been based on a socioecologic understanding of health and human behavior (Hovell et al., 2009; Martinez-Donate et al., 2008). The greatest changes in smoking prevalence have resulted from populationwide interventions: economic measures to reduce access to tobacco; laws and regulations restricting tobacco use, advertising, promotion, and sales of tobacco products; and multicomponent public-education campaigns (Fisher et al., 2004); (Task Force on Community Preventive Services, 2005). Lessons from tobacco control illustrate a compounding effect due to the interaction of interventions at different levels; tobacco-control interventions at the population level have proved most effective when conducted in combination with individual-level interventions. For example, smoking restrictions in workplaces and other public places can increase smokers' motivation to seek cessation services and to restrict smoking in their homes (Borland et al., 2006), which in turn may promote cessation (Pizacani et al., 2004) and reduce initiation (Farkas et al., 2000). Likewise, the effectiveness of individual-level and school-based interventions, such as home smoking bans and school-based smoking-prevention programs, is enhanced when they take place in the context of strong communitywide tobacco-control efforts that support and reinforce changes effected at these levels (Perry, 2001).

The socioecologic approach has been applied to analyses of health behaviors and the design of interventions to address a variety of other public-health issues, including physical activity (Booth et al., 2001; Sallis et al., 2006), diet and eating behaviors (Glanz et al., 2005), condom use (Cohen et al., 1999), and chronic-disease self-management (Norris et al., 2002). The framework has also been used as a guide to public-health programs nationally and internationally, including Healthy People 2010 (HHS, 2000) and the World Health Organization (WHO) Framework Convention on Tobacco Control (WHO, 2003) (see Chapter 4 and Appendix A).

A SOCIOECOLOGIC ANALYSIS OF TOBACCO USE IN MILITARY AND VETERAN POPULATIONS

The socioecologic analysis of tobacco use includes attention to individual, interpersonal, community, and societal factors in military and veteran populations and considers the role of the broader social, cultural, and political context in creating an environment that may increase use. That dynamic interplay may account for increasing trends of tobacco use in the military and veteran populations over the last decade. At the individual level, the physiologic processes that underlie nicotine addiction and the high rates of physical and mental comorbidity found in these populations are addressed. At the interpersonal level, the psychosocial factors that characterize life in the military—including separation from family and friends, alternation of high levels of stress with periods of boredom, peer influences, and the perceived role of tobacco use in facilitating social connectedness—and the limited opportunities to adopt alternative, healthier coping strategies are considered. Attitudes toward tobacco use in the Department of Defense (DoD) and the Department of Veterans Affairs (VA), their organizational structure, and their

current practices and policies that may be exacerbating the tobacco epidemic and preventing the progress in tobacco control are addressed. Variable taxation of tobacco products by the federal and state governments and the role of the tobacco industry in keeping tobacco prices low contribute to the use of tobacco by adults and children. Finally, current congressional mandates, economic constraints on a national scale, and the sustained military conflicts in Iraq and Afghanistan operate to reduce the ability of DoD and VA to become tobacco-free and increase the rates of tobacco use by active-duty and retired military personnel and veterans. Future chapters will provide specific proposals for interventions to advance tobacco control in the military and veteran populations. Figure 3-2 illustrates some of the influences that may affect a person's decision to start or continue tobacco use in the military and veteran populations. Table 3-1 maps the levels of influence specific to military personnel and veterans.

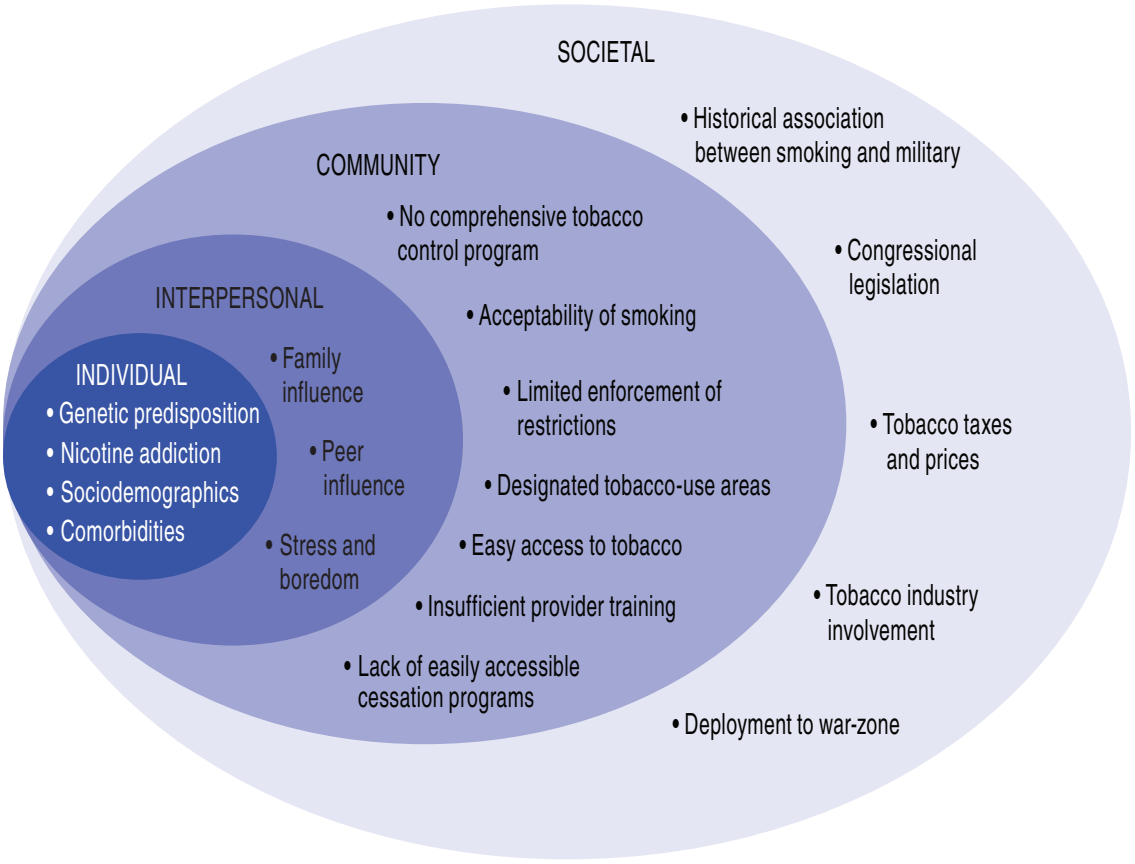

FIGURE 3-2 Some of the socioecologic influences on tobacco use among the military and veteran populations.

TABLE 3-1 Socioecologic Model and Levels of Influence for Military and Veteran Populations

Level of Influence	Military Population	Veteran Population
Individual	Soldier, seaman, airman, marine	Veteran
Interpersonal	Military unit, unit commander, family, friends, health-care provider	Family, friends, health-care provider, co-workers
Community	Installation personnel or commander; military treatment facility, TRICARE health-care facility	Employer, veteran service organization; local VA health-care facility, local community
Society	DoD: Army, Navy, Marine Corps, Air Force, Office of the Assistant Secretary of Defense (Health Affairs); Congress; tobacco industry	VA, Congress, state government, tobacco industry

INDIVIDUAL FACTORS

Individual factors, attributes that reside within the individual, are major determinants of whether one uses tobacco. They encompass demographic, biologic, and psychologic components, some of which can be modified by the individual and the environment (such as education and skills) and some of which cannot (such as age and genetic makeup). Of primary importance is the addictive nature of nicotine, a powerful determinant of continued tobacco use.

Nicotine Addiction

In this report, *dependence* and *addiction* are used interchangeably. They are considered equivalent because they describe similar neurochemical and behavioral processes that sustain drug use (US. Surgeon General, 1988), and they indicate a loss of control over drug-taking behavior—the principal characteristic of drug addiction. Definitions of and criteria for drug dependence or addiction have been put forth by numerous health organizations and authorities. According to WHO, drug dependence is "a behavioral pattern in which the use of a given psychoactive drug is given a sharply higher priority over other behaviors which once had a significantly higher value" (No Author, 1982)—in other words, the drug has come to control behavior to an extent that is considered detrimental to the individual. Specific criteria have been defined and developed for nicotine dependence and nicotine withdrawal by the American Psychiatric Association (2000) and for tobacco dependence and tobacco withdrawal by WHO (1992).

The 1988 surgeon general's report *The Health Consequences of Smoking: Nicotine Addiction* also presented criteria for drug dependence (US Surgeon General, 1988). In addition to a user's behavior being controlled by a drug, the surgeon general's criteria require that the drug produce psychoactive effects and that there be evidence that the drug-taking behavior is reinforced by these effects. Nicotine is associated with well-known pleasurable psychoactive effects, such as arousal, relaxation, and improved mood. It has also been shown to act as a positive reinforcer of smoking; for example, people smoke only tobacco that contains nicotine, and regular smokers modify their smoking behavior to maintain a particular concentration of nicotine in the body (Heishman et al., 1997). Nicotine dependence has also been defined as meeting three of the seven criteria for dependence in the *Diagnostic and Statistical Manual of Mental Disorders–IV* during the preceding year (American Psychiatric Association, 2000). The 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) found that 24.9% of the US adult population currently smoked cigarettes and 12.8% of adults were nicotine-dependent; the latter group consumed 57.5% of all cigarettes smoked (Grant et al., 2004).

Biology of Nicotine Reinforcement

The biology of nicotine addiction is reviewed in detail elsewhere (Benowitz, 2009). A few key aspects of the biology are mentioned here. Nicotine acts on the brain by binding to nicotinic cholinergic receptors that are normally activated by endogenously released acetylcholine. Brain-imaging studies demonstrate that nicotine acutely increases activity in the prefrontal cortex, thalamus, and visual system (Brody, 2006). It results in the release of a variety of neurotransmitters of which the most important is dopamine, which appears to be critical in drug-induced reward (Dani and De Biasi, 2001; Nestler, 2005) and signaling of a pleasurable experience—this is necessary for the reinforcing effects of nicotine and other drugs of abuse (Nestler, 2005). The decrease in brain reward function experienced during nicotine withdrawal is an essential component of nicotine addiction and a key barrier to abstinence.

Psychoactive Effects of Nicotine and Nicotine Withdrawal

The nicotine in tobacco induces stimulation and pleasure while reducing stress and anxiety. Smokers come to use nicotine to modulate their levels of arousal and for mood control in daily life. Smoking may also improve concentration, reaction time, and performance of some tasks. When one stops smoking, the following nicotine-withdrawal symptoms may emerge: irritability, depressed mood, restlessness, anxiety, problems in getting along with friends and family, difficulty in concentrating, increased hunger and eating, insomnia, and craving for tobacco (Hughes and Hatsukami, 1986). Most smokers experience withdrawal symptoms when they are unable to smoke. Withdrawal in untreated smokers produces mood disturbances comparable in intensity with those seen in psychiatric outpatients (Hughes, 2006). One withdrawal symptom seen in connection with nicotine and other drugs of abuse is hedonic dysregulation—the feeling that there is little pleasure in life. Activities that were once rewarding are no longer enjoyable (Koob and Le Moal, 1997). It is hypothesized that a relative deficiency in dopamine release after long-standing nicotine exposure accounts for many of the mood disorders and for the tobacco craving that may persist for long periods after quitting (Benowitz, 2009).

Conditioned Behavior and Nicotine Addiction

All drug-taking behavior is learned—a result of conditioning. It is reinforced by the consequences of the pharmacologic actions of the drug in question, as discussed above in relation to nicotine. At the same time, the user begins to associate specific moods, situations, or environmental factors with the rewarding effects of the drug. Respiratory tract sensory cues associated with tobacco-smoking are a type of conditioned reinforcer that has been shown to play an important role in the regulation of smoke intake, the craving to smoke, and the rewarding effects of smoking (Rose et al., 1993; Rose et al., 2000). The association between such cues and expected drug effects and the resulting urge to use the drug is a type of conditioning. Animal studies have found that repeated nicotine exposure increases the behavioral control of conditioned reinforcers (such as tobacco cues) contributing to the compulsivity of smoking behavior (Olausson et al., 2004).

Cigarette-smoking is maintained, in part, by such conditioning. People habitually smoke cigarettes in specific situations, such as after a meal, with coffee or alcoholic beverages, or in the presence of other smokers. The repeated association between smoking and particular events causes specific environmental situations to become powerful smoking cues. Likewise, aspects of the drug-taking process, such as the manipulation of smoking materials or the taste or smell of smoke or the feeling of it in the throat, become associated with the pleasurable effects of smoking. Even unpleasant moods can become conditioned cues for smoking. For example, a smoker may learn that not having a cigarette provokes irritability (a common symptom of the nicotine-abstinence syndrome) whereas smoking a cigarette provides relief. After such repeated

experiences, a smoker may come to regard irritability from any source, such as stress or frustration, as an indicator to smoke (Benowitz, 2009).

Genetics of Nicotine Addiction

Twin studies have indicated a high degree of heritability (at least 50%) in the prevalence of cigarette-smoking, the ability to quit smoking, the number of cigarettes smoked per day (Lessov-Schlaggar et al., 2008), and the nature of particular symptoms experienced when a smoker stops smoking (Pergadia et al., 2006).

Numerous studies have attempted to identify genes underlying nicotine addiction (Lessov-Schlaggar et al., 2008), but studies of the genetics of nicotine dependence and smoking behavior are problematic because such complex behaviors are determined by multiple genes and by environmental factors. Recent genomewide association studies have pointed to several genes that are promising signals for genetic determinants of nicotine dependence. Bierut et al. (2007) studied a phenotype that is thought to reflect susceptibility to nicotine dependence and showed a significant association with genes that code for components of nicotinic receptors found in the brain (Saccone et al., 2007). Other genomewide association studies have identified a number of genes that affect cell adhesion and extracellular matrix molecules. The genes are common among various addictions; this is consistent with the idea that neural plasticity and learning are key determinants of individual differences in vulnerability to nicotine and other drug addictions (Kauer and Malenka, 2007; Uhl et al., 2007).

Genetic studies have identified genes that encode parts of the receptors for the neurotransmitter gamma-aminobutyric acid (Grucza and Bierut, 2006). Those genes may be involved in the development of alcohol and nicotine dependence. Siblings of alcohol-dependent people had a 1.7 times higher risk of becoming habitual smokers than did siblings of nonalcoholics; if the alcohol-dependent people were habitual smokers, the siblings' risk was a increased further by a factor of 1.8 (Bierut et al, 1998, 2000).

Nicotine Addiction, Mental Illness, and Substance Abuse

People who have mental illness or substance-abuse disorders have higher rates of smoking. Results of the National Comorbidity Survey (NCS) show that 41.0% of people who had a mental illness in the preceding month were current smokers, compared with 22% of those who did not, and 60% of those with a lifetime history of mental illness were smokers (Lasser et al., 2000). Moreover, people with mental illness consume over 44% of all cigarettes sold in the United States (Lasser et al., 2000). The 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) found that 12.8% of the US population was nicotine-dependent and consumed 57.5% of all cigarettes. Nicotine-dependent people who had a mental illness amounted to 7.1% of the US population but consumed 34.2% of all cigarettes (Grant et al., 2004).

Specifically, smoking prevalence is higher in people who have the following diagnosed disorders than in the general population: schizophrenia, major depression, bipolar disorder, anxiety disorder, panic attacks, attention-deficit hyperactivity disorder, posttraumatic stress disorder (PTSD), alcohol abuse, and illicit drug abuse (see Table 3-2 for details) (Lasser et al., 2000; Ziedonis et al., 2008). Results from the NESARC showed that 12-month prevalence of nicotine dependence was 52.4% in those who had any drug disorder, 34.5% in people who had any alcohol-use disorder, 29.2% in those who had any mood disorder, 27.3% in those who had any personality disorder, and 25.3% in those who had any anxiety disorder (Grant et al., 2004). Kotov et al. (2008) found that current smoking rates ranged from 67% to 73% in people who had bipolar, major depressive, or schizophrenia spectrum or other psychotic disorders. Patients who have more severe psychiatric symptoms are more likely to be smokers (Kalman et al., 2005); specifically, those in clinical mental-health treatment centers (outpatient, inpatient, residential, or state mental hospitals) have higher rates of tobacco dependence (American Psychiatric

Association, 2006). Smoking is also associated with suicide, although smoking cessation does not appear to be (Hughes, 2008).

TABLE 3-2 Tobacco-Smoking Status and Quit Rates According to Lifetime Presence of Psychiatric Disorder in the United States (%)

Lifetime Diagnosis	In US Population	In Current Smokers	In Lifetime Smokers	Smoking Quit Rates[a]
No psychiatric disorder	50.7	22.5	39.1	42.5
Anxiety disorders:				
Social phobia	12.5	35.9	54	33.4
Posttraumatic stress disorder	6.4	45.3	63.3	28.4
Agoraphobia	5.4	38.4	58.9	34.5
Generalized anxiety disorder	4.8	46.0	68.4	32.7
Panic disorder	3.4	35.9	61.3	41.4
Mood disorders:				
Major depression	16.9	36.6	59.0	38.1
Dysthymia	6.8	37.8	60.0	37.0
Bipolar disorder	1.6	68.8	82.5	16.6
Psychotic disorder (nonaffective)	0.6	49.4	67.9	27.2

SOURCE: Adapted with permission from Lasser et al. (2000) and based on National Comorbidity Survey data.
[a]Smoking quit rate defined as proportion of lifetime smokers who were not current smokers (no significant difference in rates when quit rate was defined as not having smoked for more than preceding year).

Several mechanisms are believed to underlie the phenomenon of nicotine addiction and mental-health disorders as comorbidities. One is the ability of nicotine to reduce the severity of some psychiatric symptoms. For example, the release of serotonin and norepinephrine in the brain by nicotine is similar to the neurochemical effects of some antidepressant medications. Nicotine may improve sensory gating (the process by which the brain responds to stimuli), which is abnormal in schizophrenics. Improvement in sensory gating secondary to nicotine intake might be expected to enhance the ability to sort out extraneous stimuli and therefore improve attention (Martin and Freedman, 2007). In addition, cigarette-smoking inhibits monoamine oxidase A and B (Lewis et al., 2007); such inhibition is used to treat depression, therefore cigarette-smoking might benefit depressed patients in the same manner. Finally, nicotine, through its stimulant effects, may reduce unpleasant sedative side effects of psychiatric medications and reduce the sedation caused by alcohol.

Tobacco Use and Alcohol Abuse

There is a substantial link and possible shared genetic susceptibility between alcohol abuse and cigarette-smoking (Madden and Heath, 2002; Wilhelmsen et al., 2005; Le et al., 2006). The 2001–2002 NESARC found the 12-month prevalence of nicotine dependence to be 45.4% in people who were alcohol-dependent (Grant et al., 2004). Alcohol abusers are more likely to die from smoking-related causes than from alcohol (Burling and Ziff, 1988; Hurt et al., 1996). In a study of 499 smokers who were receiving intensive treatment for alcohol dependence, 95% considered themselves to be physically addicted to nicotine, and they smoked a mean of 25.5 cigarettes/day. Over 45% of the participants lived with another smoker, 39% had attempted to quit in the preceding year, 46% indicated that they were taking action to quit, and 33% were starting to think about quitting; 16.7% thought they should quit but were not ready. Only 8% had been told by an alcohol counselor to quit smoking and alcohol concurrently, 32% had been counseled to quit smoking in the future, and 24% had been advised to not quit by their alcohol counselor (Joseph et al., 2003). In a review of 24 smoking-cessation studies of people in treatment for substance abuse or dependence, Sussman (2002) found that quit rates increased

with length of abstinence from substance use. Although some substance abusers may not benefit from or may even be harmed by concurrent treatment, for most "attempting to quit smoking does not seem to interfere with recovery from other substances . . . and concurrent exposure to smoking cessation treatment will assist with recovery." Sussman noted that substance users who smoke differ from nonusers who smoke in several ways: they started smoking at an earlier age, smoke more cigarettes per day, have more cognitive deficits, have more comorbid psychiatric disorders, have more medical problems, and have lower levels of smoking-cessation self-efficacy.

Tobacco Use and Anxiety Disorders

Anxiety disorders affect 25% of people (more women than men) during their lifetime and thus make up the largest entity of psychiatric disorders in the United States (Breslau et al., 1991). Anxiety disorders defined in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* include generalized anxiety disorder (GAD), PTSD, agoraphobia, panic disorder, simple phobia, and social phobia (American Psychiatric Association, 2000).

According to data from the 2001-2002 NCS, the prevalence of nicotine dependence in those with any anxiety disorder is higher than that in the general population. Although the percentage of current smokers differs among disorders, from 31.5% for social phobia, to 44.6% for PTSD, and 54.6% for GAD, all the rates are significantly higher than the 22.5% of current smokers who had no past or current psychiatric disorder (Lasser et al., 2000).

It has been suggested that nicotine dependence increases the risk of PTSD. Koenen et al. (2005) in a study of over 6,744 Vietnam veteran twins found that nicotine dependence almost doubled the risk of developing PTSD in men exposed to trauma compared with the risk in nonsmokers. The prevalence of nicotine dependence was 71.2% in veterans who had PTSD compared with 40% in those who did not. Shared genetic effects accounted for about 63% of the association. Trauma alone and PTSD were associated significantly but less strongly with nicotine dependence. Alterations in the function of the hypothalamic-pituitary-adrenal (HPA) axis seen in people who have PTSD may increase the risk of nicotine dependence. In a review of the neurobiologic association between smoking and PTSD, Rasmusson et al. (2006) suggested that activation of the HPA axis in response to a threat or stress releases neurohormones that can lead to arousal and anxiety. That dysfunction in areas of the brain that modulate reward, that is, the frontal lobe, hippocampus, and nucleus accumbens, is purported to promote nicotine dependence.

Tobacco Use and Depression

Depression is a common psychiatric disorder with a variety of subtypes and severity levels. Among patients who have depression, over 30% are daily smokers—a higher rate compared with that in the general US population (Grant et al., 2004; Waxmonsky et al., 2005). Nearly 60% of those with a lifetime history of depression are current or past smokers (Lasser et al., 2000). Smokers have significantly higher rates of lifetime depression than nonsmokers (lifetime prevalence rates of major depression may reach 64% among those in clinic-based smoking treatment). Specifically, those who are nicotine-dependent are twice as likely as nonsmokers to have a history of depression (Breslau et al., 1991; Breslau and Johnson, 2000); (Hitsman et al., 2003). Some studies have suggested that daily and chronic smoking may increase a person's susceptibility to depression because of compensatory neurophysiologic changes (Hughes, 1999; Markou and Kenny, 2002; Markou et al., 1998).

Tobacco Use and Schizophrenia

Although rates vary by study setting and the presence of other comorbidities, such as substance-use disorders, about 70–85% of people who have schizophrenia are tobacco users (Hughes et al., 1986; Workgroup on Substance Use Disorders, 2006). As seen with other psychiatric disorders, about 50% of those who have schizophrenia are heavy smokers—defined

as people who smoke more than 25 cigarettes/day (Lasser et al., 2000; Ziedonis et al., 1994). According to a meta-analysis of 42 studies conducted in 20 nations, the odds ratio (OR) for current smoking in schizophrenics compared with the general population is 5.9; rates were higher in males (OR, 7.2) than in females (OR, 3.3) (de Leon and Diaz, 2005).

Psychologic Stress and Comorbid Conditions in the Military

It has been estimated that cigarette consumption in the general population increases by nearly 10% in stressful times, such as after the terrorist attacks on September 11, 2001 (Galea and Resnick, 2005). Smoking initiation, specifically in military populations, has been found to be associated with stress and boredom. According to the 2005 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel, the most commonly endorsed reasons for initiating smoking in the services, particularly in the Army and Marine Corps, included "to help relieve stress" (25.4%), "to help me relax or calm down" (26.2%), and "to relieve boredom" (22.2%) (DoD, 2006). Haddock et al. (2008) found that "stress" and "boredom" were frequently cited as reasons for smoking in the military, particularly during deployment. In a survey of military personnel, a junior enlisted member discussed tobacco use in the military: "I think this one too can be tied back into it's a good way to deal with boredom or stress because when you're deployed there was a lot of tobacco as opposed to other essential things that you need like over in the desert, when we were there, too, and there's nothing to do over there, and we figure you know you're going to die from smoking but we might die from being hit by a rocket" (Haddock, 2008). See Table 3-3 for specific numbers regarding stress and smoking.

TABLE 3-3 Stress and Mental-Health Indicators by Smoking Status[a]

Problem/Level	Never Smoked	Former Smokers	Current but Not Heavy Smokers	Current Heavy Smokers
Stress at work, past 12 months				
A lot	15.4 (0.6)	17.6 (1.1)	23.4 (1.2)	29.8 (1.5)
Some/A little	59.4 (1.0)	62.1 (1.4)	55.2 (1.7)	53.4 (1.7)
None at all	25.3 (1.0)	20.3 (1.3)	21.4 (1.2)	16.8 (1.0)
Stress in family, past 12 months				
A lot	26.9 (1.0)	31.4 (1.6)	38.3 (1.3)	51.0 (2.2)
Some/A little	58.0 (1.0)	57.9 (1.6)	51.6 (1.0)	40.7 (2.1)
None at all	15.1 (1.1)	10.7 (0.9)	10.1 (0.8)	8.4 (0.9)
Days in past month limited usual activities due to poor mental health				
11 or more days	2.2 (0.3)	2.0 (0.4)	3.5 (0.4)	6.4 (0.9)
4-10 days	2.3 (0.3)	2.2 (0.4)	4.6 (0.6)	5.2 (1.0)
1-3 days	7.9 (0.4)	7.4 (0.8)	11.7 (0.9)	11.7 (0.8)
None	87.6 (0.7)	88.4 (0.9)	80.3 (0.9)	76.8 (1.6)
Need for further anxiety evaluation, past 30 days				
Yes	15.6 (0.8)	16.1 (1.0)	20.7 (1.1)	32.2 (2.1)
No	84.4 (0.8)	83.9 (1.0)	79.3 (1.1)	67.8 (2.1)
Need for further depression evaluation				
Yes	18.5 (0.9)	19.6 (1.0)	26.9 (1.5)	36.3 (2.2)
No	81.5 (0.9)	80.4 (1.0)	73.1 (1.5)	63.7 (2.2)
Suicidal ideation, past year				

Problem/Level	Never Smoked	Former Smokers	Current but Not Heavy Smokers	Current Heavy Smokers
Yes	3.8 (0.4)	3.6 (0.7)	6.5 (0.6)	9.3 (1.5)
No	96.2 (0.4)	96.4 (0.7)	93.5 (0.6)	90.7 (1.5)
Serious psychological distress, past 30 days				
Yes	6.5 (0.5)	6.0 (0.6)	10.0 (0.8)	14.5 (1.5)
No	93.5 (0.5)	94.0 (0.6)	90.0 (0.8)	85.5 (1.5)
Need for further PTSD evaluation, past 30 days				
Yes	0.9 (0.2)	0.7 (0.2)	2.0 (0.2)	4.0 (0.6)
No	99.1 (0.2)	99.3 (0.2)	98.0 (0.2)	96.0 (0.6)
Any physical/sexual abuse				
Yes	31.5 (1.1)	37.4 (1.6)	39.1 (1.2)	42.7 (2.1)
No	68.5 (1.1)	62.6 (1.6)	60.9 (1.2)	57.3 (2.1)

SOURCE: Reproduced from DoD (2006).
[a]Percentage of military personnel by smoking status who reported the stress and mental health problems noted; standard error of each estimate is in parentheses.

A 2008 publication from the Millennium Cohort Study, a 21-year longitudinal study of risk factors related to military service, has provided more recent information about tobacco use in the military (Smith et al., 2008). The authors found that military deployment is associated with smoking initiation. Between 2004 and 2006, the prevalence of smoking among the study population increased by 48%; smoking rates increased by 57% among those deployed and by 44% among those not deployed. Of those who reported never having smoked at baseline, 1.3% of nondeployed and 2.3% of deployed reported initiating smoking on entry into the military. Nearly 30% of those who were past smokers at baseline and were not deployed reported resuming smoking; 39.4% of those who were past smokers at baseline and were deployed reported reinitiating the behavior. Combat exposure was found to be associated with smoking: baseline never smokers with combat exposure were at 1.6 times greater risk of initiating smoking, and baseline past smokers with combat exposure were at 1.3 times greater risk of resuming smoking than those who were not exposed to combat (Smith et al., 2008).

In the current conflicts in Iraq and Afghanistan, rates of mental illness and substance-use disorders (for example, alcohol abuse and marijuana use) are increased, and, as described earlier, those with such comorbid conditions are more likely to use and be addicted to tobacco. Hoge et al. (2006) noted that 19.1 % of military personnel returning from Iraq met the risk criteria for a mental-health concern compared with about 8.5% of soldiers surveyed before initial deployment to Iraq or Afghanistan. Specifically, the prevalence of PTSD in Iraq war veterans a year after the end of deployment was 16.6%; the predeployment rate in a comparable sample was 5%.

Mental-Health Disorders in Veterans

As stated in Chapter 2, veterans enrolled in the VA health-care system are generally older, are more financially disadvantaged, and have higher rates of medical and psychiatric disorders than the general population. For example, over 36% of enrolled veterans reported fair or poor health status compared with excellent, very good, or good health. In addition, 26.3% of enrollees reported that they had experienced difficulty in concentrating, remembering, or making decisions because of a physical, mental, or emotional condition (VA, 2006). VA treats a large number of veterans returning from Operation Iraqi Freedom (OIF) in Iraq and Operation Enduring Freedom (OEF) in Afghanistan with psychiatric disorders. Seal et al. (2007) surveyed

103,788 OEF and OIF veterans seen at VA health-care facilities and found that 25% received mental-health diagnoses; of those, 56% had two or more distinct mental-health diagnoses.

INTERPERSONAL FACTORS

The experience of serving in the military is a risk factor for tobacco use and may play a role in the initiation of smoking among military personnel (Cronan and Conway, 1988). DoD (2006) found that 18.4% of military personnel who responded to a 2005 survey said that they started smoking after joining the military, including 37.5% of current smokers. Certain aspects of the military experience may encourage tobacco use, such as acceptability of smoking by one's social networks. Family, friend, and peer influences are sources of behavioral models and social support that are predictors for smoking and its initiation (Vink et al., 2003).

Haddock et al. (1998) stated that social factors are the strongest predictors of tobacco use; for example, having friends who smoke and view smoking as attractive significantly increases one's own risk of smoking. In addition, by modeling the influence of social networks on smoking behaviors, Christakis and Fowler (2008) found that people seem to act in accordance with and under the collective pressures of their social niche.

Surveys of health behaviors in the military have noted similar findings linking peer influence to tobacco use (DoD, 2006; Nelson et al., 2009). Nearly 9% of the participants in the 2005 DoD survey started smoking "to fit in with my friends"; this rate varied somewhat among the services—5.6% of Army personnel and 11% of Air Force personnel reported fitting in with others as a factor in smoking initiation. Servicewide, nearly 7% reported that they started smoking "to look 'cool' or be 'cool'" (DoD, 2006) (see Table 3-4 for more detailed responses). In another survey of tobacco use in military personnel, a supervisor stated the following: "You're an Airman and you are hanging out with fellow Airmen and the thing to do was go to the club. You could go to the gym too, but you also went to the club and at the club it was drink and then you started smoking" (Haddock, 2008). Over 40% of those responding to the 2005 DoD survey, specifically, over 50% of those in the Army and Marine Corps and 30% in the Air Force reported that most of their friends in the military smoked (DoD, 2006). According to a junior enlisted member, "I have friends and they'd maybe smoke occasionally when they drink or something, when they'd go out socially. When we went to Baghdad they smoked everyday. Pack a day. Just went out of control. They'd say it was a stress reliever" (Haddock, 2008).

TABLE 3-4 Perceived Cigarette Availability and Acceptability and Reasons for Starting Smoking Regularly, by Service (%)

Measure/Type of Estimate	Army	Navy	Marine Corps	Air Force	Total DoD
Perceived availability and acceptability					
Most of my friends in the military smoke	50.8	41.5	50.6	30.2	42.5
My spouse, live-in partner, or the person I date disapproves of my smoking	41.3	42.1	42.6	45.0	42.7
Why started smoking regularly					
To fit in with my friends	5.6	10.3	7.8	11.0	8.5
To fit in with my military unit	1.1	3.9	1.5	1.7	2.1
To rebel against my parents or other in authority	4.5	5.6	4.2	4.8	4.8
To look "cool" or be "cool"	4.2	9.0	6.0	8.8	6.9
To look or feel like an adult	2.9	5.8	3.2	5.6	4.4
Most in my family smoked	5.2	6.5	5.3	5.5	5.6
To be like someone I admired	1.7	3.8	1.7	2.1	2.4

SOURCE: Adapted from DoD (2006).

Smoke pits are designated areas for military personnel to take regular smoking breaks; they provide an opportunity to socialize with others while possibly encouraging tobacco use by both smokers and nonsmokers. A junior enlisted smoker stated: "I've been out to the smoke pit all the time and two or three people that don't normally smoke bum a cigarette so they can stay." In addition, junior military personnel report additional pressure to socialize with the senior military personnel who often frequent the smoke pits (Haddock, 2008). Wanting to remain in good standing with one's superiors and building camaraderie among peers may drive military personnel to increase their frequency of smoke-pit visits and facilitate joining by those who would not normally attend.

Family attitudes may also affect the perceived acceptability of smoking by either encouraging or discouraging tobacco use. For example, in response to "why military personnel started to smoke", 5.6% reported that most members of their family smoked. With respect to acceptability, only 43% of respondents said that their "spouse, live-in partner, or the person I date disapproves of my smoking (or would disapprove if I did smoke)." Male military personnel who reported high levels of family-related stress were more likely to be current smokers than those with low stress (Cunradi et al., 2008). Married personnel were less likely to use smokeless tobacco than unmarried personnel (Ebbert et al., 2006).

COMMUNITY FACTORS

This section discusses organizational factors—such as culture, tolerance of tobacco use, organization-level activities, and policy and leadership—that may influence tobacco use by military personnel and veterans. The committee recognizes the numerous policies and practices implemented by DoD and VA (discussed in Chapters 5 and 6) that restrict and discourage use of tobacco by military personnel and veterans. However, the goal of this section is to indicate how a lack of policy or restriction may lead one to assume that tobacco use is condoned or tolerated by DoD and VA leadership.

To appreciate the origin and implementation of tobacco-use policies, one must understand the organizational structures of DoD and VA. These Cabinet-level departments are extensive, with budgets in the billions of dollars; DoD employs over 2 million people and VA over 280,000 people (Office of Citizen Services and Communications, 2009). The following is a brief overview of each organizational structure to indicate the chain of command and the location of responsibility for tobacco-use policies and programs.

Department of Defense

DoD is headed by the secretary of defense. Reporting to the secretary and deputy secretary of defense are the secretaries of the Department of the Army, Navy (which includes the Marine Corps), and Air Force. The secretary also oversees the Office of the Secretary of Defense, which is staffed by four under secretaries, including the under secretary of defense for personnel and readiness (USD(PR)). The assistant secretary of defense for health affairs (OASD (HA)) reports to the USD(PR), as does the head of the TRICARE Management Activity. The Departments of the Army, Navy, and Air Force each have a surgeon general, who is responsible for service members' health. The sections below discuss some organizational factors likely to contribute to tobacco use by active-duty and retired military personnel.

Acceptability of Tobacco Use

As discussed earlier in this report, with the exception of the Air Force, the armed services have tobacco-use rates greater than those in the general US population. Rates are even higher for military personnel deployed to war zones, such as Iraq and Afghanistan. A fitness and health promotion program manager in the Marine Corps reported that marines, including commanding officers, believe that they have a right to smoke—that the military should not put unnecessary

restrictions on troops who are already making sacrifices (DoD, 2007). Army and Air Force junior enlisted personnel (including current smokers, ex-smokers, and never smokers) and their supervisors agreed that smoking was more common during deployment, partially because of a feeling that antitobacco rules were not enforced.

Interviews with policy leaders from the Tobacco Policy Study indicated various levels of enforcement, from the proper enforcement of no smoking in vehicles to general disregard of designated smoking areas (Haddock, 2008). Junior enlisted personnel in the Army and Air Force indicated that such rules as that prohibiting smoking in military vehicles are routinely ignored without consequences. In a series of focus groups conducted with the same population, Haddock (2008) found that many service members still believe that the military encourages tobacco use during deployment—smokers are allowed to take breaks when nonsmokers are not, inexpensive cigarettes are readily available, and there still exists an underlying historical association between smoking and the military.

Access to and Cost of Tobacco Products on Military Installations

Almost 50% of Army and Marine Corps personnel, 33% of Air Force personnel, and 38.4% of Navy personnel reported that a reason for smoking was availability—numerous locations to buy on installations, such as commissaries, exchanges, and package stores (DoD Instruction 1330.09, December 7, 2005). There is an added monetary incentive: DoD Instruction 1330.09 states that "prices of tobacco products sold in military resale outlets in the United States, its territories and possessions, shall be no higher than the most competitive retail price in the local community and no lower than 5 percent below the most competitive commercial prices in the local community."

Leadership of Antitobacco Campaigns

The Tobacco Policy Study notes that military personal and leaders do not view tobacco use as having high DoD health-service priority; other, more pressing issues take precedence. It is also the opinion of some junior enlisted personnel that numerous senior leaders still view smoking as being as socially acceptable as when they joined the military in the 1970s (Haddock, 2008). Those perceptions inhibit actions against tobacco use.

Smoking Breaks

Although the Army and the Air Force recognize that work breaks for tobacco users and nontobacco users are equal, there is a perception among junior enlisted personnel that those who smoke or use tobacco products have longer and more frequent respites from work. For example, Haddock (2008) found that "smoking is one of the only reasons a military member can take a break or leave a duty area. . . . Breaks for other reasons are not socially sanctioned."

Lack of Activities and Privileges During Deployment

A junior enlisted member commented on the lack of freedom in the military for some activities, such as drinking alcohol, sex, and listening to music. Haddock (2008) stated that the ability to smoke a cigarette, however, restores a sense of personal freedom that may have dissipated because of those restrictions.

Concern about Weight

Close monitoring of weight seems omnipresent in the military; those who exceed weight guidelines are reprimanded. As reported by a junior enlisted nonsmoker, weight control is another reason cited for tobacco use: "I know a lot of soldiers have told me that they want to quit, but one deterrent to quit smoking is that they're afraid they're going to gain weight, and that's a big deterrent." According to the 2005 DoD survey of health-related behaviors, about

4.6% of those who smoke regularly reported that they started smoking to avoid gaining weight, and 6.4% said that they started smoking to control appetite (DoD, 2006).

Lack of Consistent and Comprehensive Antitobacco Policies and Programs

Interviews with policy leaders demonstrated that tobacco policies and their enforcement, or lack thereof, are inconsistent among bases (Haddock, 2008). For example, Army representatives have indicated that leadership does not enforce the "no using smokeless tobacco while indoors" restriction. That is of particular concern because it may prompt cigarette users to switch to or additionally use smokeless tobacco in order to avoid going outside.

Among the services and their installations, there is no consistency in smoking-cessation or tobacco-use programs. The Air Force is the only service that provides guidance on what tobacco-cessation programs are to be used by health-promotion staff (Loftus, 2008). In addition, military personnel frequently transfer to new bases, which can result in a lack of continuity in access to or level of care. To further complicate the issue, reservists and National Guard personnel cycle between civilian life and military deployment, which have different standards of behavior.

Difference in Support Between Active-Duty and Retired Military Personnel

Regardless of such factors as designated smoking breaks that may undermine cessation activities, there is a support network that can encourage military members on active duty to stay abstinent. Retired military personnel, however, do not appear to have such readily available access to support systems. To help remedy that situation, the DoD appropriation bill for 2009 (HR 5658) contains language that requires that DoD establish a smoking-cessation program under TRICARE; it will include all beneficiaries and will provide smoking-cessation medication (prescription and over-the-counter) through the TRICARE mail-order pharmacy at no cost to the beneficiaries, access to a 24/7 toll-free quitline, and access to printed and Internet Web-based tobacco-cessation material. The program has yet to be implemented. There can be a lack of continuity of care when military personnel leave the DoD medical system and either enter the VA health-care system (in which they must find new tobacco-cessation programs), obtain private insurance through civilian employers, or become uninsured.

Department of Veterans Affairs

Numerous organizational and community factors in VA are likely to contribute to continuing tobacco use by veterans (see Chapter 6), including lack of a coordinated approach to tobacco-cessation programs among and within Veterans Integrated Service Networks (VISNs), lack of funding for health are providers, and a lack of emphasis on treating tobacco users. Each medical center has its own approach to treating people for tobacco use—resources devoted to programs and the programs themselves vary among the centers. VA medical facilities are required to use electronic medical records and to meet the performance standard of asking veterans about smoking and then offering brief counseling sessions, but the tobacco-cessation programs vary. Health-care providers at VA community-based outpatient clinics (CBOCs) are required to ask patients about tobacco-use status and may conduct brief counseling, but CBOCs are not required to have tobacco-cessation programs or tobacco lead clinicians (Kim Hamlett-Berry, VA, personal communication, June 4, 2008).

Headquarters staff lack the authority to implement or enforce changes in VISNs, medical centers, or CBOCs regarding smoking-cessation activities. The director for the Public Health National Prevention Program in the Public Health Strategic Health Care Group at headquarters, has responsibility for tobacco-use programs in VA. The director is "responsible for the development and oversight of public health policy and clinical programs for the VA Health Care System relating to smoking and tobacco use cessation" and works with a technical advisory

group of smoking-cessation clinicians from several VISNs (VA, 2009). Not all VISNs are represented on the technical advisory group.

Another major barrier limiting primary-care–based treatment is a lack of adequate provider time and knowledge regarding smoking treatment. Mental-health care providers may be veterans' primary-care physicians, so they must understand the clinical-practice guidelines and be educated in simultaneous treatment for mental-health disorders and tobacco control (VA/DoD, 2004). Many VA CBOCs do not have smoking-cessation programs, and although patients can receive cessation medications at these clinics, they are referred to local health departments or state quitlines for programs. The lack of treatment coordination between VA health-care providers and community tobacco-cessation providers and the lack of structured followup by VA are likely to discourage a patient's interest in tobacco cessation. Although the committee finds quitlines to be effective (see Chapter 4), it acknowledges that it may be difficult for VA health-care providers to determine whether a veteran uses a state quitline. However, a provider can take an active role by asking veterans about cessation interventions at each health-care appointment and noting their use of interventions in their medical records.

SOCIETAL FACTORS

This section discusses the more global influences on tobacco use—factors that act on the societal level and may promote the use of tobacco by military personnel and veterans. Specifically, the tobacco industry, the historical association between the military and tobacco use, and the current state of conflict are all pivotal components in helping to encourage tobacco use and hinder cessation.

Influence of the Tobacco Industry

The tobacco industry has a long history of thwarting attempts to advance tobacco control in the United States military and VA. In particular, analyses of tobacco-industry documents dating back several decades have shown dedicated efforts, beginning in the middle 1980s, to block attempts to raise commissary tobacco prices (Smith et al., 2007). The tobacco industry has extraordinary economic and political influence. It lobbies Congress heavily, exploits DoD's lack of unity regarding positions on tobacco pricing, and has built alliances with the House Armed Services Committee and DoD's morale, welfare, and recreation programs. Panels responsible for military oversight helped to advocate tobacco use as a "right" and low price as a "benefit". Another example of industry clout is the ability to block complete implementation of an Army tobacco-control program first announced in 1986 in Directive 1010.10 (Arvey and Malone, 2008). Smith et al. (2007) reviewed tobacco-industry, government, and military documents and interviewed key people to establish the influence of the tobacco industry and some members of Congress in thwarting DoD efforts to raise the price of tobacco products sold in commissaries. The tobacco industry created a "military coalition" of military personnel, retirees, and their families to protest the proposed price increases in commissaries on the grounds that the increases would erode their compensation benefits. Ultimately, that resistance resulted in the commissaries' selling cigarettes on consignment for the exchanges at the less discounted exchange prices (Congress does not have oversight of military exchanges). The end result of this history is a persistent and long-standing military tradition of readily available cigarettes at prices below those seen in the civilian sector (Smith et al., 2007).

The tobacco industry has also had a role in resisting tobacco-control initiatives in VA, working primarily through Congress. The Veterans Health Care Act of 1992 (PL 102-585, §526) required that VA establish and maintain indoor smoking areas in VAMCs, nursing homes, and domiciliary-care facilities for veterans or detached smoking areas that are accessible to patients and have heating and air-conditioning. It should be noted that many veterans have also opposed VA efforts to become tobacco-free (Hamlett-Berry, 2004).

Cultural Factors

Smoking has long been associated with the image of a tough, fearless warrior. Movies, novels, and articles in the mass media have traditionally depicted soldiers as tobacco users. Specifically, Nelson and Pederson (2008) noted that by the end of World War I, tobacco use was collectively viewed as patriotic and as a staple for the American soldier. Even today, although to a smaller extent, military culture has encouraged the stereotype of a heavy-smoking, hard-drinking, and adventuresome service member (Conway, 1998). Implemented in 1987, the ban on tobacco use during basic training signified an important step in modifying both the behavior and the view of tobacco use among service members (Conway, 1998). It represented a pivotal period in which attitudes toward smoking began to shift in response to efforts by those in positions of authority to reshape ideas about the acceptability of tobacco use in the military.

Although a positive change in the culture of smoking seems to have occurred, old beliefs linger and are immortalized through the myriad images of a soldier in a helmet, covered with dust and debris, and with a cigarette in his mouth. When Hoffman et al. (2008) conducted focus groups at Air Force and Army installations, a military supervisor said the following with regard to junior enlisted personnel: "If they see a tough soldier, say, a drill sergeant for example, if they smoke, that's the image they want to be, and they have that image of what they want to be." Conway (1998) identifies and acknowledges the attitudes of tobacco use in the military and calls for their adjustment—"further reductions in military tobacco use rates are likely to require stepped-up efforts involving educational, motivational, and social or environmental changes"—and the initiation of stronger educational messages, including ones focused on changing the accepted culture of smoking in the military.

For military personnel and veterans alike, there is a permeating belief that the tobacco issue has low priority with respect to health services; according to interviews with policy leaders, tobacco is at the bottom of the list of behaviors to remedy: "Dangers in the field trump the health impact of smoking. . . . Basically, if you're putting your life on the line and it's a cigarette, you know pretty much that it's the least of the evils that are out there" (Haddock, 2008). In addition, veterans experience a multitude of ailments—such as PTSD and other psychologic disorders, to drug and alcohol abuse, to musculoskeletal problems—that allow them to perceive smoking as a less pressing concern. Military personnel and veterans may not appreciate that their use of tobacco may aggravate and even lead to other medical and psychologic problems, as noted in Chapter 2.

Behavioral Economics

Over the last 2 decades, a burgeoning literature at the intersection of psychology and economics has produced consistent evidence of situations in which competent, often well-informed people behave in ways that are more detrimental to them than slightly changed behavior would be. Such findings of "bounded rationality" have clear implications for policies toward tobacco that are applicable to military and veteran populations (Thaler and Sunstein, 2008).

The first finding, documented repeatedly in behavioral economics, stems from "status quo bias", the idea that people make choices regarding policies, consumption, and other decisions without a compelling incentive even though change would be beneficial and nearly cost-free. For example, for many people, the probability of participating in an employer-sponsored tax-deferred savings account rests on whether the employer automatically enrolls employees in such an account, despite the fact that most people say that they want to contribute to tax-deferred retirement savings plans. The second finding is that the "framing" of situations matters; people often act on information that, if their decision-making was rational, should be irrelevant. People respond dramatically differently to messages that convey the same information, depending on how the information is presented. Third, behavioral economists describe the "present-biased preference", the tendency to overestimate the value of short-run

benefits (continued smoking relieves boredom or stress today) and underestimate the long-run benefits of quitting (quitting smoking will improve my military performance in the coming months and my long-term health). Economists and others have suggested responding to those tendencies by designing policies that preserve choice but make the "optimal" or greatest-welfare options for a person easier to select (Camerer et al., 2003).

There are several ways in which those predictable "errors" may play a role in tobacco use among military and veteran populations, as elsewhere. Status quo bias seems to exist for new recruits, and in the short term evidence suggests that it helps them to avoid tobacco. In an organization in which smoking was historically a behavior of the majority, the practice of tobacco-free basic training was phased in without incident, and it occurs today with little complaint from recruits and virtually 100% compliance. Those who smoked before basic training seem to have little trouble with the change to a nonsmoking environment. Thus, as the military makes nonsmoking the status quo, people may find it easier to remain tobacco-free. That is echoed in the voice of young recruits who voiced their views toward tobacco policy: "If you want us to quit smoking, tell us we cannot smoke" (Peterson et al., 2003).

Studies have shown that point-of-sale promotions of tobacco products can increase impulse buying (Carter et al., 2009) and result in recent ex-smokers' having urges to resume tobacco use (Paynter and Edwards, 2009). Furthermore, because of the framing issues described above, several practices now in place for some military personnel may induce greater consumption of cigarettes. For example, how tobacco products are displayed varies widely even among vendors on a single military base. Some exchanges promote cigarette sales with "power walls" (large portions of wall space devoted to promotional materials and the display of tobacco products) without any smoking-cessation products placed nearby (Hawthorne, 2008). In contrast, some commissaries that sell tobacco products place them in a separate section of the store enclosed in a cage-like structure and display telephone numbers for tobacco quitlines and promotion of smoking-cessation products prominently in the same location. Aside from the fact that enclosing tobacco products in a separate structure makes them harder to access and thus creates a physical barrier to purchase, the normative message sent by such a display differs greatly from that sent by a power wall. The cost of changing the display of tobacco and smoking-cessation products is low. Similarly, the procrastination that results from present-biased preferences is one reason why proactive quitlines may be more effective than passive quitlines. Such a policy incurs no cost to the people using the quitlines, but it may help them to quit. Similarly, when nicotine-replacement therapy is part of an appropriate treatment plan for smoking cessation, it should be made available with as few barriers as possible. People respond more than is "rational" to the delay in filling a prescription created by waiting for an hour at the pharmacy or when they need to fill out paperwork to obtain mail-order prescriptions. In summary, there are many ways in which leaders in DoD and VA could make relatively small changes in policy to exploit what we have learned from behavioral economics to reduce tobacco use (Hawthorne, 2008).

Geopolitical Context

The United States is engaged in two major military conflicts—OEF began October 2001 in response to the terrorist attacks of September 11, 2001, and OIF began in March 2003 when US-led coalition forces invaded Iraq. DoD reported that as of September 30, 2008, 45,700 military personnel were deployed to OEF and 380,800 to OIF (DoD, 2008).

As noted earlier, combat-related and non–combat-related deployment stress is associated with increased tobacco use (DoD, 2006; Smith et al., 2008). Combat-related stressors, for example, include the need for constant vigilance against enemy attack and the difficulty in distinguishing insurgents from civilians. Noncombat stressors include separation from family and friends, loss of income, and fear of deployment to a war zone (IOM, 2007). The current large-scale military conflicts have put a strain on military and veteran resources. Priority-setting among health-care services has occurred—acute medical-care needs, such as treatment for

traumatic brain injury or PTSD, are now a prominent focus of military and veteran health-care resources. For those reasons and others discussed in this chapter, tobacco-use prevention and cessation efforts do not have high priority in the DoD and VA.

SUMMARY

Numerous factors interact and contribute to high rates of tobacco use among the military and veteran populations. Evidence-based changes—such as reducing tobacco access, restricting tobacco use through proper enforcement of existing and new policies, and expanding access to effective cessation programs—should not be difficult to attain. Long-term, sustained efforts will be required to achieve broad structural changes, such as changing social norms regarding tobacco among military and veteran populations, continuing the shift away from an association between tobacco and the military, and finding alternatives to coping with the stress and boredom of deployment. The socioecologic framework and evidence from exemplar tobacco-control programs show that factors at multiple levels of influence, from individual attributes to the social and political context, should be addressed to curb tobacco-use rates and generate a tobacco-free culture. All those efforts require leadership, strategic planning, capacity-building, proper allocation of resources, and monitoring of process measures and outcomes. The following chapters provide guidance to DoD and VA on what the best approaches to tobacco control are, where DoD and VA stand with respect to the approaches, and the efforts they can undertake to leverage their resources.

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4

TOBACCO-CONTROL PROGRAMS: EVIDENCE-BASED PRACTICES

Preventing tobacco use and helping those who use it to quit can have long-term benefits for individuals and for public health in general. State and federal government agencies, health-care organizations, and other groups that promote public health have developed and implemented tobacco control programs to help to prevent or reduce tobacco use. The programs use taxation, restrictions, mass-media campaigns, and effective and easily accessible behavioral counseling and tobacco-cessation medications. They provide services to varied target audiences, including young people, people with comorbid health problems, those of diverse ethnicities and socioeconomic status, and women.

Evidence-based best practices for tobacco control have been widely promoted and have succeeded in reducing tobacco use in the United States. The committee recognizes, however, that identifying the best practices for specific and diverse populations can be challenging. Reducing tobacco use faces special challenges because tobacco products are legal and easy to acquire, highly addictive, and heavily promoted by a tobacco industry that spends billions of dollars a year to promote tobacco as part of the American culture (CDC, 2007a). Creating a tobacco-free culture will depend on developing an environment that encourages abstinence and makes many types of effective assistance and encouragement accessible to diverse populations. Maintaining a tobacco-free culture will require a sustainable infrastructure for comprehensive programs.

The application of evidence-based best practices for tobacco control in military populations under the jurisdiction of the Department of Defense (DoD) is the subject of Chapter 5; Chapter 6 addresses the same issues for the population of veterans who use the Department of Veterans Affairs (VA) health-care system. The committee believes that well-designed tobacco-control programs can influence tobacco use by military personnel from the time they enter the military until they leave the service and beyond. For military personnel who enter the VA health system, these practices can also influence their tobacco use as veterans.

This chapter summarizes what is known about evidence-based best practices for tobacco-control programs in the general population with an emphasis on program components that are or could be most applicable to DoD and VA. The committee hopes that by implementing these practices, DoD will be able to prevent or reduce tobacco use by military personnel in all phases of their military service—from the time they enter the military until they leave the service or retire. Implementing the practices in VA may also reduce tobacco use in veterans. As discussed in the next two chapters, DoD and VA already have in place some of the components and practices, including the infrastructure and regulatory authority, for an effective tobacco-control program, including; the committee highlights there how the departments can take advantage of current policies and procedures to increase their effectiveness and reach and emphasizes where additional opportunities for tobacco control may reside.

COMPREHENSIVE TOBACCO-CONTROL PROGRAMS

Evidence supports the use of a comprehensive tobacco-control program to reduce tobacco consumption (Warner, 2007). A comprehensive approach to tobacco control results in changes that affect the entire population, from the individual to the societal level, by addressing the political, social, cultural, economic, and environmental factors that support the use or nonuse of tobacco. Tobacco control programs reduce tobacco use at the population level by creating tobacco-free indoor and outdoor areas, restricting young people's access to tobacco products, limiting tobacco advertising, having sustained counteradvertising campaigns, increasing the cost of tobacco products, and providing easily accessible tobacco-cessation products and services. Comprehensive tobacco-control programs for military and veteran populations could help to

- Foster a tobacco-free culture and denormalize tobacco use in military personnel and veterans.
- Prevent the initiation of tobacco use by military personnel and their dependents during active duty and prevent relapse to tobacco use by military personnel and veterans who have quit.
- Eliminate exposure of military and veteran personnel, family, co-workers, and others to secondhand smoke and its health consequences.
- Support and promote tobacco cessation in military personnel, veterans, and their dependents.
- Identify and eliminate disparities in tobacco treatment between the general population and military personnel or veterans in high-risk populations, including those with mental-health disorders.

Numerous entities have developed and implemented successful tobacco-control programs. They include the federal government, specifically the National Cancer Institute (NCI) and the Centers for Disease Control and Prevention (CDC); various state governments; and commercial entities, such as Kaiser Permanente. California has been a leader in establishing a comprehensive tobacco-control program. Its program began in 1988 and adult tobacco use in California decreased from 22.7% to 13.3% by 2006 (CDC, 2007a). California served as the model for Massachusetts, which also developed a comprehensive program that resulted in a decrease in statewide tobacco consumption. California and Massachusetts were among the states that participated in the NCI American Stop Smoking Intervention Study (ASSIST) program and evaluation. See Appendix A for a detailed discussion of effective federal and state comprehensive tobacco-control programs.

Comprehensive programs can provide the societal and organizational framework for reducing tobacco use in a population. Although such programs and policies may prevent young people from initiating tobacco use and reduce the exposure of the general population to secondhand smoke, a comprehensive program must also be applicable to people who are already using tobacco regularly. Interventions are needed to assist individual tobacco users, each of whom has a particular level of addiction, particular reasons for smoking and for trying to stop, and possibly concurrent health problems that affect their interest in and ability to quit.

The process of creating tobacco-free environments should include educational campaigns to prepare the target communities and build support for the measures to be implemented. Once public support has been garnered, government and political support of tobacco-free policies must remain strong, including enforcement and sanctions for violations to ensure compliance (WHO, 2008).

The comprehensive tobacco-control programs noted above and in Appendix A vary in target audience, size, funding sources, and bureaucratic oversight, but they share several key components that contribute to their success: the development and implementation of a strategic plan, dynamic leadership, effective and enforceable policies, communication interventions, adequate resources, appropriate therapeutic interventions (including those for special

populations), surveillance, and evaluation of effectiveness with feedback and management capability to bring about change.

CDC's (2007a) *Best Practices for Comprehensive Tobacco Control Programs* and its *Tobacco. Guide to Community Preventive Services* (CDC, 2009) synthesize evidence-based practices into a multidimensional approach to public-health goals across the entire tobacco-use continuum from prevention to cessation. A combination of educational, clinical, and social strategies are recommended to denormalize tobacco use. In CDC's Best Practices, the strategies are in five broad categories: policies (for example, establishing tobacco-free facilities and increasing the price of tobacco products); health promotion and education, including communication interventions (for example, mass-media antitobacco advertising campaigns and such innovative approaches as text messaging); cessation interventions (for example, health-care-system–based cessation counseling and medications and population-based services, such as toll-free quitlines); surveillance and evaluation; and capacity-building, including administration and management procedures. Direct interventions for individuals, including health promotion and cessation, are important, but the other evidence-based strategies—such as price increases, reduced access to tobacco products, tobacco-free environments, advertising bans, and changes in social perceptions—all contribute to reducing tobacco use and ultimately encourage tobacco cessation (CDC, 2007a). Together, those key components can provide DoD and VA with the capacity to develop and implement a tobacco-control program that can achieve the five categories of strategies cited earlier. DoD and VA have established comprehensive programs for other public-health goals, such as weight management.

In the following sections, the committee describes the key components of comprehensive tobacco-control programs. The committee believes that those key components, if implemented by DoD and VA, could help reduce and prevent tobacco use in their populations. The committee stresses that in addition to the components discussed in this chapter, a comprehensive program in either DoD or VA must begin with strong leadership that has the political and administrative will to effect changes in how the departments conduct their tobacco-control activities. An engaged leadership is also critical for implementing each of the program components presented in Table 4-1. Comprehensive tobacco-control programs with committed leadership and adequate resources are most effective in preventing tobacco use and helping tobacco users to quit. The sections below summarize the best evidence to support the use of the key program components and in the boxes provide a brief introduction to possible applications in military and veteran populations. The applications are discussed in greater detail in Chapters 5 (DoD) and 6 (VA) along with policy and program barriers to wider use of the key components.

TABLE 4-1 Key Components of Tobacco Control Programs

	Program Goals				
Program Component	Tobacco-Free Culture	Prevent Initiation Of Tobacco Use	Eliminate Exposure To Secondhand Smoke	Increase Tobacco Cessation	Eliminate Disparities In Tobacco Use Treatments
Communication Interventions	•	•		•	•
Tobacco-Use Restrictions	•	•	•	•	
Tobacco Retail Environment	•	•		•	•
Behavioral Therapies And Medications				•	•
Special Populations		•	•	•	•
Surveillance and Evaluation			•	•	•

DoD and VA already have some of the policy and infrastructure capabilities, similar to those of states, that allow them to develop and implement comprehensive tobacco-control programs. The capabilities include leadership, the ability to develop and enforce policies that affect all their constituents, and resources that may be dedicated for specific purposes such as tobacco control.

COMMUNICATION INTERVENTIONS

No tobacco control intervention will be effective if it does not reach its target audience: tobacco users. Communication interventions must not only educate tobacco users and others about the hazards of tobacco and provide information on how to access tobacco prevention and cessation services but, first and foremost, must focus on changing the social norm of tobacco use. CDC (2007a) states that "an effective state health communication should deliver strategic, culturally appropriate, and high-impact messages in a sustained adequately funded campaign integrated into the overall state tobacco program effort". There are many reasons why tobacco users do not seek assistance when quitting tobacco use, one of which may be lack of knowledge that such assistance is available. Several approaches may be used to increase tobacco users' awareness of and interest in tobacco-cessation interventions. One communication approach is a mass-media campaign that alerts consumers about the hazards of tobacco use and informs them that assistance is available to help them quit. Product advertising can also alert consumers to tobacco-cessation medications or other programs, such as quitlines. In contrast, the advertising of tobacco products, particularly to young adults, has an enormous effect on increasing demand for tobacco products.

Advertising and Promotions

The tobacco industry has long understood that mass-media advertising and communication shape attitudes toward its brand images. As a result, cigarettes are one of the most heavily advertised US products, with advertising and promotion expenditures from 1940 to 2005 totaling $250 billion (in 2006 dollars) and reaching $13.5 billion in 2005 alone (in 2006 dollars) (NCI, 2008). Since the 1971 federal ban on television advertising of cigarettes and similar restrictions on the nature of advertising linked to the 1998 Master Settlement Agreement,[5] the rate of smoking among people 18–24 years old has steadily declined (CDC, 2007b) but it continues to be a public health problem as young people initiate tobacco use.

Reports such as the Institute of Medicine's *Ending the Tobacco Problem: Blueprint for the Nation* (IOM, 2007), NCI's The *Role of the Media in Promoting and Reducing Tobacco Use* (NCI, 2008), CDC's *Best Practices for Comprehensive Tobacco Control Programs* (CDC, 2007a) and *Tobacco: Guide to Community Preventive Services* (CDC, 2009), and other studies (Saffer and Chaloupka, 2000) have summarized a large literature on the effect of advertising on smoking behavior and concluded that the prevailing scientific opinion indicated a causal relationship between tobacco advertising and increased tobacco use. Because of the strong effect of visual advertising on tobacco use, the IOM report recommended that all visual advertisements for tobacco products be limited to black-and-white, text-only formats. It also recommended prohibiting all advertising by tobacco companies to minors, regardless of purpose, inasmuch as even ostensibly discouraging advertisements and even information-gathering campaigns, such as surveys, may encourage tobacco use.

[5]National Association of Attorneys General (http://www.naag.org/settle.htm).

A recent study by Slater et al. (2007) found that advertising and price promotion contribute to the initiation of smoking (moving from one-time experimenters, or "puffers", to other, more established categories of smoker). The tobacco industry has also strategically targeted such populations as young men and women and racial and ethnic groups. It uses sophisticated advertising to appeal to demographic and lifestyle characteristics of targeted audiences, such as social acceptance, athleticism, rewarded risk-taking, and masculinity or femininity (NCI, 2008). The committee notes that all those characteristics are likely to appeal to a military audience that consists of young men and women being asked to undertake arduous duties and possibly risk their lives. Such conclusions have led the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) to call on nations to "undertake a comprehensive ban on all tobacco advertising, promotion and sponsorship . . . in accordance with its constitution or constitutional principles", but the United States has yet to ratify the FCTC.[6] Studies of comprehensive tobacco-advertising bans in several countries indicate that they have reduced consumption (Saffer and Chaloupka, 2000).

The tobacco industry has changed its approach to tobacco promotion in response to changing regulatory environments. After implementation of the ban on television advertising, the tobacco industry used outdoor advertising, magazines, point-of-sale advertising, and direct mail to appeal to consumers (IOM, 2007). Point-of-sale advertising is associated with encouraging youth to try smoking (CDC, 2007a). With tobacco prices increasing as a result of higher state and federal taxes, the tobacco industry now spends $10 billion a year to provide price-discount promotions to merchants (Pierce, 2007). Price promotions play an important role in tobacco consumption because they counteract the effect of increased cigarette prices.

The military services have enacted regulations that restrict or ban the advertising of tobacco products on military installations. VA does not have venues that advertise or sell tobacco products.

> The independent military newspaper, *Stars and Stripes*, does not carry tobacco advertising, but installation papers that are commercially owned may have such advertising. VA does not have advertising in its newsletters.

Counteradvertising and Public Education

Offsetting the tobacco industry's mass-media influence through counteradvertising is critical for achieving a nonsmoking public norm, including the military or indeed any segment of society (CDC, 2007a, 2009b; IOM, 2007; NCI, 2008). Strategies to counter advertising by the tobacco industry include advertising bans and counteradvertising with the goal of preventing smoking initiation, promoting cessation, and changing social norms associated with tobacco use (CDC, 2007a). Changing social norms requires tailored, engaging messages for specific audiences. Mass-media campaigns involving television, radio, newspapers, billboards, posters, leaflets, and booklets that deglamorize and denormalize tobacco use have been used successfully as tobacco-control interventions alone and in combination with other program components, such as increased prices for tobacco products and community-based education programs (CDC, 2007a; IOM, 2007; NCI, 2008). Newer communication tools to disseminate counteradvertising information include Web-based advertising, text messaging to personal communication devices, and on-line Web logs (blogs) (CDC, 2007a). Media campaigns should have sufficient reach, frequency, and duration (at least 6 months and preferably 18–24 months) to influence behavior (CDC, 2007a).

[6] Current list of signatories can be viewed at: http://www.who.int/fctc/signatories_parties/en/index.html (accessed May 19, 2009).

Many of the mass-media counteradvertising campaigns have focused on preventing or reducing tobacco use by youth and reducing exposure to secondhand smoke (CDC, 2009b). The American Legacy Foundation's "truth©" antitobacco campaign and the Phillip Morris Company's "Think. Don't Smoke" campaign are aimed at adolescents. The American Legacy Foundation's campaign, particularly its negative advertising, was found to be effective in encouraging antitobacco sentiments in adolescents and in reducing tobacco-use initiation among youth (Farrelly et al., 2009), but the Phillip Morris campaign was not (Apollonio and Malone, 2009). NCI (2008) found that, in general, tobacco-industry youth smoking prevention campaigns have been ineffective and may even have resulted in increased smoking among some young people. CDC (2009b) found that the most effective mass-media education campaigns for decreasing the number of young people and adults who use tobacco, combined with other interventions, lasted at least 2 years. The committee notes that most people entering the military are in their late teens, therefore, antitobacco messages should be directed at those young adults, particularly young men, who have the highest rates of tobacco use.

There is strong evidence that public-education campaigns via broadcast and print media also increase tobacco cessation among both adults and youth (CDC, 2009b). Mass-media campaigns, when combined with such other interventions as the distribution of self-help materials, increased tobacco cessation by about two additional quitters per 100 people. Tobacco consumption was reduced by about 13% and tobacco-use prevalence by about three people per 100 tobacco users (CDC, 2009b). Antitobacco messages that included information about accessing telephone quitlines significantly increased the number of people who called them. The evidence of the effectiveness of mass-media education cessation series (that is, broadcast instructional segments designed to recruit, inform, and motivate tobacco users to try quitting and to succeed) and for cessation contests is still insufficient (CDC, 2009b).

The mass media, particularly the news media, have been underused by tobacco-control advocates, however, the use of counteradvertising is effective in reducing smoking among targeted adult and youth populations (CDC, 2007a; IOM, 2007; NCI, 2008). Wakefield et al. (2008) found that antitobacco mass-media campaigns were effective in reducing tobacco use if broadcast at regular intervals. Strong negative messages about the health risks posed by tobacco use are more effective than more neutral or humorous messages or negative messages about the tobacco industry (NCI, 2008). Although evaluation of mass-media programs comes from heterogeneous studies of varied methodologic quality, meta-analyses demonstrate that mass-media counteradvertising campaigns can be effective in reducing smoking consumption and prevalence (Bala et al., 2008).

DoD has a strong mass-media presence both in recruiting and in promoting healthy lifestyles among its military personnel. Such promotional activities can be adapted to promote antitobacco messages. VA can access mass-media outlets—such as newsletters, motivational materials for waiting rooms, and Web sites—to encourage veterans to quit tobacco.

DoD has initiated a militarywide antitobacco campaign with the slogan "Quit Tobacco. Make Everyone Proud" that targets military personnel 18–25 years old and includes an interactive Web site.

Finding: Counteradvertising programs are effective in preventing tobacco initiation and in increasing tobacco cessation in target audiences.

TOBACCO-USE RESTRICTIONS

Tobacco-free policies have been shown to increase tobacco cessation (CDC, 2009b; US Surgeon General, 2004). Policies and regulations restricting tobacco use adopted outside the DoD and VA systems are described below. They point to similar opportunities for DoD and VA to restrict tobacco use by their target audiences. Such policies and regulations have the potential to affect tobacco use by military personnel and their dependents, civilian employees on military installations, and veterans.

Tobacco use restrictions are most effective when they apply to a variety of public and private settings. Smoking prevalence and annual per capita consumption are 4% and 14 packs higher and quitting rates are 6% lower in states without comprehensive clean-indoor-air laws (Bonta, 2007; Emont et al., 1992). The effects on secondhand smoke, quitting rates, and consumption are maximized when smoking is banned as opposed to restricted to designated areas (Heironimus, 1992; Pizacani et al., 2003). It has been estimated that clean-air laws can reduce smoking prevalence by 10% (Levy and Friend, 2003). Smoking bans in public places and workplaces are generally supported by the public, including smokers (Fong et al., 2006; RTI International, 2005; WHO, 2008).

Enforcement of tobacco-free laws and policies is critical for their effectiveness. Comprehensive legislation establishing clear penalties for violations needs to be paired with effective enforcement policies for smoking restrictions to advance tobacco control. Fining the owners of establishments where violations occur is the most effective way to enforce the law (WHO, 2008). Those measures can be combined with penalties for tobacco users who break the rules.

Community Settings

Community settings for tobacco restrictions include private and public workplaces, restaurants and bars, and hospitals. By January 4, 2009, 23 states had laws calling for 100% smoke-free public and private workplaces, 23 states had laws calling for 100% smoke-free bars, and 28 states had laws calling for 100% smoke-free restaurants (ANRF, 2009g). As a result, over 70% of the US population is protected by some type of 100% smoke-free law, and nearly 40% by a law calling for 100% smoke-free workplaces, restaurants, or bars (ANRF, 2009e). Many states and municipalities also have laws restricting smoking in prisons, lodgings, malls, and hospitals and health clinics. In 1997, Executive Order 13058 required that all federal buildings be smoke-free. Those measures have traditionally been framed as involving worker-safety issues, and this approach has helped to build public support for smoking bans (WHO, 2008).

Research on the effects of workplace tobacco restrictions demonstrates that they are effective in reducing exposure of all workers to secondhand smoke and in promoting cessation by workers who smoke (Bonta, 2007; Brownson et al., 1995; Brownson et al., 1997; Fichtenberg and Glantz, 2002; Fong et al., 2006; Glasgow et al., 1997; Moskowitz et al., 2000). Furthermore, results of several studies suggest that smoke-free legislation is associated with decreases in hospital admissions for acute coronary problems (Pell et al., 2008; Sargent et al., 2004).

- DoD Instruction 1010.15 states that DoD facilities must be smoke-free to protect civilian and military health, although there are areas that are exempt.
- Veterans Health Administration Directive 2008-052 establishes a smoke-free policy for VA health-care facilities; it has effectively eliminated indoor smoking areas for patients and staff, although designated outdoor smoking areas remain.

In 1992, the Joint Commission on Accreditation of Healthcare Organizations (now the Joint Commission) issued a mandate that all accredited hospitals except psychiatric hospitals be smoke-free; a year later, 96% of hospitals in the United States were complying with the mandate (Fee and Brown, 2004). At least two national hospitals and 1,594 local and state hospitals, health-care systems, and clinics had adopted 100% smoke-free campus-grounds policies as of 2008 (ANRF, 2009a). Implementation of the Joint Commission's smoke-free standards, although initially aimed at protecting patients, has also had a favorable effect on the smoking behavior of hospital workers (Fee and Brown, 2004; Longo et al., 1996; Longo et al., 2001).

There is some resistance to the adoption of tobacco-free restrictions in psychiatric health-care settings. Although it has been argued that smoking helps patients to manage their symptoms and that banning smoking may exacerbate mental illness (Stage et al., 1996), evidence indicates that smoking restrictions can be implemented in psychiatric health-care settings without adverse effects (Alam, 2007; Prochaska et al., 2008; Ryabik et al., 1994; Smith et al., 1999; Ziedonis et al., 2008).

Fears that smoking bans in restaurants and bars would translate into a loss of revenues have been contested by research showing that such policies have no negative economic effect on these establishments (Bartosch and Pope, 2002; Fong et al., 2006; Howell, 2005; Huang and McCusker, 2004; Rabius et al., 2007; RTI International, 2004; Scollo et al., 2003; Siegel, 1992; WHO, 2008).

Some employers, including WHO, have adopted policies that prohibit any tobacco use by employees, including when they are not working. Those policies target the individual rather than a geographic location. Numerous police departments have implemented policies that prohibit smoking as a condition of employment (Holly Deal, National Fraternal Order of Police, personal communication, November 20, 2008). Both firefighters and police officers are required to be smoke- free as a condition of employment in Massachusetts. The effectiveness of policies that prohibit employment of smokers has not been evaluated, and Houle and Siegel (2009) note that although such policies may help tobacco users to quit, they may also exacerbate economic disadvantages for people who smoke and are unable to find employment, their families, the surrounding community, and the larger society (Houle and Siegel, 2009). They may also intensify stigma and its associated ill effects (Schroeder, 2008; Stuber et al., 2008). "No-smoker" policies are controversial because they raise concerns unrelated to health, including personal privacy and employment discrimination (ACLU, 1998; Chapman, 2005; Gray, 2005; Warner, 1994). More than half the states have statutes that prohibit employers from discriminating in hiring, firing, or conditions of employment on the basis of an employee's lawful behavior outside work, including some that specify tobacco use (Malouff et al., 1993). The committee acknowledges that such actions may have unintended consequences that need further exploration.

> Neither DoD nor VA requires that employees be tobacco-free. Both departments mandate smoke-free facilities in compliance with Executive Order 13058, which requires federal buildings to be smoke-free.

Educational Settings

In 2003, about half the public universities in the United States had banned smoking in all residence halls and dormitories and within a specified distance from building entrances (Halperin and Rigotti, 2003). By January 2009, 260 colleges and universities had enacted 100% smoke-free–campus policies with no exemptions (ANRF, 2009h). Moreover, 68% of the public universities do not sell tobacco products, and about half have written policies banning tobacco advertising on campus (Halperin and Rigotti, 2003). Smoking prevalence is lower among

students living in smoke-free college housing than in housing without such bans (Wechsler et al., 2001). Furthermore, nonsmoking students living in smoke-free college housing are less likely to initiate smoking (Wechsler et al., 2001).

DoD is in the unique position of already requiring that new recruits into all the services be tobacco-free during basic training; the Air Force also mandates that trainees be tobacco-free during some technical training.

> All military services require that recruits not use tobacco during basic military training. The military service academies do not require that students be tobacco-free.

Private Residences and Vehicles

There has been a marked increase in personal smoking bans in the home over the last few decades. Smoking bans in the home are associated with lower exposure of adult and child residents to secondhand smoke (Biener et al., 1997; Brownson et al., 1995; Martinez-Donate et al., 2007; Martinez-Donate et al., 2003; Spencer et al., 2005; Wakefield et al., 2000a), and they encourage smoking cessation (Farkas et al., 2000; Longo et al., 2001; Siahpush et al., 2003; Wakefield et al., 2000b), reduce smoking levels and increase average time to the first cigarette of the day among continuing smokers (Borland et al., 2006; Pizacani et al., 2004). Home smoking bans are also effective in reducing smoking initiation, promoting cessation, and lowering cigarette consumption by adolescents and young adults (Borland et al., 2006; Clark et al., 2006b; Farkas et al., 2000; Hill et al., 2005; Lotrean et al., 2005; NIH, 2006; Thomson et al., 2005; Wakefield et al., 2000b). The potential effect of home smoking bans on smoking prevalence has been estimated to surpass that of smoke-free workplaces (Bonta, 2007). Some municipalities have taken steps toward promoting smoke-free housing (Older Americans Report, 2005; Smokefree Apartment House Registry, Summer 2007). As noted above, the concept of smoke-free housing has already been implemented by the hospitality industry. Over 8,300 lodgings in the United States were smoke-free in 2008, and 23 states and over 500 municipalities had laws specifying the minimum percentage of smoke-free rooms in hotels and motels (ANRF, 2009f; Stoller, 2008).

There is evidence that the increasing prevalence of smoking restrictions in public places has translated into smokers and nonsmokers adopting smoking bans in their cars. A 2002–2003 survey indicated that 57.1% of US smokers do not smoke in their cars when nonsmokers are present (Borland et al., 2006). Several states and jurisdictions have adopted legislation to ban or limit smoking in private vehicles while children are present (American Lung Association, 2009; IOM, 2007; OTRU, 2006). In California, 85% of daily smokers support a ban on smoking in cars when children are present (Al-Delaimy et al., 2008). In a review of public attitudes toward laws for smoke-free private vehicles when children are present, more than 77% of smokers in California, New Zealand, and Australia supported such laws (Thomson and Wilson, 2008).

> DoD has no requirement for designated smoke-free housing for military personnel and their families.

Outdoor Spaces

An increasing number of outdoor venues (such as parks and beaches) are becoming smoke-free, especially in states with strong tobacco-control efforts, such as California. By

January 2009, Hawaii and Iowa prohibited smoking in outdoor dining areas, and 149 municipalities had enacted laws for 100% smoke-free outdoor dining areas (ANRF, 2009c). Moreover, 76 municipalities and Puerto Rico had smoke-free–beach laws (ANRF, 2009b), and a total of 399 municipalities required all city parks or specifically named city parks to be smoke-free (ANRF, 2009d). Aside from potential protective effects for nonsmokers, smoking bans in outdoor spaces contribute to the denormalization of tobacco use, reduce smoking rates, and prevent future initiation of smoking by children and adolescents. More important, there is evidence of strong public support in California for smoking bans in such outdoor public spaces as children's playgrounds, parks, beaches, golf courses, and sports stadiums (Gilpin et al., 2004).

- DoD has no requirement for smoke-free outdoor areas. The Air Force does not permit personnel to smoke while walking in uniform, and this ban includes outdoor areas.
- VA cannot have smoke-free campuses because of the congressional requirement that there be outdoor smoking areas for patients.

Several interactive mechanisms might explain the effectiveness of smoking restrictions to achieve tobacco control (Hovell et al., 2002). Restrictions legitimize the right of nonsmokers not to be exposed to secondhand smoke and establish explicit economic, legal, and social penalties for people who violate them. Smoking bans also reduce the number of areas where smoking is possible, making smoking more inconvenient. By requiring smokers to leave other activities and go to designated smoking areas, smoking bans increase the cost of smoking and result in lower levels of smoking and more cessation attempts by those who continue to smoke. Furthermore, restrictions limiting smoking to fewer and more specific outside areas reduce exposure to smoking social models and can contribute to the prevention of smoking initiation by young people and the prevention of relapse by former smokers. Limits on where and when smoking takes place, decreased exposure to smoking models, and changes in the social function of smoking all work to denormalize tobacco use and reduce the glamour traditionally associated with it. In combination, the legal, economic, and social contingencies established by smoking restrictions change social sentiments regarding smoking and secondhand smoke, transform public perceptions of tobacco, and ultimately reduce smoking at the population level (Hovell et al., 2002).

Finding: Tobacco-free policies have been effective in increasing tobacco cessation among youth and adults. Workplaces, including medical facilities, restaurants, and hotels; colleges and universities; parks and recreational areas; and even private residences and vehicles have implemented tobacco-free policies.

TOBACCO RETAIL ENVIRONMENT

The tobacco retail environment can affect the sale and use of tobacco products favorably or unfavorably. The retail environment encompasses the financial and nonfinancial costs of tobacco products, the accessibility of tobacco products (access restrictions based on age or through physical barriers at the point of purchase), and the promotion of tobacco products at the point of sale and through advertising in periodicals, promotional events, coupons, and other means. Increased tobacco costs and restricted access to the products are associated with reduced consumption and increased cessation (CDC, 2009). As tobacco restrictions have increased along some dimensions, such as cigarette taxes and smoke-free legislation, manufacturers have responded with increasingly innovative tobacco products, particularly varieties of smokeless

tobacco. As elaborated below, tobacco prices remain among the most effective public-policy levers available both to reduce tobacco use and to fund tobacco-control efforts, such as counteradvertising.

Tobacco Prices and Taxes

Higher prices reduce tobacco consumption by affecting initiation (Slater et al., 2007), cessation (IOM, 2007), and the intensity of smoking (IOM, 2007). Research has shown that the use of taxes to combat tobacco consumption is one of the most effective tobacco-control policies (Warner, 2007). Tobacco prices are usually raised through increases in state excise taxes; however, in 2009, the federal government increased the federal tax[7] on cigarettes from $0.39 to $1.0066 per pack to pay for the expanded State Children's Health Insurance Program (NCI, 2009). The most relevant evidence on tobacco prices and taxes that is applicable to DoD is summarized below. DoD sells tobacco products at its commissaries and exchanges, typically below the prices of the same products sold commercially outside military installations. VA no longer sells tobacco products in its canteens or at it facilities.

Overwhelming evidence demonstrates that people are less likely to smoke and smoke fewer cigarettes when cigarette prices are high (Chaloupka and Warner, 2000; Gallet and List, 2003; IOM, 2007; NIH, 2006). Econometric analyses show consistently that a 10% rise in cigarette prices reduces consumption by 3–5% (Chaloupka, 1999; Chaloupka and Warner, 2000; Gallet and List, 2003). Given high rates of smoking relapse and initiation in military personnel after basic training (Klesges et al., 2006; Klesges et al., 2001), the evidence on smoking behavior of young adults is particularly relevant. For example, one study suggests that older youths (17–20 years old) are more responsive to price than younger youths (Gruber and Zinman, 2001). A mounting body of rigorous evidence indicates that smoking behavior is more responsive to price among young adults than among older adults (Chaloupka and Warner, 2000; Chaloupka and Wechsler, 1997; Gruber and Zinman, 2001). In particular, Harris and Chan (1999) demonstrate declining responsiveness to price with age among people 15–29 years old. Recent research also demonstrates that the effect of price on youth and young-adult smoking occurs both directly in response to price and indirectly through response to the lower prevalence of smoking among peers (Powell et al., 2005).

> Smoking initiation and tobacco use are more common among junior enlisted military personnel, who also tend to be young adults and more susceptible to tobacco pricing, than older adults. Thus, tobacco-price increases in DoD commissaries and exchanges could result in marked changes in tobacco use in military populations that use the most tobacco.

Results of several studies suggest that price increases facilitate smoking cessation. Adult smokers are more likely to attempt cessation when faced with increasing prices (Levy et al., 2005b; Reed et al., 2008), and higher prices facilitate successful smoking cessation among young adults (Tauras, 2004). However, some evidence shows that recent price increases may be less likely to affect smoking prevalence even though higher prices can lower the intensity of smoking (Sheu et al., 2004). That is true particularly in such populations as low-income people and pregnant women (Franks et al., 2007; Levy and Meara, 2006).

The evidence on whether price affects smoking initiation is somewhat mixed: some studies show that price does not affect whether youths have "ever smoked a cigarette", and others show that price influences the initiation of smoking (Jha et al., 2006; Levy et al., 2005a;

[7] *Children's Health Insurance Program Reauthorization Act of 2009*, §701. Public Law No.111-3 (February 4, 2009).

Thomas et al., 2008). The discrepancy can be reconciled when viewed in the context of research that distinguishes experimentation from established smoking. In a study of adolescents that distinguished isolated experimentation (moving from nonsmoker to having ever smoked "even a puff") from more established smoking patterns, price had a significant effect on initiation (Emery et al., 2001). In the aggregate, the evidence is strong that prices lower the consumption of cigarettes along all dimensions: initiation, cessation, and intensity.

One concern with raising local or state taxes is that people can evade higher prices by purchasing tobacco through the mail, through the Internet, or by using coupons (Hyland et al., 2004). Ribisl et al. (2007) note that the number of Internet vendors and sales of tobacco products are increasing, particularly in states with high excise taxes, possibly offsetting some of the reduction in tobacco consumption associated with higher taxes (Ribisl et al., 2007). However, studies of tobacco smuggling, usually focused on interstate or cross-country smuggling, suggest that higher prices reduce the effect of smoking even in the presence of opportunities for smuggling (Chaloupka and Warner, 2000; IOM, 2007).

- Military exchanges and commissaries sell tobacco products at a discount compared with civilian retail outlets.
- VA no longer sells tobacco products at its facilities.

Access to Tobacco Products

The effectiveness of barriers to the purchase of cigarettes on adolescent smoking behavior is supported by reports from IOM (2007) and NCI (2005). The 2007 IOM report *Ending the Tobacco Problem: Blueprint for the Nation* called for licensing of retail sellers of tobacco. Such licensing prohibits self-service sales of cigarettes by unlicensed retailers. Although this licensing policy targets youth, such restrictions could apply to a broader population. However, a recent study examining stores that required clerk assistance to obtain tobacco products showed no significant effect of licensing on smoking behavior among youth (Slater et al., 2007).

There are many reasons to believe that small measures, such as requiring clerk assistance or requiring people to make an extra effort to purchase cigarettes in commissaries and exchanges, may work to reduce smoking. As described in Chapter 3, a robust literature in behavioral economics suggests that people can change their behavior dramatically in response to relatively small changes in their environment.

Conversely, the number of tobacco products or other nicotine-delivery products that can be used in tobacco-free areas is increasing. There are now several varieties of smokeless cigarettes that manufacturers advertise can be legally used in no-smoking areas because they do not emit smoke, but they still deliver a high dose of nicotine. Those products include snus (a moist tobacco powder for oral use), "dissolving" nicotine, and smokeless or electronic cigarettes, all of which allow smokers to maintain their nicotine concentrations in situations where they are unable to smoke.

Surveys of military personnel indicate that the use of smokeless tobacco is on the rise, particularly among deployed personnel (DoD, 2006). Although some military installations restrict access to tobacco products in commissaries and exchanges, others promote such products with large, prominent displays, so-called power walls, near checkout counters.

Finding: Increasing the price of tobacco products is one of the most effective interventions to prevent tobacco use and promote tobacco cessation. The funds generated from increased prices can be used to expand other tobacco-control efforts.

TOBACCO-CESSATION INTERVENTIONS

The vast majority of smokers (80%) report that they want to quit, and over half of smokers will make a serious attempt to quit in any given year (Kaiser Family Foundation, 2009), but only about 4–7% succeed in quitting in any try (Fiore et al., 2008). Studies show that the rate and duration of tobacco abstinence are increased, generally doubled, when cessation treatments are used (CDC, 2007a; Fiore and Jaen, 2008; Fiore et al., 2008). National surveys, however, indicate disappointingly low rates of use of tobacco-cessation treatment by the general public. For example, the 2005 National Health Interview Survey found that less than 5% of smokers who made a serious attempt to quit used both behavioral and pharmacologic treatment (Curry et al., 2007). A similar pattern is evident in the 2003 Current Population Survey (Shiffman et al., 2008).

In addition to the evidence-based interventions discussed below, the committee considered harm reduction as a possible intervention for tobacco use by military and veteran populations. A previous IOM report (2001) found that there was insufficient evidence on the health effects of smokeless or modified tobacco products, although IARC has found that smokeless tobacco use causes cancer (IARC, 2007). The IOM report also recommended that "harm reduction be implemented as a component of a comprehensive national tobacco control program that emphasizes abstinence-oriented prevention and treatment". A recent strategic dialogue reached the conclusion that "significant tobacco harm reduction can be achieved over the long term only in a world where virtually no one uses combustible tobacco products" (Zeller et al., 2009). The evidence base on smokeless-tobacco products is not sufficiently robust to determine what health hazards other than cancer and periodontal disease are associated with smokeless or modified tobacco products. Furthermore, the committee is concerned that such products may serve as starters or supplements for use of smoked tobacco products. That dual use is a substantial concern is demonstrated by the number of military personnel who use both (see section on dual use in Chapter 5). The committee has insufficient evidence to make any recommendations with respect to the use of smokeless tobacco as an alternative to smoked tobacco. There is an evidence base that supports the use of NRTs on an extended basis as a form of harm reduction if a person is trying to quit or has made a quit effort and is sustaining abstinence. The Public Health Service (PHS) *Clinical Practice Guideline— Treating Tobacco Use and Dependence: 2008 Update* (Fiore et al., 2008) indicates that prolonged use of NRTs (for more than 14 weeks) is effective in increasing abstinence.

In the sections below, the committee examines the evidence base on various tobacco-cessation interventions, including medications and behavioral therapies. It then identifies the most effective practices for providing those treatments to the targeted audiences.

Evidence-Based Interventions

Tobacco users today have access to a variety of evidence-based interventions that, if used appropriately, can significantly increase the likelihood that they will achieve long-term abstinence. There is abundant evidence on effective tobacco-use cessation interventions, and numerous groups have provided detailed and consistent recommendations for individual-level interventions. For example, the 2008 PHS guideline (Fiore et al., 2008), the Task Force on Community Preventive Services *Recommendations Regarding Interventions to Reduce Tobacco Use and Exposure to Environmental Tobacco Smoke* (Hopkins, 2001), and the 2007 IOM report *Ending the Tobacco Problem: A Blueprint for the Nation* all conclude that the most effective way to achieve smoking cessation is to combine behavioral interventions that include person-to-person treatment with Food and Drug Administration (FDA)–approved pharmacologic treatments. Effective behavioral interventions include brief advice and assistance from a health-care provider during routine health-care visits, multisession outreach telephone counseling, and face-to-face group and individual counseling. Although all those interventions are effective, there is a dose–response relationship in behavioral treatments: multisession intensive treatments

achieve significantly higher quit rates than minimal-contact interventions. The use of FDA-approved tobacco-cessation medications, alone or in conjunction with behavioral interventions, is effective in maintaining long-term abstinence.

Behavioral Interventions

Behavioral interventions focus on providing tobacco users with specific skills and supports to modify their tobacco use. Building from theoretical models of the determinants of tobacco use and cessation, the interventions typically have five key components: self-monitoring, systematic observation and recording of behavior; cognitive restructuring, which involves identifying and altering thoughts and beliefs that may undermine quit efforts; goal-setting focused on specific, quantifiable, and reasonable short-term (such as 1–2 weeks) and long-term (such as 6 months) goals; problem-solving to identify and cope with high-risk situations that may lead to relapse; and social support, seeking support from others and informing them of the types of support desired (NRC and IOM, 2003). Those interventions can be offered in different formats (such as face-to-face, over the telephone, and by computer) with different numbers and lengths of contact. Meta-analyses show that even a behavioral intervention contact as brief as 3 minutes improves the odds of quitting by as much as 40% compared with no treatment. Abstinence rates increase as the length of counseling sessions increases from minimal (under 3 minutes) to longer than 10 minutes, as the number of sessions increases, and as the total contact time increases from 1–3 minutes to 91–300 minutes; however, contact time in excess of 300 minutes does not appear to increase abstinence rates (Fiore et al., 2008).

Tobacco-Cessation Medications

Seven medications have been approved by FDA for smoking cessation and are recommended by the 2008 PHS guideline alone or in combination as first-line medications (Fiore et al., 2008). The first-line medications include several forms of nicotine-replacement therapy (NRT)—gum, lozenges, and patches are available over the counter, and nasal sprays and inhalers are available by prescription—and bupropion SR and varenicline, which are available by prescription. Each of those medications has been shown to increase the likelihood of smoking cessation significantly (Fiore et al., 2008). Nicotine gum, patches, and lozenges should be used for 6–14 weeks for both highly dependent and regular smokers. In addition to recommending the use of the nicotine patch as a single medication, the guideline recommends several medications in combination with it, including nicotine gum or spray, bupropion SR, and inhaled nicotine. Kornitzer et al. (1995) found a significant increase in abstinence rates in those who added gum use to patch use. In an effort to assess the comparative effectiveness of the FDA approved medications, various cessation medications were compared to the nicotine patch – the most commonly used cessation medication. That meta-analysis identified two medication regiments that were more effective than the nicotine patch: varenicline used alone and the combination of long-term nicotine patch with NRT gum or spray (Fiore et al., 2008). The guideline also recommends two second-line medications, defined as medications that FDA has not approved for tobacco-dependence treatment and about which there are more concerns for potential side effects than in the case of first-line medications: clonidine and nortriptyline.

Interactions between tobacco smoke and various medications have been identified (Zevin and Benowitz, 1999), and clinicians should not only be aware of their patients' smoking status but monitor patients to ensure that their medications are acting as prescribed. Because former smokers may relapse and current smokers may decide to quit smoking, it is important to ascertain smoking status at each office visit and to inform patients of the need to be aware of possible changes in their response to any medication, whether prescription or over-the-counter and whether used for tobacco cessation or for other conditions.

Combined Behavioral Interventions and Medications

The guideline concludes that "the combination of counseling and medication is more effective for smoking cessation than either medication or counseling alone. Therefore, whenever feasible and appropriate, both counseling and medication should be provided to patients trying to quit smoking" (Fiore et al., 2008). A meta-analysis of nine studies showed a 70% increase in the likelihood of quitting when medication was added to counseling alone, and a meta-analysis of 18 studies showed a 40% increase in the likelihood of quitting when counseling was added to medication alone (Fiore et al., 2008). With behavioral counseling alone, there was a dose-response relationship between the number of counseling sessions and rates of cessation. Two or more sessions significantly increased cessation rates; the highest abstinence rates were observed with more than eight counseling sessions (32.5% abstinence rate at 6 months). Furthermore, among patients who used multiple tobacco-cessation medications in combination with individual or group counseling, the cessation rates at 6 months increased with the number of medications. Patients who continued to use medications at 6 months had a greater abstinence rate than those who quit using them in less than 6 months (82% vs 52%) (Steinberg et al., 2006).

Other Individual Interventions

Although other tobacco-cessation interventions are available—such as self-help materials, rapid smoking, acupuncture, and hypnosis—results are inconclusive with regard to their effectiveness in helping tobacco users achieve long-term abstinence. The 2008 PHS guideline states that rapid smoking (also called aversive smoking) was more effective than no psychosocial counseling or therapy, but it is not a recommended treatment (Fiore et al., 2008). A Cochrane review on aversive smoking suggested that although it may be effective, more research was needed (Hajek and Stead, 2001). Self-help materials, such as brochures and videos, as either the only interventions or in combination with other interventions, do not significantly increase abstinence rates (Fiore et al., 2008). Acupuncture has also been assessed in both the guideline and a Cochrane review; the Cochran review found a slight positive effect (White et al., 2006), but the guideline did not.

Neither the 2008 PHS guideline nor the Cochrane review found sufficient studies to assess the use of hypnosis for tobacco-use cessation. One study in veterans found that hypnosis increased abstinence at 6 months and 12 months follow-up (Carmody et al., 2008).

The use of financial incentives for tobacco-use cessation has also been explored. A Cochrane review found that the use of financial incentives increased the rate of participation in smoking-cessation programs but did not increase long-term abstinence rates (Cahill and Perera, 2008). Volpp et al. (2006) studied the use of financial incentives in a group of veterans attending a VA medical center, paying some smokers to attend smoking-cessation classes and for remaining abstinent for 30 days. The financial incentives were useful for enrolling veterans in the program, but the 6-month quit rates between the incentive and no-incentive groups were not significantly different ($p > 0.2$). However, in a later study of employees at a large company, financial incentives for enrolling in and completing the smoking-cessation program and for maintaining abstinence for up to 12 months resulted in significantly higher abstinence rates compared with employees who did not receive such incentives ($p < 0.001$) (Volpp et al., 2009).

Other interventions that have been studied include telling smokers about their decreased lung function, or lung "age", as a result of smoking; the effectiveness of this intervention is uncertain (Kotz et al., 2008; Parkes et al., 2008; Wilt et al., 2007).

Finding: Behavioral therapies are effective in increasing long-term tobacco cessation. Cognitive strategies and problem-solving are particularly effective when offered in a multisession format. Available over-the-counter and prescription medications, when used appropriately, also improve the likelihood of long-term tobacco cessation. A combination of the tobacco-cessation pharmacotherapies and

behavioral therapies described above is most effective in achieving long-term tobacco cessation. Other interventions—such as hypnosis, acupuncture, and financial incentives—have been assessed in a few studies, but there is insufficient information on their effectiveness in achieving long-term tobacco cessation.

DELIVERY OF INTERVENTIONS

An integral aspect of tobacco control is generating a desire and willingness in people to quit using tobacco. Motivation to quit may spring from encouragement from family and friends, increased awareness of the hazards of tobacco use because of public-education campaigns, in response to increased prices for tobacco products or restrictions to areas where they may be used, or advice from a health-care provider. A comprehensive tobacco-control program ensures that many sources of encouragement and support are made available.

Individual interventions to promote tobacco-use cessation are effective and can help many people achieve and maintain abstinence, but if tobacco users are not aware of the treatments, cannot easily access them, cannot afford them, or do not use them when they are available, the effectiveness of the treatment is irrelevant. All these barriers may prevent tobacco users from seeking or receiving treatment when they are motivated to quit. Inasmuch as most people who make a quit attempt relapse within 48 h, removing barriers to treatment is paramount to maintaining abstinence. Provision of tobacco-cessation services can occur in many settings and formats. Health-care providers can inform patients about the health effects of tobacco use and counsel them about treatment options for quitting, patients can be referred to proactive or reactive telephone quitlines that provide cessation counseling and often medications, and patients can access computer-based cessation programs that offer counseling, support, and medications, although the evidence base on the latter is lacking. In this section, the committee considers the evidence base on those approaches for delivering tobacco-cessation services and the training needs of health-care professionals that provide them.

The committee finds that a combination of in-person and other forms of program-delivery formats are likely to be the most effective in reaching the largest audience. A number of tobacco-cessation programs are used by health-care organizations (see Box 4-1), but they have not all been evaluated formally for their effectiveness.

BOX 4-1 Some Smoking-Cessation Programs

- BecomeAnEx, sponsored by the National Alliance for Tobacco Cessation (made up of the American Legacy Foundation and numerous other groups, government and nongovernment), is a three-step plan. It allows for personalizing a plan to relearn life without cigarettes. (http://www.becomeanex.org/#learn_overview)

- SmokeFree.gov provides an online step-by-step cessation guide with access to local and state telephone quitlines, the National Cancer Institute (NCI) national telephone quitline, NCI's instant-messaging service, and various publications, which may be downloaded, printed, or ordered. The Web site was created by the Tobacco Control Research Branch of NCI. (http://www.smokefree.gov)

- Freedom From Smoking® Online, sponsored by the American Lung Association, is a free online smoking cessation program that contains seven modules and has a telephone helpline. (http://www.ffsonline.org/)

- QuitNet, the self-proclaimed largest online quit program, is owned by Healthways Inc. It is free but has a commercial component. It includes stop-smoking resources, quitting tips and advice from expert counselors, quit support from the QuitNet community, and the ability to create an individualized quit-smoking plan. (http://www.quitnet.com/qnhomepage.aspx)

- Free and Clear's Quit For Life® Program is the nation's leading tobacco-cessation program and uses an evidence-based combination of physical, psychologic, and behavioral strategies to enable participants to take responsibility for and overcome their addiction to tobacco use. Free and Clear's integrated mix of medication support, telephone-based cognitive behavioral coaching, and Web-based learning and support tools produces an average quit rate of 43%, making the Quit For Life Program at least 8 times as effective as quitting "cold turkey". (http://www.freeclear.com/)

- Quit Smart ® is a commercial service that sells stop-smoking kits to smokers and offers fee-based classes and individual instruction in person or over the telephone. Quit Smart claims that its services have produced quit rates of 66%. The program and kit include a cigarette substitute, hypnosis, and medication recommendations. (http://www.quitsmart.com/)

- Other websites sponspored by commercial entities, including tobacco companies, provide some information on smoking cessation.

Clinical Settings

The PHS *Clinical Practice Guideline—Treating Tobacco Use and Dependence: 2008 Update* outlines an evidence-based algorithm for addressing tobacco use and dependence as part of routine health-care delivery (Fiore et al., 2008). Known as the 5 A's, it begins with a patient's presentation in a health-care setting and uses a decision tree to help the health-care provider to:

- Ask—all patients about tobacco use.
- Advise—all current users to quit.
- Assess—smokers' willingness to quit.
- Assist—smokers willing to quit by providing appropriate tobacco-dependence treatments.
- Arrange—followup for smokers who are making a quit attempt.

Using the 5 A's should require only about 3 minutes of a clinicians time with a patient and other health professionals such as medical assistants can ask the patient about their tobacco use status and include the information on the patient's chart for the clinician. The guideline also includes specific recommendations for program intensity, type of counseling, and the inclusion of medications. It states that in some clinical settings it may be more effective to deliver the 5 A's in a different format or order, such as Ask, Advise, and Refer (Fiore et al., 2008). Schroeder and Cooper (2005) found that many clinicians may not be aware of or take the time to use the 5 A's; therefore, the brief approach of Ask, Advise, and Refer patients to a quitline or other counseling service may be more acceptable to some clinicians.

The guideline recognizes that not all patients are willing or able to quit and provides interventions for these patients. For patients unwilling to quit or to encourage future quit attempts, health-care providers can use motivational interviewing (Fiore et al., 2008; Rubak et al., 2005). The 5 R's provide a framework for conducting motivational interviewing:

- Relevance—encourage patient to explain why quitting is relevant to them.
- Risks—ask patients to explain adverse effects of tobacco use.
- Rewards—ask patients to identify the benefits of quitting.
- Roadblocks—determine the barriers to a patient's quitting.
- Repetition—use of a motivational intervention by the health-care provider each time a patient is seen.

Feedback loops help providers to motivate tobacco users who are unwilling to quit and encourage former users or newly quitting users to prevent relapse. Although a meta-analysis (Burke et al., 2003; Butler et al., 1999) and a randomized trail (Burke et al., 2003; Butler et al., 1999) suggest that motivational interviewing does not increase long-term cessation rates, recent analyses have found it to be effective in promoting quit attempts and abstinence (Fiore et al., 2008; Soria et al., 2006; Van Schayck et al., 2008).

DoD and VA have developed the VA/DoD Clinical Practice Guideline for the Management of Tobacco Use, modeled on the PHS guideline; it provides evidence-based advice on many aspects of treatment of military personnel, their dependents, and veterans for tobacco use.

A 1999–2000 survey of the use of the 5 A's by health-care providers in nine health-maintenance organizations found that 90% of the 2,325 smokers were asked about their smoking status, 77% were advised to quit, 63% were assessed for willingness to quit, 35% were offered self-help materials (assist), 41% were offered or referred to classes or counseling (assist), 33% were offered pharmacotherapy (assist), and 13% had followup arranged. Thus, it seems that the health-care providers were more likely to advise smokers to quit than to assist in cessation, especially, to arrange cessation treatments, in spite of the fact that all of the health plans in the study provided comprehensive coverage for tobacco-cessation counseling and medications. Those who were offered and used tobacco-cessation medications or counseling were significantly more likely be abstinent for 30 days at 12 months than those who did not (OR, 2.23; 95% CI, 1.56–3.20 and OR, 1.82; 95% CI,1.16–2.86). The use of self-help materials alone (OR, 0.71; 95% CI, 0.47–1.08) or having a health care provider only advise the patient to quit smoking were not effective (OR, 0.84; 95% CI, 0.56-1.25) (Quinn et al., 2009).

The 2002 National Ambulatory Medical Care Survey found that participating physicians were as likely to ask their male patients as their female patients, in all age categories, about tobacco use (65.1–73.2% of all patients). About 17–27% of the men and women who used tobacco received counseling when visiting their physicians regardless of age, except for men over 75 years old, who were counseled only 5.6% of the time (Wallace et al., 2006).

In some medical facilities, a variety of health-care providers (such as nurses, psychologists, counselors, and physicians) may be responsible for delivery of tobacco-cessation interventions. In a meta-analysis examining the effectiveness of tobacco-cessation interventions by various health-care providers with or without NRTs, interventions without NRTs were most effective when delivered by a psychologist or physician. Counselors and nurses were also effective, but the difference compared with the placebo (usual care) was not statistically significant. When NRTs were combined with provider intervention, the effectiveness of most providers increased up to twofold (Mojica et al., 2004).

Primary-Care Providers

The 2008 PHS guideline found evidence that tobacco-cessation interventions offered by both physicians and nonphysicians (such as nurses, psychologists, dentists, and counselors) were

more effective in increasing abstinence rates than no intervention. Compared with no advice, brief advice from a primary-care physician was effective in increasing 6-month quit rates, and intensive interventions were slightly more effective than brief counseling (Stead et al., 2008).

Nurses

In a Cochrane review of nursing interventions for smoking cessation, Rice and Stead (2008) conducted a meta-analysis of 31 studies and determined that nurse-provided interventions were more effective in reducing 6-month smoking rates than no intervention or usual care. High-intensity interventions, such as an initial counseling session of 10 minutes or more with additional materials and at least one followup contact, were more effective than low-intensity interventions. Nursing intervention was most effective for inpatients in a hospital and to a smaller extent for nonhospitalized patients. Interventions offered during a screening health check were less effective. The use of additional materials (such as leaflets) by a nurse did not appear to promote smoking cessation (Rice and Stead, 2008).

Other Health-Care Providers

Health-care providers other than primary-care clinicians and nurses have been considered as resources for tobacco-cessation counseling. Pharmacists are frequently associated with medical facilities, particularly hospitals and large outpatient clinics. In addition to their obvious role in providing tobacco-cessation medications, including such over-the-counter medications as NRTs, some pharmacists have been trained to offer counseling and literature to their patients who use tobacco. In a Cochrane review of two studies conducted in the United Kingdom, only one study showed a significant association between pharmacist-provided counseling and record-keeping and self-reported 12-month abstinence rates (Sinclair et al., 2004). A more recent review by Dent et al. (2007) of 15 studies of tobacco-cessation services provided by pharmacists found a statistically significant difference in abstinence rates between the pharmacist-intervention groups and control groups (Dent et al., 2007). A later randomized controlled study of a pharmacist intervention for tobacco cessation in a VA community-based outpatient clinic showed that patients who received three face-to-face group counseling sessions from the pharmacist in addition to tobacco-cessation medication had a biochemically confirmed 6-month abstinence rate that was greater than that in patients who received one 5- to 10-minute call from the pharmacist in addition to medication (28% vs 11.8%; $p < 0.041$) (Dent et al., 2009).

Dentists are also well situated to counsel patients about tobacco use, particularly smokeless-tobacco use, which is associated with increased oral cancer and periodontal disease (see Chapter 2). At 12 months, smokeless-tobacco users who had received tobacco-cessation counseling from their oral-health professional (dentist or oral hygienist) had greater abstinence rates than those who did not receive such counseling (Carr and Ebbert, 2006).

Finding: Multiple-session counseling in a health-care setting, preferably on an individual basis, is effective in achieving long-term tobacco cessation and may be provided by a variety of health-care providers in addition to physicians, such as nurses, dentists, and pharmacists.

DoD and VA both have large, complex health-care systems that should strive to offer barrier-free access to tobacco-cessation services (both counseling and medications) that reflect current evidence on effective programs. Programs should be available to all members of the target populations regardless of place, time, and status (for example, active-duty, deployed, reservist, at home) and be offered by a variety of health-care professionals.

Tobacco Quitlines

There is ample evidence that tobacco quitlines are efficacious (Borland et al., 2001; Stead et al., 2006; Zhu and Anderson, 2004), particularly when combined with other interventions (CDC, 2009). Quitlines offer the advantage of generally being available when needed and free of charge for counseling. No appointments are necessary to access them, and patients can call them for individual counseling in privacy. Quitlines also help patients to overcome barriers to treatment, such as living at a considerable distance from a clinic or other treatment locations, being unable to attend counseling sessions because of work or social commitments, and waiting for the next tobacco-cessation program to begin.

The statewide use of a quitline as part of a comprehensive tobacco-use cessation program began in California in the early 1990s and was followed in Massachusetts. Now all 50 states and the District of Columbia have tobacco quitlines (http://www.smokefree.gov/). Any adult in need of tobacco-use cessation services can call a national telephone number (1-800-QUIT-NOW), which will route the caller to his or her state tobacco quitline; this referral service is sponsored by NCI. NCI also has a toll-free quitline at 1-877-44U-QUIT that has a smoking-cessation counselor available during the day for help in quitting and to provide answers to smoking-related questions in English or Spanish.

Although quitline access is available to all adults across a broad demographic spectrum, quitlines vary greatly in quality, intensity, and duration. Three factors increase their efficacy: proactive quitlines (participant may initiate call with proactive followup by quitline or a telephone counselor may initiate the call to the participant) rather than reactive quitlines (the participant initiates all calls to the quitline) (Stead et al., 2006); counseling that lasts longer (for example, at least four sessions) and that includes booster sessions (Hollis et al., 2007; Stead et al., 2006); and quitlines that provide NRTs (Fiore et al., 2008; Rabius et al., 2007).

Cummins et al. (2007) surveyed 62 publicly available quitlines in North America (all 50 states, the District of Columbia, Puerto Rico, and 10 Canadian provinces) in 2004–2005. Most of the US quitlines had trained counselors available for a mean of 85 hours/week, many of them offering counseling in two languages, and a few offering as many as eight languages. All the quitlines offered multisession (generally five sessions) proactive telephone counseling, and some offered followup reactive sessions; the first session was usually 30 minutes long, and the followup sessions shorter. In addition to their telephone counseling services, about 50% of the quitlines offered Internet-based services, including general quitline information, cessation information, self-directed quit plans, automated e-mail messages, chat rooms, and interactive counseling. About one-third of the quitlines mailed free medications to callers, and 23% provided vouchers for medications. Although many of the quitlines had specialized protocols for pregnant women, smokeless-tobacco users, ethnic populations, and people 12–17 years old, far fewer offered protocols for multiple addictions, people 18–24 years old, those with mental illness, or older adults. Most of the quitlines had some criteria for receiving free medications, such as lack of insurance coverage.

The North American Quitline Consortium (NAQC) was established to help federal and state health departments, quitline service providers, researchers, and service providers, such as the American Cancer Society, to improve quitline services. In addition to the state quitlines and the service providers, NAQC members include CDC, the Robert Wood Johnson Foundation, the American Legacy Foundation, ClearWay Minnesota, and several Canadian organizations. NAQC is one resource for information about current quitline services, improving quitline quality, and assessing quitline efficacy and research.

Although quitlines are acknowledged to be effective in reaching a large number of tobacco users and can be tailored to reach specific audiences, they do have limitations. Quitlines typically reach only a small proportion of their target populations and are chronically underfunded. The 2003 National Action Plan for Tobacco Cessation (Fiore, 2003) recommended that state quitlines use at least four person-to-person proactive calls, that there be no cost to insurers for the use of the quitline by eligible tobacco users, and that all NRTs be made available to quitline users free of charge or that users receive vouchers for prescription medications. The plan also called for states to receive earmarked grants to maintain their quitlines and for quitlines to meet national performance standards. Zhu and Anderson (2004) note that the promotion of a quitline may prompt tobacco users to attempt to quit on their own even if they did not contact the quitline (Zhu and Anderson, 2004). Quitlines therefore may reach a broader audience than only tobacco users who are seeking counseling, including their friends and family who call to request information on how to support or initiate quit attempts by tobacco users.

The national action plan specifically states that military personnel and their families should be eligible to use the national quitline and that a toll-free number should be available for military personnel and their families stationed overseas.

DoD and VA populations live in a variety of locations including small and remote communities, including overseas, where in-person tobacco-cessation services may be scarce or nonexistent. Veterans, in particular, may find it difficult to access VA tobacco-cessation services if they are disabled or otherwise disadvantaged.

Finding: Quitlines, particularly proactive quitlines, are effective in reaching a large number of tobacco users and increasing abstinence rates over those achieved with usual care. Evidence indicates that a quitline should be proactive (counselor-initiated) and should provide four to six sessions and followup sessions as necessary.

Computer-Based Programs

Several studies have assessed the effectiveness of computer-based tobacco-cessation interventions, but there is insufficient information on their effectiveness. Nevertheless, the committee considered these programs as more people, both civilian and military, turn to computers for a variety of health information, assistance, and support. Many computer-based interventions have the advantage of being tailored to individual participants on the basis of their responses to questions, and they can be used to reach a large audience, including people who may not be contemplating quitting. Counseling may be conducted by telephone or e-mail with additional individualized resources, such as chat rooms, videos, graphics, journals, and action plans (Etter, 2002); computer-based programs can also be combined with medication. The efficacy of tailored computer-based tobacco-cessation programs is varied (Strecher and Velicer, 2003). Etter (2006) surveyed current and former smokers about the quality and helpfulness of 133 tobacco-cessation Web sites. Two of the most frequently visited sites were run by tobacco companies and were not considered helpful by participants. Two sites were ranked above average for quality and were nonprofit (Anti-smoking.com and Smokefree.gov) and the one ranked highest for helpfulness (Quitsmoking.About.com) was a for-profit Website. Strecher et al. (2008) found that a Web-based behavioral smoking cessation program was less effective for participants who were younger, male, and had less formal education (Strecher et al., 2008). Feil et al. (2003) designed a Web-based cessation site and studied recruitment approaches, use patterns, retention incentives, satisfaction, and cessation rate. The program included social

support and cognitive–behavioral coping skills. Of the 370 subjects followed for 3 months, the 7-day point-prevalence abstinence rate was 18% on the basis of intent-to-treat analysis (Feil et al., 2003).

One example of a computer-based service is QuitNet® that includes personalized interactive materials for members, provides proactive telephone counselors, and hosts an online support community of other smokers and ex-smokers (Cobb et al., 2005). One version of the program is available free to the public, and the other is an enhanced version available to commercial organizations. Other computer-based tobacco-use cessation programs include Quit For Life, offered by Free and Clear, Inc.; Freedom From Smoking®, developed by the American Lung Association; and BecomeAnEX, sponsored by ALF. SmokeFree.gov offers an online smoking-cessation program that includes text messaging with an NCI tobacco-cessation counselor. The SmokeFree.gov site also contains a referral for military personnel to DoD's "Quit Tobacco. Make Everyone Proud" program. According to the National Institutes of Health Web site (www.clinicaltrials.gov), formal assessments of QuitNet and other online smoking-cessations programs are under way.

Finding: Computer-based tobacco-use cessation programs may be able to reach a large audience of tobacco users, but there is insufficient evidence of their effectiveness.

Provider Education

Many people see a health-care professional (such as a primary-care physician or dentist) at least once a year. Each visit can be an opportunity to ask patients about their tobacco use and educate them about adverse health effects and available interventions. But first, health-care providers must themselves be aware of tobacco-cessation interventions and be comfortable in providing advice on these matters to their patients.

The use of evidence-based interventions may be enhanced by educating providers on the 5 A's to increases the rate of asking, advising, and assisting patients with tobacco cessation. The National Ambulatory Medical Care Survey of office-based physicians in the United States conducted by the National Center for Health Statistics in 2001–2003 found that physicians identified smoking status during 68% of office visits and counseled about 20% of smokers during their visits. Pregnant women were most frequently asked about their smoking status but were the least likely to receive smoking counseling. The use of tobacco-cessation medication, primarily prescription bupropion, was recorded in only 1.7% of visits (Thorndike et al., 2007). A Cochrane review found that training of health-care providers increased the likelihood that they would offer evidence-based cessation interventions during patient visits (Lancaster et al., 2000).

Numerous training programs are available for health-care providers, some of them free of charge. For example, the University of California, San Francisco has a program, Rx for Change: Clinician-Assisted Tobacco Cessation, that trains health-professionals, students, and licensed clinicians in the 5 A's or the Ask-Advise-Refer model (accessible at http://www.rxforchange.ucsf.edu). The 2AandR on-line program, sponsored by the Washington State Department of Health and run by Free and Clear, Inc., also offers training and resources to health-care providers based on the 2008 PHS guideline. The American Lung Association's Tobacco Cessation Resource Center has electronic resources for health-care providers to use in their clinics and organizations; providers are able to request additional assistance as needed (accessible at http://www.tobaccoprc.org/page.cfm?id=9).

There is a lack of training among mental-health professionals, primary-care providers, and tobacco-cessation specialists with regard to tobacco-cessation interventions for patients with psychiatric disorders (Williams and Ziedonis, 2006). Training psychiatrists to provide cognitive-behavior therapy to mental-health patients for tobacco cessation within the psychodynamic therapeutic model taught in most psychiatric residencies may be challenging inasmuch as only

about half the psychiatry residencies require cognitive-behavior therapy training (Prochaska et al., 2007).

Provider-level strategies for increasing patient use of cessation interventions include electronic or written prompts and reminders on medical charts or records including the assessment and documentation of tobacco-use status as a vital sign at every health-care visit (Fiore et al., 2008). For example, primary-care physicians who used a computer report of their patients' smoking status that included tailored recommendations for discussing smoking cessation were more likely to have abstinent patients at a 6-month followup than those who supplied standard care (Smith et al., 2007; Unrod et al., 2007). Provider reminder systems have been shown to be effective in increasing tobacco cessation, particularly when combined with provider education (CDC, 2009).

NCI has developed a Handheld Computer Smoking Intervention Tool (HCSIT), which assists clinicians with smoking-cessation counseling during patient visits. The software was developed in accordance with the current PHS guideline and includes a handheld version of the Fagerstrom Test for Nicotine Dependence. The tool guides clinicians through the appropriate questions and makes intervention recommendations, including prescription information, on the basis of the level of dependence. The HCSIT contains medication information, brief motivational interventions for tobacco users, and evidence-based recommendations from the PHS guideline. The easy-to-use program can be used with Palm®, SmartPhone, and Microsoft™ Pocket PC handheld computers. For more information, see http://www.smokefree.gov/hp-hcsit.html.

VA initiated a preceptor training program to improve delivery of tobacco-cessation treatment for veterans with mental disorders. The program uses a train-the-trainer format to educate VA health-care professionals about evidence-based clinical practices and mentors their progress in integrating smoking cessation into routine psychiatric care.

Finding: Training of health-care providers in tobacco-cessation interventions is effective in increasing the likelihood that a patient will be asked about tobacco-use status and be advised to quit and be assisted with tobacco-cessation services. Computer-aided training and reminder systems help health providers to discuss tobacco cessation with their patients.

TOBACCO CESSATION IN SPECIAL POPULATIONS

The 2007 IOM report *Ending the Tobacco Problem: A Blueprint for the Nation* acknowledges that some tobacco users will have a more difficult time in quitting than others. Many populations of tobacco users may be reluctant to quit, find it hard to do so, or be at risk for adverse health outcomes; these special populations include "hard-core" smokers who have smoked for many years, people with psychiatric and medical comorbidities, and people who have other complicating conditions, such as homelessness. Those populations have not traditionally been the focus of tobacco-control and cessation programs, and they may require modified or innovative approaches to help them quit. This may have particular relevance for DoD and VA: both treat tobacco users who have mental illness and other comorbidities, and VA treats a homeless population. Other populations served by the VA and military health systems that may require different approaches for effective tobacco-cessation services include women, pregnant women, minority-group members, hospitalized tobacco users, older tobacco users, and smokeless-tobacco users. In the sections below, the committee considers the evidence on

tobacco-cessation interventions for special populations with an emphasis on treating those with mental-health disorders.

Tobacco Users with Mental-Health Disorders

Disproportionately higher rates of smoking (see Chapter 3 for specifics) are related to an increased risk of tobacco related illness among those with psychiatric or mental disorders. For example, persons with chronic mental illness die about 25 years earlier compared to those without—mortality is primarily due to lung cancer and cardiovascular disease (Colton and Manderscheid, 2006), and half of premature deaths in alcoholics are attributable to cigarette smoking (Hurt et al., 1996). These statistics underscore the importance of developing effective treatments for patients with psychiatric comorbidities. Tobacco-cessation interventions in people with psychiatric disorders have been the subject of much research and several reviews (Fagerstrom and Aubin, 2009; Hagman et al., 2008; Ranney et al., 2006; Schroeder, 2009; Ziedonis et al., 2008).

Barriers impede the application of cessation treatments in mental-health populations, contributing to the high rates of tobacco use and low rates of cessation in this population (Williams and Ziedonis, 2004). Foremost among these barriers is a seeming reluctance on the part of mental health professionals to provide concurrent treatment for mental-health disorders and tobacco use. For example, in mental health care settings, smoking cessation treatment seems neglected as psychiatric patients only receive cessation counseling during 38% of their visits with physicians and 12% of their visits with psychiatrists (Ziedonis et al., 2008). In the past, cigarettes have even been used as tokens to reinforce positive behavior (Gustafson, 1992). Possible reasons for this reluctance include the belief that nicotine withdrawal may exacerbate a patient's psychiatric symptoms, lack of training in tobacco cessation treatment and counseling, possible interactions between cessation medications and medications prescribed for other psychiatric disorders, and the attitude that tobacco use is a long-term problem and thus a lower priority than more immediate psychiatric concerns (Ziedonis et al., 2006, 2007).

In spite of the 1996 publication of the American Psychiatric Association guideline recommending that psychiatric patients receive routine treatment for tobacco use (American Psychiatric Association, 1996), the proportion of mental-health patients counseled about smoking by their primary-care physicians (23%) or their psychiatrists (18%) is low (Thorndike et al., 2001). The National Ambulatory Medical Care Survey found that psychiatrists offered tobacco-cessation counseling to only 12.4% of their patients who smoked (Himelhoch and Daumit, 2003). More counseling was offered to patients who were over 50 years old, had diabetes, had hypertension, had obesity, lived in a rural location, or were in their initial visit. A study of 250 hospitalized psychiatric smokers found that only 105 were actually identified as current smokers in their medical records and none had received a diagnosis of nicotine dependence or withdrawal (the facility was smoke-free) or had cessation services as part of their hospital treatment; however, NRT was prescribed for 56% of the smokers, almost all of whom used it (Prochaska et al., 2004a). Ziedonis et al. (2008) noted that mental-health providers may be ideal for delivering tobacco-cessation treatment because there is a therapeutic alliance between patient and provider; patients will return for treatment for their psychiatric symptoms regardless of their cessation status, and the provider can use these opportunities to encourage repeated attempts to quit; and it is relatively cost-efficient in that tobacco-cessation treatment can be delivered during planned visits to the provider (Ziedonis et al., 2008).

Although people with psychiatric disorders have higher rates of tobacco use than people without these disorders, many of them are interested in quitting and will attempt to quit. The National Comorbidity Survey found that smokers with history of mental illness in the past month had a self-reported quit rate of 30.5% compared with a quit rate of 42.5% for those without any mental illness (Lasser et al., 2000). Patients with psychiatric disorders may use tobacco as a self-medication for their symptoms (Fagerstrom and Aubin, 2009; Khantzian, 1997; Lerman et al., 1998) because nicotine has been associated with improved psychomotor function in people with

depression (Malpass and Higgs, 2007) and has been associated with enhanced attention, sensory gating, and working memory in those with schizophrenia (Dalack and Meador-Woodruff, 1996; Strasser et al., 2002; Ziedonis et al., 2007). However, as discussed in Chapter 3, nicotine withdrawal may exacerbate some psychiatric symptoms if not properly controlled (Fagerstrom and Aubin, 2009).

The best time to start tobacco-cessation treatment is not clear; some studies indicate that it can be concurrent with treatment for psychiatric disorders, but some evidence suggests that it is more effective if given when psychiatric symptoms are less severe, particularly in those with alcohol dependence (Fiore et al., 2008). Although quit rates and relapse rates are higher in populations with psychiatric disorders, long-term abstinence can be achieved. In treating psychiatric patients for tobacco use, it must be remembered that traditional tobacco-cessation therapies may need modification to address issues specific to a psychiatric population such as self-medication, the particular psychiatric diagnoses, medications that the patients are already taking for their psychiatric symptoms, and the need for modified psychotherapy. Furthermore, in treating nicotine addiction, as in treating such other addictions as heroin addiction, it may be necessary to provide treatment for longer periods than the typical 12 weeks (Schroeder, 2009). The committee notes that treatment of tobacco dependence in people who have psychiatric disorders requires a tailored approach to meet individual needs; treatment can be enhanced through a combination of medication and psychosocial therapy; and tobacco use can alter the effectiveness of a variety of medications.

Behavioral Interventions

Behavioral interventions have been applied for tobacco users with several mental-health disorders, including schizophrenia (McChargue et al., 2002; Ziedonis, 2004; Ziedonis et al., 2007), depression (Brown et al., 2001; Hitsman et al., 2003), and substance-use disorders (Gulliver et al., 2006; Kodl et al., 2006). The 2008 PHS guideline (Fiore et al., 2008) indicates that current evidence is insufficient to determine whether smokers with mental-health disorders are more likely to quit if they receive interventions tailored to their disorders or symptoms or whether standard treatments are equally effective. Ziedonis et al. (2004) found that cessation interventions for psychiatric patients may include telephone-based counseling, Internet-based approaches, and face-to-face counseling, but more research is needed. They caution, however, that the interventions may be most effective in those with less severe mental illnesses, including addictions, because the interventions tend to be brief or time-limited and are not tailored to a particular mental illness.

Tobacco-Cessation Medications

In general, the FDA-approved tobacco-cessation medications that have been shown to be effective for the general population—NRTs (gum, patch, spray, lozenge, and inhaler), bupropion, and varenicline—have also been shown to be effective in people with psychiatric disorders (Fiore et al., 2008; Stapleton et al., 2008). However, as with patients with any comorbidity, treating tobacco dependence in psychiatric patients requires an understanding of the specific condition, the medications that are being used to treat the condition, and the severity of the dependence. Clinicians and tobacco-cessation counselors may need to adjust or combine tobacco-cessation medications to treat both the psychiatric symptoms and the nicotine dependence most effectively (VA/DoD, 2004). For example, Richmond and Zwar (2003) found that bupropion reduced withdrawal symptoms and was effective for smoking cessation in people with and without a history of depression or alcoholism. Heavier smokers may need higher doses of the cessation medications and additional NRTs (Richmond and Zwar, 2003). Extra emphasis on the use of NRTs or bupropion for treating nicotine dependence may be necessary in those with more severe tobacco dependence (VA/DoD, 2004). Varenicline has been associated anecdotally with changes in behavior, agitation, depressed mood, suicidal ideation, and attempted and completed suicide in some tobacco users (FDA, 2008); therefore, patients should

be monitored closely for side effects, including depression and suicidal ideation, while on the drug. More research on the association between varenicline and suicide is needed (see the FDA website, www.fda.gov, for updates on the status of varenicline).

A number of studies have found that the combination of medication and psychosocial treatments may be more effective than either alone for patients with mental illness (Fiore et al., 2008). For example, Evins et al. (2001) studied the effect of sustained-release (SR) bupropion and cognitive behavioral therapy on smoking behavior in patients with schizophrenia. The authors found that bupropion SR combined with cognitive behavioral therapy facilitated smoking reduction in some schizophrenic patients and stabilized psychiatric symptoms during attempts to quit (Evins et al., 2001). McFall et al. (2006) found that integrated tobacco-cessation treatment consisting of cessation medication with behavioral counseling and psychotherapy was effective in veterans with PTSD. Similarly, preliminary studies of tobacco-dependence treatment in PTSD patients indicated that behavioral treatments combined with medication when offered by a patient's mental-health provider were more effective than referral to a tobacco-cessation clinic. Furthermore, repeat treatment delivered in the context of a continuing therapeutic relationship is more effective than brief, episodic treatment delivered by a specialist (Fu et al., 2007). Similar results were seen in patients with diagnosed psychotic disorders: a combination of NRT, motivational interviewing, and eight sessions of individual cognitive-behavior therapy resulted in point-prevalence abstinence rates at 3, 6, and 12 months that were 3 times higher in the treatment group than in the group receiving routine care (Baker et al., 2006). There was a dose–response relationship between abstinence and attendance at the treatment sessions.

An additional, potentially unexpected benefit of reducing or eliminating tobacco use by patients with mental illness is lowering of psychotropic medication dosages. Patients with serious mental illness, such as schizophrenia or bipolar disorder, are commonly given antipsychotic medications, such as olanzapine or clozapine. Smokers who receive those medications may need about twice the dosage of nonsmokers, because of the effect of the polycyclic aromatic hydrocarbons in tobacco smoke on medication metabolism (Desai et al., 2001). Other medications that are affected similarly include haloperidol and fluphenazine (Desai et al., 2001; Workgroup on Substance Use Disorders, 2006). Cigarette-smoking may also increase the clearance of benzodiazepines (Smith et al., 1983). Careful monitoring of the side effects of psychiatric medications during changes in tobacco use is necessary, particularly during the early abstinence period (VA/DoD, 2004). Health-care providers should be actively involved in working with patients to adjust medications and to inquire about side effects. Tobacco users with mental illness may need to be treated for a longer period and with more intensive treatments than nonusers (Collie et al. 2006).

In the section below, the committee assesses the evidence on tobacco-cessation interventions for specific psychiatric disorders that may be seen in military personnel returning from Iraq and Afghanistan and in veterans from those and earlier conflicts: PTSD, major depressive disorder (MDD), alcohol abuse and dependence, and schizophrenia.

Posttraumatic Stress Disorder

In a review by Fu et al. (2007), PTSD was strongly associated with tobacco use and nicotine dependence; many studies reported smoking rates of over 50% in those with the disorder. Although several observational studies have shown that smokers with PTSD are less inclined to quit smoking than smokers without PTSD or with other psychiatric disorders, several clinical studies have indicated that smokers with PTSD or other mental disorders respond to tobacco-cessation treatment at levels nearly equivalent to those in smokers without mental disorders (Fu et al., 2007).

For tobacco users with PTSD, there appears to be greater abstinence from tobacco use when cessation interventions are integrated into standard mental-health care. In one study, 107 veterans with PTSD who smoked were encouraged to make multiple attempts to quit (that is, repeated treatment) during a 6-month treatment period. The 9-month, 7-day point-prevalence abstinence rate was 18% in the integrated-care group and 3% in the standard smoking-cessation

group (difference not significant) (McFall et al., 2005, 2006). The sample was small, but, given the effect size, the committee considers that this intervention merits further study.

Collie et al. (2006) reported that cue-reactivity and coping-skills training may be beneficial in cessation efforts in smokers who have PTSD, extrapolating from the literature on preventing alcohol abuse. Other approaches that have been found effective in increasing tobacco-cessation rates in people with PTSD include supportive counseling and mood management, particularly before the quit attempt begins. Unaided quit attempts result in higher relapse rates in the first week after quitting in smokers with PTSD than in smokers without a mental disorder (Zvolensky et al., 2008).

One small trial of bupropion SR in PTSD patients found it to be effective compared with placebo (Hertzberg et al., 2001).

Depression

Research indicates that smokers with depression can be motivated to attempt to quit smoking and, with formal assistance, accept and use tobacco-cessation treatment (Acton et al., 2001; Haug et al., 2005; Prochaska et al., 2004a). Acceptance was not correlated with chronicity of depression history, severity of current depressive symptoms, severity of nicotine dependence, sex, age, or education (Haug et al., 2005). Recent research has shown that people in treatment for chronic depression can be treated for tobacco dependence with no adverse effects on their mental-health functioning or compensation with other substance use (Prochaska et al., 2008).

Meta-analyses of smoking-cessation trials published in 1988–2000 found that smokers with a history of depression were as likely as those without such a history to achieve short-term (up to 3 months) or long-term abstinence (at least 6 months) (Covey et al., 2006; Hitsman et al., 2003). Three randomized, controlled trials indicate that smokers with MDD are capable of achieving abstinence rates comparable with those of nondepressed smokers after similar interventions (Hall et al., 2006; Muñoz et al., 1997; Thorsteinsson et al., 2001). Several studies have compared standard smoking-cessation treatment (ST) with the combination of ST and cognitive-behavioral therapy for depression (CBT-D) in smokers with past MDD and recurrent MDD (Brown et al., 2001; Haas et al., 2004; Hall et al., 1994; Hall et al., 1998; Hall et al., 1996). Contrary to expectation, CBT-D with ST did not produce significantly higher abstinence rates than ST alone in smokers with past MDD, perhaps because these smokers already fared well in nonpharmacologic standard treatment. However, in smokers with recurrent MDD (two or more past episodes), CBT-D with ST resulted in significantly higher abstinence rates than ST alone ($p = 0.02$). In sum, adding CBT-D to usual smoking-cessation treatment is efficacious in smokers with a history of recurrent depression. Cognitive-behavioral therapy with an emphasis on group cohesion and social support (Ait-Daoud et al., 2006) and mood management combined with tobacco-cessation treatment and increased therapist time (Brown et al., 2001; Collie et al., 2006) also appear to be effective in smokers with recurrent depression.

Hall et al. (2006) conducted a comparison of a stepped-care intervention with a brief-contact intervention in smokers with current depression recruited from four mental-health outpatient clinics. The stepped-care intervention consisted of a computerized expert system based on the stage-of-change model and the option of receiving six 30-minute psychotherapy sessions that included mood management training and medication (nicotine patch and/or bupropion). The brief-contact intervention included a smoking-treatment referral list and a packet of educational materials at the first visit. Abstinence rates at 12 and 18 months were higher in depressed smokers who received the stepped-care intervention than in the brief-contact controls (Hall et al., 2006).

An etiologic connection may exist between smoking and depression (Aubin, 2009; Kotov et al., 2008). The variation in symptoms of MDD may affect smoking-cessation outcomes (Burgess et al., 2002) in such a way that increasing depressive symptoms are associated with poorer cessation outcomes. Smokers with a history of MDD, who were currently free from depression and not on antidepressant medication and who stopped smoking were at a significantly increased risk for a new episode of depression (OR, 7.17; 95% CI, 1.5–34.5)

compared with those who were not abstinent. The risk persisted during the 6-month followup period (Glassman et al., 2001).

Alcohol Abuse and Dependence

It has been estimated that 80% of people who abuse or are dependent on alcohol are smokers (Sussman, 2002), and rates of tobacco use and nicotine dependence increase with alcohol consumption (Falk et al., 2006). Of importance for DoD is that the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) found that the co-use of alcohol and tobacco was highest in men and women 18–24 years old (Falk et al., 2006). However, although most alcoholics are interested in quitting tobacco at some point and some are concerned that doing so will make them drink more (Joseph et al., 2003), treatment for tobacco cessation is not routinely included in alcohol-treatment programs in spite of evidence that tobacco-cessation treatment does not impede alcohol-use outcomes (Burling et al., 2001; Gulliver et al., 2006).

Concurrent treatment for tobacco use and alcohol dependence or abuse has been studied, but results are mixed. Some studies have shown that cessation rates tend to increase with length of sobriety if the two treatments are delivered concurrently (Heffner et al., 2007). Tobacco-cessation rates were about 3 times as great in people with 3 months of sobriety or more as in people with shorter sobriety, although both groups relapsed at about the same rate. At 3–6 months of sobriety, tobacco-cessation rates resembled those of alcohol nonusers, and 1-year cessation rates were as high as 46% in people who have been sober for several years (Sussman, 2002). Other studies of concurrent treatment found greater participation rates in tobacco-cessation treatment; however, long-term cessation rates did not differ significantly from those seen when smoking intervention was delayed for 6 months after alcohol treatment indicating that optimal timing has yet to be determined (Joseph et al., 2002). Sequential treatments may be preferred for some people (Kodl et al., 2006). Elingstad et al. (1999) suggested that tobacco cessation may improve alcohol-treatment outcomes because it removes a cue for alcohol use (Ellingstad et al., 1999).

In a study of outpatients in alcohol treatment, the longer the period of alcohol abstinence, the more receptive to quitting smoking were those with low scores on the Center for Epidemiologic Studies Depression Scale (Hitsman et al., 2002). Patten et al. (2002) assessed the use of behavioral therapy alone or behavioral therapy with cognitive-behavioral mood-management training for tobacco abstinence in depressive smokers with a history of alcohol dependence. Behavioral therapy alone was more effective in helping smokers with low scores on the Hamilton Rating Scale for Depression to achieve short-term tobacco abstinence, whereas the mood-management training was more effective in increasing abstinence in smokers with high depression scores (Patten et al., 2002). Those studies suggest that treating people who have both depression and alcohol dependence for tobacco use requires assessing both disorders in addition to nicotine addiction. Ait-Daoud et al. (2006) found that the preponderance of evidence suggests that concurrent treatment for depression and tobacco use is preferable to treating either disorder alone, even in people who have alcohol dependence, and that a combination of pharmacotherapies and cognitive-behavioral therapy was most advantageous (Ait-Daoud et al., 2006).

Schizophrenia

Patients with schizophrenia are treated in a variety of intensive-treatment settings (such as psychiatric hospitals, residential facilities, and day-treatment programs), and these settings provide an opportunity to deliver an intensive smoking-cessation treatment integrated with mental-health care. However, only recently have some psychiatric treatment settings begun to address tobacco use. As with other psychiatric disorders, the percentage of people with schizophrenia who are smokers is more than twice the percentage of smokers in the general population (Kotov et al., 2008). People with schizophrenia appear to be able to quit tobacco with

the support of psychosocial treatment, nicotine-dependence treatment medications, and social support (Workgroup on Substance Use Disorders, 2006). Although many experience difficulties and can relapse, some people with schizophrenia are interested in reducing their tobacco consumption (Forchuk et al., 2002). Patients with schizophrenia who smoke appear to be more severely ill than patients who do not smoke, although the severity of specific symptoms does not appear to differ between smokers and nonsmokers (Kotov et al., 2008). Clinical studies show that psychologic treatment interventions of different intensity have been effective, including one-to-one and group-based counseling using modified American Lung Association interventions, cognitive-behavioral therapy, social-skills training, and contingency monetary reinforcement. Much of the relevant literature on people with psychotic disorders, such as schizophrenia, has focused on interactions between antipsychotic medications and bupropion rather than on the efficacy of psychologic treatments. Most of the studies in this population using NRT or bupropion have included a psychologic-treatment component (Addington et al., 1998; Goldberg et al., 1996; Ziedonis and George, 1997).

Tobacco Users with Medical Comorbidities

Smoking is the leading cause of morbidity in the general population and is causally linked to the development of many cancers (particularly lung cancer), chronic obstructive pulmonary disease (COPD), and cardiovascular disease (CVD) (see Chapter 2). Smoking is also known to have an adverse effect on people who have those diseases and other illnesses, such as diabetes, that are not commonly linked to smoking. The 2006 National Health Interview Survey (NHIS) found that 36.9% of smokers with any smoking-related chronic disease continued to smoke, including almost 49% with emphysema, 41% with chronic bronchitis, 21% with lung cancer, 39% with other cancers, 29% with coronary heart disease, and 30% with stroke; only 19% of those with no chronic disease smoked (CDC, 2007a). A significant portion of veteran patients suffer from chronic diseases: in 2008, over 2 million veterans had a diagnosis of hypertension, over 175,000 had a diagnosis of heart failure, over 150,000 had peripheral vascular disease, over 400,000 had a diagnosis of COPD, over 65,000 had a stroke, and over 28,000 had a diagnosis of lung cancer (Kim Hamlett-Berry, VA, personal communication, February 26, 2009). Thus, this issue is of particular importance to DoD and VA with regard to medical consequences of continued smoking and to smoking-cessation treatment as they both treat large populations with comorbid illnesses.

The prognosis of CVD in smokers can improve markedly with smoking cessation (Burns, 2003). Continued smoking is associated with earlier age of disease onset, disease progression, recurrent events, and higher mortality (Van Spall et al., 2007). For example, the risk of myocardial infarction decreases within 1 year after smoking cessation, and 10-year survival after coronary-artery bypass surgery increases from 68% to 84% (Cavender et al., 1992). Most studies of tobacco-cessation intervention in patients with CVD have been conducted in hospitalized male patients and compared usual care with more intensive programs. The more intensive interventions included behavior therapy, telephone support, and self-help materials, often in combination. Behavioral therapy and telephone support were slightly more effective than self-help materials, but better 6- and 12-month abstinence rates were obtained with more intensive treatments of at least 1 month duration; brief interventions were not effective (Barth et al., 2008). When 12-week intensive behavior-modification therapy was combined with individualized medication, long-term abstinence was significantly increased in patients with CVD (33% vs 9%; $p < 0.0001$), and patients had fewer later hospitalizations and had reduced all-causes mortality (Mohiuddin et al., 2007). Intervention intensity is related to increased treatment efficacy in the 2008 PHS guideline (Fiore et al., 2008). Medications, such as NRTs, bupropion SR, and varenicline, for tobacco cessation in patients with CVD appear to be both safe and effective (Fiore et al., 2008; Tonstad et al., 2003; Joseph and Fu, 2003). Peripheral arterial disease is also associated with smoking, and current management of peripheral arterial disease includes smoking-cessation interventions (Aronow, 2008).

The Lung Health Study demonstrated that permanent abstinence from smoking can reduce the progression from early COPD—mild to moderate airway obstruction—to clinically serious lung disease (Anthonisen, 2004). Evidence indicates that smoking cessation improves lung function and long-term survival in people with COPD regardless of disease severity (Godtfredsen et al., 2008), and the risk of COPD exacerbation diminishes as the length of abstinence increases (Au et al., 2009). Nevertheless, the risk of death from COPD may remain increased even after 20 years of smoking abstinence; once lung disease is disabling, continued abstinence may slow the decline, but symptom-related benefits may be fewer (Burns, 2003). Sherman et al. (2003) reported that smokers attending a VA hospital for COPD were more likely to receive smoking-cessation therapy than smokers without COPD (Sherman et al., 2003). Smoking-cessation interventions in those with COPD that combine behavioral and pharmacologic interventions are more effective than behavioral interventions alone or no treatment (Fiore et al., 2008; Hilberink et al., 2005; Wagena et al., 2004). A long-term cessation program that included 2-week hospitalization, NRT, physical exercise, and group counseling with a year of telephone followup by trained staff was found to be significantly more effective in maintaining abstinence at 3 years than usual care for patients with COPD (38% vs 10%) (Sundblad et al., 2008). Other programs with combined therapy have been effective in achieving long-term smoking cessation (Jonsdottir et al., 2004). Bupropion has been shown to be both safe and efficacious as a smoking-cessation medication for patients with COPD (Tashkin et al., 2001; Wagena et al., 2004).

Cancer patients who smoke are at increased risk for recurrence of cancer, second primary cancers, reduced cancer-treatment efficacy, increased medication toxicity, and reduced survival and quality of life (Gritz et al., 2005, 2006, 2007). Smokers undergoing surgery for cancer or other health conditions experience increased postsurgical complications of anesthesia, respiratory infections, and wound healing (including healing after reconstructive plastic surgery). Continued smoking can also compromise radiation-therapy outcomes, increase toxicity, and exacerbate side effects. Although chemotherapy has not been specifically studied with regard to continued smoking, compromised immune function, weight loss, fatigue, and susceptibility to infection may all be exacerbated by continued smoking. The efficacy of cancer-chemotherapy agents and molecular treatments (such as tyrosine kinase inhibitors of epidermal growth-factor receptors) may be reduced by induction of drug-metabolizing enzymes due to tobacco smoke (Gritz et al., 2007; Toschi and Cappuzzo, 2007).

Up to 60% of patients with smoking-related tumors are current smokers at diagnosis (McBride and Ostroff, 2003); although many patients may quit in preparation for surgery or other treatments, the relapse rate is high (Gritz et al., 2007; Walker et al., 2006). Duffy et al. (2006) showed that patients with head and neck cancers who smoked and had alcohol abuse or depression had higher 6-month abstinence rates after a nurse-administered smoking-cessation intervention consisting of cognitive-behavioral therapy combined with medication than patients who received usual care (Duffy et al., 2006). As in patients with CVD and COPD, smoking-cessation interventions for cancer patients must factor in the medications that the patients are taking for the cancer (and other possible comorbidities) and their psychologic status. Smoking-cessation intervention studies of cancer patients have not shown a consistent effect, and more research is needed. Future studies should use the evidence-based treatments set forth in the 2008 PHS guideline (Fiore et al., 2008), combine behavioral counseling and pharmacologic treatments, involve the provider treatment team, and validate outcomes.

Two chronic diseases exacerbated by smoking are diabetes and asthma. Smoking puts diabetic patients at higher risk for vascular disease, stroke, nephropathy, neuropathy, lower-extremity morbidity, and premature death from CHD (Haire-Joshu et al., 1999; Phisitkul et al., 2008). Smoking-cessation intervention trials have had mixed findings, but in large trials, nurse-delivered interventions and motivational interviewing have shown favorable results (Canga et al., 2000; Davies et al., 2008; Persson and Hjalmarson, 2006). Further research on motivational interviewing by a primary-care nurse is under way (Jansink et al., 2009).

In people with asthma, symptoms may be triggered and aggravated by active smoking and by secondhand smoke. Other adverse effects among asthmatic smokers include increased

frequency of attacks, increased symptom severity, higher hospitalization rates, and rapid decline in lung function (Althuis et al., 1999; Sippel et al., 1999; Siroux et al., 2000; Yun et al., 2006). Cigarette-smoking may reduce the effectiveness of steroid treatment for asthma (Tyc and Throckmorton-Belzer, 2006). Smoking prevalence in adult asthmatics is similar to that in the general population (Thomson et al., 2004), and intervention studies in adults have not been reported. Adolescents with asthma are more likely than nonasthmatic adolescents to have parents that smoke (Otten et al., 2005).

Other Special Populations of Tobacco Users

The 2008 PHS guideline and some Cochrane reviews have assessed the efficacy of tobacco-cessation treatments for several specific populations; some of the results have particular relevance for the populations served by DoD's TRICARE health system and VA. The populations include hospitalized smokers, older smokers, racial and ethnic minority populations, women, pregnant smokers, and smokeless-tobacco users. In general, the literature on tobacco-cessation treatments for those populations is sparse.

Women

In 2001, the US surgeon general released a second major report on women and smoking (US Surgeon General, 2001). The surgeon general emphasized that although smoking is not the norm among women, those who use tobacco are at risk for adverse health effects. If they are pregnant and smoke there is also an increased risk to the fetus. The Department of Health and Human Services offers a Web site with health information for women that contains information on tobacco use and cessation, including information for pregnant smokers (http://www.4woman.gov/QuitSmoking/index.cfm). The 2008 PHS guideline indicates that women are responsive to the same smoking-cessation treatments as men, specifically medication (bupropion SR, NRTs, and varenicline) and counseling intervention, such as active telephone counseling, individually tailored followup, and advice to quit aimed at children's health (Fiore et al., 2008). Croghan et al. (2009) found that among smokers who participated in an individualized tobacco-cessation program in a large hospital, there was no difference between men and women in outcomes although women were more likely to receive a prescription for tobacco-cessation medication.

Female veterans with PTSD are twice as likely to smoke as those without PTSD (Dobie et al., 2004). Female and male veteran smokers receiving care at VA medical centers were equally likely to be advised to quit smoking and to be referred to tobacco-cessation services, but women were less likely to be given cessation medications and at 1-year followup were less likely to have quit. When asked about what would constitute an ideal smoking-cessation program for women, female veterans indicated that support, particularly emotional support from peers, would be an important component of any such program and that options for individual and group support would be helpful (Katzburg et al., 2008).

Smokeless-Tobacco Users

Numerous forms of smokeless tobacco are available, and its use is on the rise in military populations, particularly those deployed to Iraq and Afghanistan (Smith et al., 2008); therefore, treatment for smokeless-tobacco use is an important consideration for military health advisers. In addition, many military personnel who use smokeless tobacco also smoke cigarettes, and this may increase the complexity of cessation interventions for either form of tobacco use. Evidence summarized in a Cochrane review of two randomized trials of pharmacotherapies for smokeless-tobacco use with 6-month followup found that nicotine replacement or bupropion was not effective (Ebbert et al., 2007a). Behavioral interventions, such as counseling by a dentist or telephone counseling, might be effective, but more study is needed (Carr and Ebbert, 2006; Ebbert et al., 2007a; Klesges et al., 2006). The 2008 PHS guideline also indicates that counseling

is effective for smokeless-tobacco cessation, although the evidence for cessation medications is insufficient (Fiore et al., 2008). A review of behavioral and pharmacologic interventions for smokeless-tobacco use found similar results (Severson, 2003). Cessation counseling during a dental visit was more effective in increasing 12-month abstinence than group support sessions in a tobacco-cessation clinic or self-help materials with brief counseling. The use of NRT gum, NRT patch, or bupropion did not improve cessation in smokeless-tobacco users.

Hospitalized Tobacco Users

Several studies of tobacco cessation in hospitalized smokers are included in the above discussion of tobacco users with comorbidities (Barth et al., 2008; Prochaska et al., 2004b; Sundblad et al., 2008). In addition, a Cochrane review assessed smoking-cessation treatments for hospitalized patients (Rigotti et al., 2007). Hospitalized tobacco users benefit from tobacco-cessation treatments, particularly intensive cognitive-behavioral therapy combined with NRT (Simon et al., 2003). Smokers who received a multicomponent cessation intervention consisting of face-to-face in-hospital counseling, a videotape, self-help literature, NRT, and 3 months of telephone followup after noncardiac surgery had higher biochemically confirmed abstinence rates at 12 months than those who received only self-help literature and brief counseling (relative risk, 2.0; $p = 0.04$) (Simon et al., 1997). A meta-analysis of treatment of hospitalized patients shows that intensive therapy begun in the hospital and continuing with at least 1 month of followup after discharge appears to result in the best cessation rate; the addition of cessation medications does not increase the rate (Rigotti et al., 2007).

Other Tobacco Users

The 2008 PHS guideline assesses tobacco cessation in several special populations, including those with low socioeconomic status (SES) and little formal education, older smokers, and racial and ethnic minorities (Fiore et al., 2008). There is a paucity of studies on the effectiveness of tobacco-cessation treatments in each of those populations. Tobacco users with low SES and little formal education benefit from the use of nicotine patches in combination with counseling, including proactive telephone counseling and motivational messages with or without telephone counseling (Fiore et al. 2008). Older smokers typically do not receive adequate treatment for tobacco use (Doolan and Froelicher, 2008), but they too benefit from a variety of tobacco-cessation treatments, including those used for low-SES tobacco users. Buddy support, tailored self-help materials, and physician advice are also effective (Fiore et al., 2008). Effective interventions for racial and ethnic minorities include medications (bupropion SR and nicotine patches), motivational counseling, clinician advice, tailored self-help materials, telephone counseling, and biomedical feedback (Fiore et al., 2008).

Heavy smokers are those who smoke than 1 pack of cigarettes a day (20 cigarettes in a pack), typically 25–30 cigarettes/day. The number of cigarettes smoked per day can be predictive of withdrawal symptoms. For people with severe tobacco dependence, it may be necessary to increase the dose of cessation medications to alleviate symptoms or to use combinations of treatments (Dale et al., 1995)—perhaps three or more medications simultaneously (Ebbert et al., 2007b). The committee recommends that health-care providers consider tailoring the dose of NRT and the use of multiple NRTs or other combination medications in these patients.

Finding: Although most studies have focused on treating tobacco users in the general public, evidence suggests that special populations—such as those with mental illness, women, and those with medical comorbidities—will benefit from the same tobacco-cessation treatments although some modifications may be necessary to avoid medical complications. A combination of tailored behavioral therapy and medication is effective for tobacco cessation in these populations.

RELAPSE-PREVENTION INTERVENTIONS

The issue of relapse from tobacco abstinence is well known but not well studied. As many as 75–80% of smokers who quit tobacco use will relapse within 6 months (Carmody, 1992). Most people who quit without assistance relapse within the first 8 days after quitting (Hughes et al., 2004). Studies of people who used nicotine medications to quit suggest that long-term (1-year) abstinence rates are about 10% and that the rate of relapse after 1 year is not significant (Hughes et al., 2008). Several factors may be at play in relapse, including the biologic nature of nicotine addiction, conditioned activities (such as smoking when drinking alcohol or coffee), and cognitive-social learning factors. Men and women may be concerned about gaining weight if they stop smoking (Carmody, 1992; Clark et al., 2004; Clark et al., 2005; Clark et al., 2006a). A Cochrane review of relapse-prevention interventions found that behavioral interventions were not effective although therapy that helps smokers to avoid smoking cues had the best results; long-term use of varenicline was most effective for prolonged prevention of relapse whereas long-term use of bupropion did not appear to be effective (Hajek et al., 2005). A study of 1,700 smokers randomized to receive a nicotine inhaler, bupropion, or both for 3 months found that the combination therapy increased abstinence rates but did not prevent relapse (Croghan et al., 2007). A variety of tobacco-cessation treatments—including cognitive-behavioral therapy, social support, pharmacotherapies, and cue avoidance—may be required to prevent relapse and maintain long-term abstinence (Carmody, 1992).

SURVEILLANCE AND EVALUATION

The comprehensive tobacco-control programs described in this chapter have features in common that increase their effectiveness. An important feature is surveillance mechanisms to assess whether tobacco-use restrictions and modifications of the retail environment are being enforced and are reducing tobacco consumption and to determine whether the various tobacco-cessation interventions are assisting tobacco users to quit. CDC states that surveillance "is the process of monitoring tobacco-related attitudes, behaviors, and health outcomes at regular intervals" (CDC, 2007a). Mechanisms to monitor the effectiveness of interventions may require surveys of populations to assess specific health behaviors, analysis of medical records, inventories, or financial tracking. CDC recommends that states spend specific dollar amounts per user on tobacco control. Surveillance must be continuous; a snapshot of a program is not sufficient to indicate its effectiveness. Scheduled periodic evaluations are the best surveillance tools, but ad hoc information may also be useful in identifying trouble spots or anomalies. Surveillance information helps program leaders modify programs to meet changing needs or to address disparities. Surveillance can indicate whether policies are being enforced, whether medications are being correctly prescribed and taken, whether quitlines are being used, whether mass-media campaigns are reaching target audiences, and whether funds are being spent appropriately. Feedback information obtained through surveillance is critical for ensuring that a tobacco-control program is effective. Tobacco-control surveillance includes prevalence of tobacco use, its health and economic consequences, its sociocultural determinants and tobacco-control policy responses, and tobacco-industry activities.

There is evidence that performance measures work well and it is possible to relate them to program improvements (IOM, 2005; Perrin, 1998, 1999). Performance measures may take the form of metrics, such as the number of people who enroll in a smoking-cessation program, the number of people who are counseled to quit using tobacco by their health-care providers, the number of people who quit at some time after using an intervention, or the number and types of policies aimed at achieving tobacco control.

Progress in tobacco-use cessation treatment at the population level can be known because of metrics that are tied to resources (Curry et al., 2008; Curry et al., 2006). Some metrics consist of straightforward information about investment in state and national mass-media campaigns to

promote smoking cessation and use of evidence-based treatments, such as state quitlines. Other metrics are indicators of coverage of tobacco cessation interventions in federal insurance plans (such as Medicare and Medicaid) and employer-sponsored insurance (Bondi et al., 2006). With support from the Robert Wood Johnson Foundation, several national surveys of managed-care coverage for tobacco cessation services have been conducted (McPhillips-Tangum et al., 2006), but funding for those surveys has ended. The National Committee for Quality Assurance (NCQA, 2008) report *The State of Health Care Quality 2007* states that counseling smokers to quit increases the likelihood that they will do so and is a cost-effective intervention. Interventions such as discussing tobacco-cessation strategies and the use of NRTs increase the potential for smoking cessation. NCQA has a quality measure for medical assistance with smoking cessation that consists of three components: advising smokers to quit, discussing smoking-cessation medications, and discussing smoking-cessation strategies. NCQA has recently proposed revising the Health Plan Employer Data and Information Set measure for 2010 to include other tobacco products, such as pipes, snuff, and chew (NCQA, 2008).

Those measures allow tracking of patients' reports of whether their physicians have advised them quit and offered behavioral and pharmacologic treatments. Inpatient metrics derive from the Joint Commission accreditation measures of the number of inpatients that receive advice or counseling for smoking cessation during their hospital stays. Those metrics are a core measure for assessing the treatment of acute myocardial infarction, congestive heart failure, and pneumonia. The National Quality Forum nursing-sensitive care measures include nursing-centered interventions for smoking cessation (The Joint Commission on Accreditation of Healthcare Organizations, 2008). The Agency for Healthcare Research and Quality's annual National Healthcare Quality Report includes measures related to primary-care provider advice to quit for all smokers over 18 years old during routine office visits and post–myocardial infarction counseling to quit smoking (HHS, 2007).

Health-care system metrics related to front-line clinical practice are complemented by individual-level data from national surveys, such as the NHIS.[8] Although not part of the core items, information on health-care provider advice on and assistance in quitting and information on the use of evidence-based treatments are available as part of the cancer-control supplement to the NHIS. However, the NHIS surveys include only the civilian, noninstitutionalized US population and exclude the military population, although dependents of active-duty service members may be included.

With regard to the availability of effective behavioral treatment through a national quitline network, the North American Quitline Consortium tracks the number of services and types of telephone counseling available through state quitlines. Members of the consortium also contribute information about quitline use and the characteristics of quitline callers through their minimal dataset (NAQC, 2008).

In addition to collecting specific information about tobacco cessation services offered by health care providers, evaluation of comprehensive tobacco programs has been undertaken and can serve as a model for future program evaluations. The NCI reviewed the effectiveness of the state tobacco-control programs that had participated in the federal ASSIST program described in Appendix A (Gilpin et al., 2006). The Robert Wood Johnson Foundation has also assessed state tobacco-control programs (http://www.rwjf.org/pr/product.jsp?id=21098). Public dissemination of those evaluations can help to engage outside participants in program improvement, encourages transparency in program processes, and permits cross-program comparisons to determine best practices for tobacco control. Program evaluations also help to identify needed policy changes and can support leadership initiatives for program enhancements. CDC has developed a set of key outcome indicators for evaluating comprehensive tobacco-control programs that may be used by DoD and VA to monitor progress and determine the success of

[8]The NHIS is conducted annually, but detailed tobacco questions are asked only as part of the cancer supplement; the supplement was last administered in 2005. It is available online at http://www.cdc.gov/nchs/nhis.htm (accessed on March 10, 2009).

their programs. Outcome indicators are presented for achieving three program goals that are applicable to both DoD and VA populations: preventing tobacco-use initiation, eliminating nonsmokers' exposure to secondhand smoke, and promoting quitting (CDC, 2009a).

Finding: Periodic and public evaluation of tobacco-control program based on performance metrics and other surveillance tools help provide the necessary information to modify tobacco-control programs to enhance their effectiveness.

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5

DEPARTMENT OF DEFENSE TOBACCO-CONTROL ACTIVITIES

The Department of Defense (DoD) is the largest agency in the federal government. Headed by the secretary of defense, it is responsible for over 1.3 million men and women on active duty and 684,000 civilians. Another 1.1 million serve in the National Guard and reserves. In addition to over 2 million military retirees and their family members who receive benefits, all active-duty members and their families are eligible to receive health care from DoD. National Guard and reserve members are also eligible for DoD health care while deployed.

DoD and each of the armed services have stated that tobacco use is not an acceptable activity for military personnel (see Table 5-1). Tobacco use is not the norm for the majority of military personnel: about 70% of active-duty military do not use tobacco. Nevertheless, as described in Chapter 2, tobacco use rates by military personnel are higher than in a comparable civilian population. Many recruits enter the service as smokers, but many military personnel who did not use tobacco before they were recruited begin to use it during their military service. This trend is of concern because tobacco use impairs the military readiness (Chapter 2) and leads to short-term and long-term tobacco-related health problems and increased health-care costs. DoD needs to attach high priority to preventing initiation and promoting cessation of use of tobacco products to ensure the healthiest military force possible.

TABLE 5-1 Tobacco Use Goals of the DoD and Armed Services

DoD	Army	Navy	Marines	Air Force
"It is DoD policy . . . that smoke-free DoD facilities be established to protect all DoD civilian and military personnel and members of the public visiting or using DoD facilities from the health hazards caused by exposure to tobacco smoke" (DoD, Instruction 1010.5, 2001).	"Readiness will be enhanced by promoting the standard of a tobacco-free environment that supports abstinence from and discourages the use of any tobacco product" (Army Regulation 600-63, 2007).	"Reduce tobacco use, prevent tobacco product use initiation, reduce non-users' exposure to ETS [environmental tobacco smoke] and residue, promote quitting, and establish tobacco-free facilities…Department of the Navy's vision is to be tobacco free" (SECNAV Instruction 5100.13E, 2008).	"It is Marine Corps policy to discourage the use of tobacco products. . . The objective is to establish a safe, healthy, and "tobacco/smoke free" environment for all personnel" (Marine Corps Order 5100.28, 1992).	"The Air Force's goal is a tobacco free force" (Air Force Instruction 40-101, 2008).

In this chapter, the committee examines DoD's tobacco-control activities, discusses how they might fit into the evidence-based comprehensive tobacco-control program described in Chapter 4, and identifies institutional and programmatic barriers and opportunities in DoD that hinder or help tobacco-control efforts. The committee describes current DoD activities in all four services and provides advice on how the activities might be enhanced or integrated to reduce

tobacco use by active-duty military personnel, retired military personnel, and personnel in the National Guard and reserves. Many aspects of the tobacco-control program may also be applicable to DoD civilian employees and contractors who work at military facilities.

ORGANIZATIONAL OVERVIEW

The president and the secretary of defense form the National Command Authority, which provides direction for the military. The Office of the Secretary of Defense carries out the secretary's policies by tasking the military departments that train and equip the forces; the chairman of the Joint Chiefs of Staff plans and coordinates military deployments and operations; and the unified commands that conduct military operations. The secretary of defense is advised by under secretaries for policy, finance, acquisitions, intelligence, and personnel and readiness. It is the under secretary for personnel and readiness who is responsible for the DoD Military Health System (MHS; see Figure 5-1).

The policy organization starts with the secretary of defense and runs through the under secretary for personnel and readiness to the assistant secretary of defense for health affairs, ASD(HA). The ASD(HA) has no direct line command and control relationship with the surgeons general of the military departments. However, policy guidance issued by the secretary of defense through the ASD(HA) is binding on the military departments.

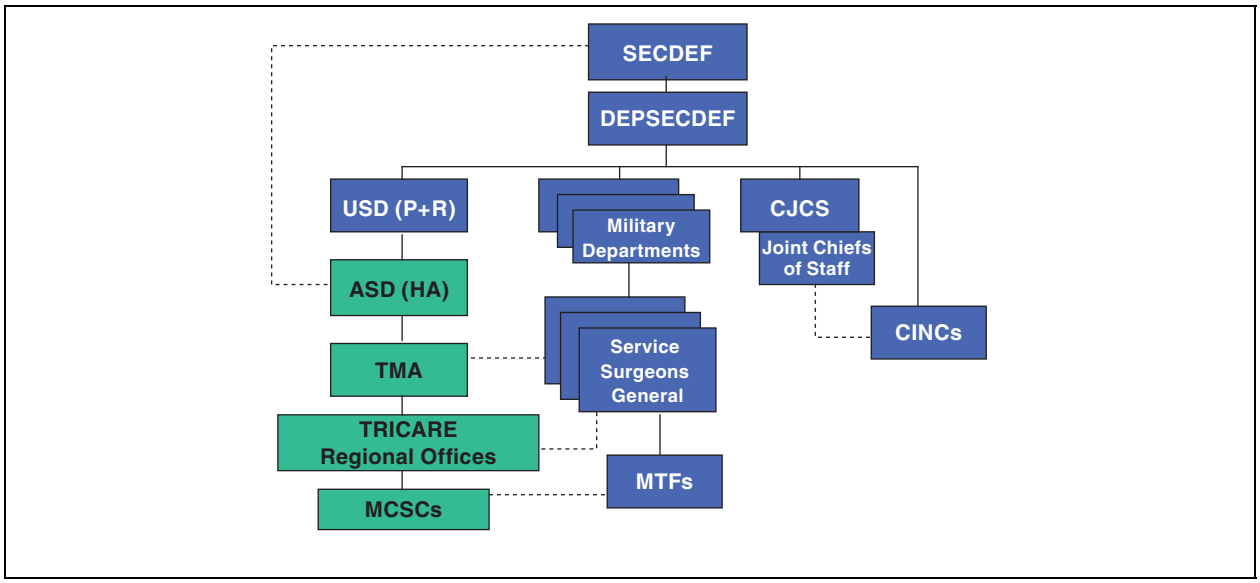

FIGURE 5-1 Organizational relationships for health-care activities in DoD.

SECDEF = secretary of defense, DEPSECDEF = deputy secretary of defense, USD(PandR) = undersecretary of defense for personnel and readiness, CJCS = chairman of Joint Chiefs of Staff, ASD(HA) = assistant secretary of defense for health affairs, TMA = TRICARE Management Activity, CINCs = regional combatant commanders, CJCS = Combined Joint Chiefs of Staff, MCSCs = managed-care support contractors, MTFs = medical-treatment facilities.

Military Health System

The 2007 MHS Strategic Plan[9] states that its primary mission is to "provide a medically ready and protected force and medical protection for communities—we continuously monitor health status, identify medical threats and find ways to provide protection and improve health for individuals, communities and the Nation. These surveillance activities focus our delivery of Individual Medical Readiness services to improve health and enhance human performance and make the environment safer so service members can withstand health threats in hostile settings."

Specifics on how that mission is to be achieved are not provided in the plan, nor is tobacco use identified as a readiness issue although it is acknowledged to be an unhealthy behavior.

There are over 9 million beneficiaries of the MHS, including active-duty personnel and their dependents and retired personnel and their dependents. The MHS is charged with providing health-care services to the operating forces and managing health benefits for all beneficiaries via the TRICARE program. The MHS employs over 132,000 military and civilian medical personnel. The major components of the system include the direct-care system of 65 hospitals, 413 medical clinics, and 413 dental clinics (DoD, 2009); a series of contracts, including three managed-care support contracts; a retail and mail-order pharmacy program; the Uniformed Services Family Health Plan (or designated providers); dental benefits; and the TRICARE for Life program. Each component is involved in activities of preventive medicine and healthy-behaviors programs on behalf of military beneficiaries.

As the program manager for all military health activities, the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)) oversees all direct and purchased health-care activities of DoD. The OASD(HA) was responsible for planning, programming, and budgeting to support outlays of over $39 billion in FY 2008 for the direct-care system and all purchased care. The OASD(HA) manages those programs through staff at the Pentagon.

TRICARE Management Activity

TRICARE is the managed–health-care program in DoD that provides health care for active-duty military and their dependents, including personnel in the reserves and National Guard who have been on active duty for more than 30 consecutive days, retirees and their dependents, and beneficiaries from other services, such as the Coast Guard and Public Health Service. TRICARE offers several health plans: TRICARE Prime, the health-maintenance option; TRICARE Extra, which has a larger provider network but also has a deductible; and TRICARE Standard, a fee-for-service option that allows beneficiaries other than active-duty personnel to see any TRICARE-authorized provider. There is also TRICARE Reserve Select for eligible National Guard and reserve members, who can buy into the plan with monthly premiums; it is open to reservists who are not on active duty. TRICARE for Life is an entitlement program offered to retirees and their family members or survivors who are eligible for Medicare and for whom Medicare is the first payer.

A policy gap exists between the legally authorized TRICARE benefits and the need to support tobacco-cessation programs. The FY 2009 National Defense Authorization Act (NDAA) remedies the gap at least partially: Section 713, "Smoking Cessation Program under TRICARE", states that not later than 180 days after enactment, the secretary of defense must establish a smoking-cessation program under TRICARE for all beneficiaries except those who are Medicare-eligible. The program must include, at a minimum, "the availability, at no cost to the beneficiary, of pharmaceuticals used for smoking cessation, with a limitation on the availability of such pharmaceuticals to the national mail-order pharmacy program under the TRICARE program if appropriate", counseling, "access to a toll-free quit line", and "access to printed and

[9]Military Health System, US Department of Defense. 2008. The military health system strategic plan: A roadmap for medical transformation. www.health.mil/StrategicPlan (accessed April 3, 2009).

Internet web-based cessation material". The secretary of defense must "provide for involvement by officers in the chain of command of participants in the program who are on active duty". Within 90 days after enactment, the secretary must submit a program-implementation plan to Congress; and within a year after enactment, the secretary must report to Congress on the program.

The NDAA also authorizes the secretary of defense to reimburse TRICARE beneficiaries for some costs related to smoking-cessation programs. The program called for under the law is directed at smoking and not at broader tobacco-use–cessation programs. However, Congress does recognize the importance of the need to engage those in the chain of command to ensure that the program is effective.

This TRICARE program will cover non–active-duty MHS beneficiaries. Active-duty service members will still rely on the direct-care component of the MHS for tobacco-cessation counseling and medication support. The committee finds that the current health-maintenance organization (HMO) preventive-care benefit package as set forth in 32 *Code of Federal Regulations* (CFR) Article 199.18, Section (b)(2), specifies a number of preventive-care services that are available to beneficiaries under CHAMPUS (the Civilian Health and Medical Program of the Uniformed Services, now TRICARE Standard). Smoking cessation is not a listed benefit, but Section (b)(3) of the regulation states that "in addition to preventive care services [listed above], other benefit enhancements may be added and other benefit restrictions may be waived or relaxed in connection with health care services provided to include the Uniform HMO Benefit." The ASD(HA) must approve any additions. Nonetheless, the committee believes that this would provide considerably greater latitude to include cessation of tobacco use, not only smoking, in TRICARE's benefit package.

In 1999, the DoD Prevention, Safety, and Health Promotion Council (PSHPC) established the Alcohol Abuse and Tobacco Use Reduction Committee (AATURC), now the Alcohol and Tobacco Advisory Council (ATAC), to provide advice on policies related to the supply and responsible use of and the demand for alcohol and tobacco products (DoD, 1999). ATAC recommendations are given to the DoD Medical Personnel Council for consideration. ATAC members represent the services' alcohol, substance abuse, and health-promotion programs, their medical departments, the DoD Office of Personnel and Readiness, the DoD Office of the Chief Medical Officer, and a number of other DoD offices with an interest in alcohol and tobacco policy (DoD, 2007). The committee believes that between 1999 and 2001 the ATAC had been making good progress in addressing tobacco use in DoD. However, perhaps understandably, the high interest in and impact of this committee seems to have diminished since the terrorist attacks on America in 2001 as the US military addressed higher priorities. Nevertheless, over the long term, tobacco use poses one of the primary risks to the health and readiness of US military forces, and a plan must be established for once again assigning high priority to tobacco use with respect to health in DoD.

TOBACCO-CONTROL PROGRAMS IN THE DEPARTMENT OF DEFENSE

The MHS strategic plan for 2008 cites the military tobacco-use rate as a mission element for achieving healthy and resilient personnel, families, and communities. In 1999, the ATAC developed a Tobacco Use Prevention Strategic Plan that outlined goals and tasks; metrics and objectives; requirements for policy, programs, practices, and resources; and a timeline for achieving the goals (see Appendix B for the entire 1999 strategic plan). The plan, which is still in effect but has not been updated in 10 years, has the following goals:

- Reducing smoking rate by 5%/year (Goal A.1).
- Reducing smokeless tobacco use rate by 15% by 2001 (Goal A.1).
- Promoting a tobacco-free lifestyle and culture through education and leadership (Goal B.1).

- Educating commanders on how best to encourage healthy lifestyles (Goal B.2).
- Promoting the benefits of nonsmoking and provide tobacco counteradvertising (Goal B.3).
- Decreasing accessibility via increased pricing and restrictions on smoking areas and tobacco use (Goal C.1).
- MHS identification of users and provision of targeted interventions (Goal D.1).
- MHS provision of effective cessation programs (Goal D.2).
- Continual assessment of best practices in tobacco-use prevention (Goal E).

In Chapter 4, the committee identified the key implementation components of a comprehensive tobacco-control program: a strategic plan, dynamic leadership; essential intervention components (enforceable and enforced policies, communication interventions, and evidence-based treatments); adequate resources; surveillance and evaluation of the program's effectiveness, and management capability to adjust the program in response to that evaluation. The ATAC strategic plan covers many of those components: the strategic plan itself, policy review and development, public-relations activities, the use of evidence-based tobacco-cessation interventions, and surveillance and evaluation mechanisms. Furthermore, the plan requires specific policies on tobacco pricing and access, and it restricts when and where tobacco can be used on installations. In the following sections, the committee examines the progress that DoD has made toward achieving the goals set forth in the 1999 Tobacco Use Prevention Strategic Plan, identifies the gaps between the plan and the key program components of an evidence-based comprehensive plan as endorsed by the committee, and discusses actions that DoD can take to eliminate the gaps. The committee based its findings and recommendations on published instructions, directives, and other regulations or documents available publicly from the DoD ASD(HA) and each armed service.

Reducing Tobacco Consumption

Goal A.1 of the 1999 DoD Tobacco Use Prevention Strategic Plan seeks to reduce the smoking rate by 5%/year and the rate of use of smokeless tobacco by 15% by 2001 from 1998 baseline rates. The goal was to be accomplished by establishing the AATURC to coordinate and monitor DoD progress on the prevention plan. An annual DoD survey of tobacco-use rate by active-duty personnel, National Guard and reserve personnel, DoD civilian employees, and TRICARE Prime enrollees is called for to determine progress. Populations at high risk for tobacco initiation, such as young military personnel and adolescent beneficiaries, are also to be identified. DoD established the AATURC, now the ATAC, which continues to provide recommendations on tobacco policies and programs to the OASD(HA) through the PSHPC. The ATAC does not appear to have conducted smaller studies of tobacco use in select DoD populations; however, the DoD Survey of Health-Related Behaviors Among Military Personnel is conducted periodically (the latest survey for which data are publicly available was conducted in 2005) and reports on tobacco use by active-duty personnel (DoD, 2006). The survey does not include National Guard or reserve personnel, civilian employees, TRICARE Prime enrollees, or high-risk groups, so it is difficult to assess the full extent of the impact of the DoD tobacco-control program on all target populations.

Finding: DoD does not survey tobacco use by all beneficiaries of the Military Health System, including all TRICARE beneficiaries.

Recommendation: DoD should undertake such a survey to help to determine the needs of military personnel and their dependents for tobacco-control interventions.

Tobacco-Control Programs in the Armed Services

Independent tobacco-control programs have been developed by the services. The Army Health Promotion Program (AHPP) includes a tobacco-control component (Army Regulation 600-63, 2007). The program states that commanders and supervisors will encourage antitobacco activities in family members and retirees; that health-care providers will ask patients, advise patients, and assist patients with cessation information (three of the 5 A's described in Chapter 4); and that commanders at all levels will "demonstrate positive efforts to deglamorize the use of all forms of tobacco products". Army installations are also directed to provide tobacco-cessation programs and, if they are not available on an installation, to coordinate such programs with local community resources. The Navy and Marine Corps Tobacco Policy (SECNAV Instruction 5100.13E, July 31, 2008) also details when and where tobacco may be used by naval personnel on installations—including housing; morale, welfare, and recreation (MWR) facilities; ships; and submarines—restricts the promotion of tobacco products, and stipulates that tobacco users should have access to tobacco-cessation treatment either on their installations or through referral to community resources. The Marine Corps, which has health-promotion personnel from the Navy, has incorporated the Navy requirements into base orders for those programs (for example, Base Order 6200.2C, "Tobacco Use Prevention Program for Camp Pendleton" (November 1993), and Base Order 6200.3C, "Marine Corps Tobacco Prevention and Control Program for Camp LeJeune" (February 2006) that emphasize smoke-free workplaces, restrictions on tobacco use and disposal, and commander education on tobacco control. The Air Force has issued two instructions that pertain to tobacco: Air Force Instruction 40-102, "Tobacco Use in the Air Force" (June 2002) and Air Force Instruction 40-102, Air Education and Training Command (AETC) Supplement 1, "Tobacco Use in the Air Force" (August 2002). Those complementary instructions cover tobacco-use restrictions in the workplace, dormitories, and housing facilities; the sale and advertisement of tobacco; tobacco-cessation education programs for health-promotion personnel; and application to civilian and contractor employees.

Goal B.1 of the DoD Tobacco Use Prevention Strategic Plan is to promote a tobacco-free lifestyle and culture through education and leadership. Requirements to meet the goal include education programs (discussed under "Leadership Education and Training" below) and guidance on how to ensure effective leadership for tobacco control. Army Regulation 600-63 (2007) states that commanders at all levels will "demonstrate positive efforts to deglamorize the use of all forms of tobacco products". The Navy requires that unit commanders, commanding officers, and officers in charge must ensure that tobacco use is not part of the Navy culture and must encourage a tobacco-free lifestyle and support abstinence by personal example and command climate. Although leaders are not required to be tobacco-free, they are strongly encouraged to be (SECNAV Instruction 5100.13E, July 2008). Air Force Instruction 40-101 (May 1998) states that installation commanders are to provide leadership and guidance for integrated and comprehensive health-promotion programs but does not specify that they be tobacco-free, and Instruction 40-102 (June 2002) states that given the AETC goal of not using any tobacco products, commanders and supervisors are expected to lead by example and actively identify and use resources to help tobacco users to quit.

DoD Directive 1010.10 (November 2003) establishes health-promotion programs to improve and sustain military readiness and the health, fitness, and quality of life of military personnel, DoD personnel, and other beneficiaries. DoD policies to prevent smoking and encourage cessation are specified in the Code of Federal Regulations (32 CFR 85.6), and each armed service is to develop its own health-promotion plan. The plans are implemented by the offices of the surgeons general of the military departments. The AHPP (Army Regulation 600-63, May 2007) addresses program responsibilities, from the Army deputy chief of staff to installation commanders, with implementation guidance; the tobacco-control program guidance is brief. The program includes the Army Reserve and National Guard. The Air Force has addressed tobacco use in its Health Promotion Program (Air Force Instruction 40-101, May 1998). The Navy health-promotion plan (OPNAVINST 6100.2A, March 2007) also addresses

tobacco-use prevention and cessation and delineates program responsibilities; this program is also used by the Marine Corps. Each of those regulations specifies the responsibilities of military leaders for implementation.

The committee notes that although the goals of the 1999 strategic plan are in harmony with many of the components required of a comprehensive tobacco-control plan, there have been obstacles to the implementation and evaluation of the plan. The obstacles include insufficient allocation of human and financial resources, lack of engaged leadership, ineffective communication, and incomplete surveillance.

Program Leadership

Tobacco control has not had high priority in DoD, for several possible reasons. The committee recognizes that in a time of military conflict, DoD must first allocate resources to meet the needs of deployed forces and those who support them. The effect of tobacco products, particularly smoked tobacco, on military readiness and performance may not be immediately apparent to commanders or even military personnel themselves. Furthermore, the direct influence of the tobacco industry on DoD and its indirect influence via Congress in maintaining easy access to tobacco products cannot be ignored and has had the effect of keeping the DoD in the business of selling tobacco products. The tobacco industry creates relationships with groups that pressure policymakers to pass or hinder industry-favorable legislation. Research has shown that heavy lobbying by the tobacco industry and veterans' groups helped thwart previous efforts to raise tobacco prices in commissaries (Arvey and Malone, 2008). Although the OASD(HA) and the armed services have attempted to address tobacco control, the full impact of tobacco on military readiness and military health is not recognized by all military leaders. Some leadership in DoD, however, has spoken out against tobacco use. For example, in August 1996, efforts by the Assistant Secretary of Defense for Force Management Policy resulted in a price increase for cigarettes sold in commissaries in 1996, although his efforts were resisted by some members of Congress (Smith et al., 2007).

The committee emphasizes that until the highest strata of DoD leadership are engaged in tobacco control, military readiness will continue to be impaired by tobacco use by active-duty personnel. As a result, all military personnel and their families, civilian employees, retirees, and the general public will bear the burden of adverse health effects of exposure to secondhand smoke and increased health-care costs. In many cases, senior military leaders have actively engaged in and been positive role models for physical fitness, for example, leading troops in running the Marine Corps Marathon, the Army 10-Miler, or local physical-training programs. A similar approach, in which tobacco use in the military becomes a leadership issue, and not just a medical issue, has the potential to have a major effect on tobacco use in military personnel.

In the sections below, the committee follows the framework given in Chapter 4 for a comprehensive tobacco-control program. Key components of a comprehensive program are examined, including communication interventions, tobacco-use restrictions, the tobacco retail environment, cessation interventions, special populations, relapse-prevention interventions, and surveillance and evaluation, as available in DoD and the armed services.

Finding: DoD has developed and put into effect a Tobacco Use Prevention Strategic Plan with goals, metrics, requirements, and a timeline. The plan is a good framework for DoD and the armed services to use to build a comprehensive tobacco-control program.

Finding: Tobacco use in the armed forces continues to be considered socially acceptable behavior, with higher use than in the general population. Tobacco cessation is not have a clearly stated high priority for the OASD(HA).

Finding: Effective, committed, and supportive leadership from the highest levels of the departments and a designated chain of accountability for program execution are needed to increase the success of tobacco-control efforts in the DoD.

Finding: There is need for a consistent and comprehensive approach to tobacco-control programs in the military community.

Recommendation: Authority for developing tobacco-control policies and strategies should reside in a single high-level entity in DoD.

COMMUNICATION INTERVENTIONS

On military installations, there are numerous opportunities for exposure to both positive and negative tobacco-use messages (Haddock et al., 2008) and for changing the social norm for tobacco. Given the unique environment of military installations, media campaigns, including advertising and public education, can be used to inform personnel about products and issues with relative ease and through a variety of media. On many installations, active-duty personnel work and live in the same area, and the installations are accessible to their dependents, retired military and their families, and National Guard and reserve members who shop at the commissaries and exchanges. Civilian employees are also exposed to mass-media messages on an installation. There are several outlets where protobacco and antitobacco messages can be conveyed to military and civilian audiences on a military installation, such as the commissaries and exchanges where tobacco and tobacco-cessation products are sold, a variety of military newspapers, posters in and on buildings around the installation, the military television channel and radio station on the installation, military Web sites, and direct mail. Finally, as noted above, leadership is vital for setting a tobacco-free example and for encouraging military and civilian personnel to follow this example by making them aware of tobacco-cessation services. First, however, the leaders themselves must be educated about the services.

Advertising and Promotions

Goal B.3 of the 1999 DoD Tobacco Use Prevention Strategic Plan is to promote the benefits of being a nonsmoker and to provide tobacco counteradvertising by using public-affairs and other military media. To achieve this goal, the plan requires an assessment of the services' current policies on commercial solicitation to buy tobacco products (such as advertising, promotions, and donations) and compliance with these policies. Haddock et al. (2008) found that among 793 issues of 16 military installation newspapers over a year, there were 308 antialcohol advertisements and 82 antitobacco advertisements. The Navy had the greatest proportion of protobacco advertisements (16%); the Air Force had none. Tobacco control received less coverage than seatbelt use, alcohol, and exercise and fitness, particularly in newspapers serving Marine Corps installations (Haddock et al., 2005).

In a year-long analysis of cigarette and smokeless-tobacco advertising in the 2005 issues of *Military Times* newspapers for each armed service—which are widely read by service members as a major source of news and information—no advertisements for cigarettes or other forms of smoked tobacco (such as cigars) were found. Advertisements for smokeless tobacco, however, were common: 11 different advertisements occurred in 105 placements. The authors estimated that those advertisements for smokeless tobacco generated over $500,000 in revenue for the newspapers (Haddock et al., 2008).

The DoD-authorized newspaper, *Stars and Stripes*, does not accept advertising in its electronic or print forms (Douglas Doherty, *Stars and Stripes* Newspaper, personal communication, September 16, 2009). As seen above, the *Military Times* newspaper for each

service may carry advertising for tobacco products and antitobacco campaigns and products. Individual installation newspapers vary as to whether they accept advertising of tobacco products. For example, the *Northwest Guardian*, the Army post newspaper for Fort Lewis, Washington, is not allowed to accept tobacco advertising (Cynthia Hawthorne, US Army, personal communication, March 5, 2009); this has been written into the commercial publisher's contract.

Table 5-2 summarizes the armed services' regulations pertaining to the advertising and promotion of tobacco products in military publications. Air Force Instruction 40-102 (June 2002) prohibits advertising of all tobacco products in official Air Force publications and the distribution of tobacco samples on installations, and Air Force installation newspapers do not appear to carry such advertising (Haddock et al., 2005). The Navy and Marine Corps Tobacco Policy (SECNAV Instruction 5100.13E, July 2008) also prohibits the advertising and promoting of tobacco products "while in an official capacity" or the distribution of free tobacco products on installations. The committee is pleased to see that many installation commanders do not permit tobacco advertising on their installations. The committee finds that such venues could be leveraged to increase antitobacco messages and promotion of tobacco-cessation products and services.

Military exchanges are required to support DoD policy to communicate that "tobacco use is detrimental to health and readiness" (DoD Instruction 1330.09, Armed Services Exchange Policy, Section 4.2.3, December 7, 2005) (see Chapter 2 for a description of military exchanges and commissaries). The strategic plan has Requirement C.1.6—"Develop draft policy that indicates resale activities (Commissaries and Exchanges) will endeavor to display tobacco cessation products in areas that provide visibility and opportunity to customers who desire to change their tobacco habits". DOD Instruction 1330.21, Armed Services Exchange Regulations (July 14, 2005, Section 6.4.3) helps meet the strategic plan requirement but the committee notes that this instruction does not appear to mandate that tobacco-cessation products be prominently displayed with tobacco products. Instruction 1330.21 also prohibits any new merchandise displays or promotion agreements for tobacco products although couponing is allowed as long as it is not "military only". Defense Commissary Agency (DeCA) Directive 40-13 (July 1992) spells out several policies aimed at deglamorizing tobacco—such as avoiding special signs for tobacco departments, promotional activities (such as lighters, giveaways, and cents-off promotions), and special military-only coupons—but contains no language regarding tobacco-cessation product availability, pricing, or display. The directive also requires that posters about the surgeon general's warnings be in conspicuous places in the tobacco department.

TABLE 5-2 Advertising and Promotion of Tobacco Products in Military Publications

Restriction	Army	Navy/Marines	Air Force
Advertising of tobacco products	Installation-specific requirements for advertising in base newspapers	Prohibits participation in promotional programs, activities, or contests aimed primarily at service members and prohibits the advertising of tobacco products. (SECNAV Instruction 5100.13E, 2008)	Prohibited in all official Air Force publications (Air Force Instruction 40-102, 2002)

Finding: The armed services have made progress in reducing, but not eliminating, the advertising of tobacco products in military publications. Official publications do not carry such advertising, and relatively few commercial newspapers and magazines do.

Recommendation: A DoD-wide or servicewide policy banning tobacco advertising and promotion activities on military installations should be adopted.

Counteradvertising and Public Education

DoD has initiated a number of public-education campaigns to promote the health benefits of weight management, avoiding alcohol abuse, and many other health concerns. Hoffman et al. (2008) studied tobacco-related counteradvertising messages directed toward the military. The authors conducted focus groups to determine which counteradvertising messages might be most effective in discouraging tobacco use by junior enlisted members of the Air Force and Army. Four messages appealed to most of the members:

- It is difficult to be a positive role model if you smoke.
- Smoking increases your likelihood of early discharge from the military.
- Smoking lowers your readiness to fight.
- Smoking lowers your productivity.

Messages about tobacco-industry manipulation of tobacco users or about the adverse health effects of tobacco were not effective antitobacco messages for this audience (Hoffman et al., 2008).

The 1999 strategic plan includes public education in Goal B.3, "Promote the benefits of being a nonsmoker and provide tobacco counteradvertising using Public Affairs and other military media." DoD has initiated a major military counteradvertising campaign aimed at that goal. The "Quit Tobacco. Make Everyone Proud" tobacco-cessation program targets 18- to 24-year-old male service members in pay grades E-1 to E-4, and also includes program components that may be used by all service members and their families. The program, available at www.ucanquit2.org, is multifaceted and has sections that are designed for members of each of the services. It includes screens that take users through "4 Steps to Quitting". Additional features allow users to access a message board to ask questions, share opinions, and get support anonymously; develop their own plan for quitting; post stories to "Tobacco Tales"; learn about tobacco-cessation medications and how to obtain them; listen to podcasts; participate in a live chat link; identify tobacco-cessation programs at military installations and other program or information sources; play games for distraction if they have an urge to smoke; and take quizzes to assess their knowledge about tobacco use and the benefits of quitting. The site also has live access 7 days/week to trained tobacco-cessation counselors for instant-message advice that is private and anonymous. The page called "Help Someone Quit" is also useful for health-care providers and friends and family of tobacco users, and provides materials to motivate and assist tobacco users to quit. From the site, health-care providers can order educational materials that have been tailored to each service. The committee finds that the DoD "Quit Tobacco. Make Everyone Proud" campaign has innovative features that may be particularly effective in reaching target audiences, such as appealing to young male military personnel to act as role models for children. Some of the outreach activities being proposed or conducted for the program include advertisements in *Military Times* and public-service announcements in commercial theaters, on pizza-delivery boxes, and gasoline-pump toppers at commercial locations within 5 miles of military installations. The program has not been evaluated to determine its reach or effectiveness. The committee applauds the DoD for working to change the social norm in the military regarding tobacco use.

The MHS and TRICARE also promote the Through with Chew Week, which includes the Great American Spit Out, to coincide with the American Cancer Society (ACS) Great American Smokeout. This activity is covered by the Pentagon News Channel with news clips, a press release, and videos from military leaders and testimonials from participants. The Great American Smokeout receives prominent notice each year on military-health Web sites and in various print resources. The Army Center for Health Promotion and Preventive Medicine (CHPPM) provides a variety of posters and handouts that can be used around Army installations to promote tobacco cessation; its Web site lists tobacco cessation as a "hot topic" with links to patient-education materials.

TRICARE posts current and past news releases on tobacco control on its Web site (www.tricare.mil); five news releases featured tobacco in 2008. The TRICARE Health Beat E-Newsletter for beneficiaries also periodically publishes articles on tobacco control.

The committee finds that DoD has launched an innovative public-education campaign to encourage tobacco cessation in military personnel to help meet Goal B.3. More information on the tobacco-cessation messages that have the greatest effect on military personnel would help DoD tailor its public-education campaigns more effectively. Although the target audience is enlisted men 18–24 years old, as is evident from the pictures and other promotional materials, much of the Web site is applicable to a wider audience. Modification of the materials for each armed service is particularly useful, and the use of interactive components would enhance the effectiveness of the site.

Finding: DoD has initiated antitobacco counteradvertising campaigns, the most recent of which is the "Quit Tobacco. Make Everyone Proud" program. Each of the armed services has developed similar campaigns tailored to the specific cultures of the services. These programs are appropriately aimed at young male personnel, the population with the highest tobacco use.

Recommendation: The effectiveness of the programs should be evaluated, and they should be modified as necessary. The DoD needs to focus its counteradvertising campaigns on changing the military norm for tobacco use and create the expectation that tobacco use is inconsistent with military readiness.

Leadership Education and Training

Goal B.1 of the DoD Tobacco Use Prevention Strategic Plan is to "promote a tobacco-free lifestyle and culture through education and leadership", and Goal B.2 is to "educate commanders at all levels on how best to encourage healthy lifestyles as well as the benefits of being tobacco free". Requirements to meet Goal B.1 include assessing the content of basic, technical, and professional military training programs to ensure that they address the risks posed by tobacco use and the benefits of being a nonsmoker and that policy is drafted, if necessary, to inform all those selected for training of the services' tobacco-free goal. The committee notes that those requirements are best addressed by the individual services, although the OASD(HA) might reserve the right to oversee that the messages are consistent or appropriately adapted to the particular needs of each service's training programs. The committee was unable to determine whether the OASD(HA) tracks such information or has provided guidance to the services on incorporating antitobacco messages into their educational and training programs.

The AHPP (Army Regulation 600-63, May 2007) requires that health-education classes during all military training include information on tobacco use. The committee assumes that this would include training that commanders receive when assuming a post, although it is not explicitly stated in the regulation. The Army has a tobacco-cessation policy in its training regulation, *Enlisted Initial Entry Training Policies and Administration* (TRADOC Regulation 350-6, May 2007), and the AHPP specifically states that tobacco use is to be included in health-education classes as part of professional military training, including basic and advanced courses for enlisted personnel and officers. Air Force Instruction 40-101 (May 1998) mandates that installation commanders support health-promotion program initiatives by authorizing regular senior leadership briefings by experts on such topics as tobacco. The Navy requires that unit commanders, commanding officers, and officers in charge include the topics of nicotine addiction, the harms of tobacco use, and treatment services in all command indoctrinations and orientations, general military training for all military and civilian personnel, and command health-promotion programs (SECNAV Instruction 5100.13E, June 2008).

To meet Goal B.2 to educate commanders on how to encourage healthy lifestyles and the benefits of being tobacco-free, DoD must assess and evaluate existing educational programs for commanders that include such information. Where this component is missing from the education programs, it should be added. The committee was unable to determine whether such education programs include guidance for commanders on encouraging healthy lifestyles, but it finds that this is an appropriate approach and should help commanders to appreciate the need to give tobacco cessation high priority for readiness and health and to convey this priority to those under their commands.

Finding: Although leadership training includes tobacco-control education, the DoD, the armed services, and installation leadership is not sufficiently engaged in tobacco-control policies and their enforcement.

Recommendation: Military leaders' commitment to tobacco control, including being tobacco-free themselves, should be a consideration in promotion as a part of a larger goal of maintaining military readiness. Education programs for commanders should include guidance on tobacco use prevention and cessation and how to encourage healthy lifestyles among installation personnel.

TOBACCO-USE RESTRICTIONS

As discussed in Chapter 4, restricting tobacco use and increasing the price of tobacco products are among the most effective mechanisms for reducing tobacco consumption. DoD has exercised its authority to prevent the use of tobacco products in many areas but has not achieved tobacco-free military installations. Goal C.1 of the 1999 Tobacco Use Prevention Strategic Plan is to "decrease accessibility and availability of tobacco products through pricing and smoking area and tobacco use restrictions". In this section, the committee examines policies of DoD and the armed services with regard to decreasing the use of tobacco products by restricting when and where they can be used in military workplaces, including military installations, ships, submarines, aircraft, vehicles, military lodgings, the service academies and other training facilities, and other settings peculiar to the military (for exampling, when in uniform and during basic training). Tobacco sales and access are discussed later under "Tobacco Retail Environment".

Workplace Settings

Requirements in the strategic plan to meet Goal C.1 include review of "service policies and practices on prohibiting tobacco use in all common areas used by non-tobacco users" and assessing "implementation of Executive Order 13058—Protecting Federal Employees and the Public from Exposure to Tobacco Smoke in the Federal Workplace". In 1997, Executive Order 13058 established the precedent for tobacco-free workplaces and for enclosed smoking areas if separately ventilated to prevent exposure of employees and visitors to tobacco smoke. The committee notes however, that as discussed in Chapter 4, such ventilation does not eliminate exposure to secondhand smoke (US Surgeon General, 2004). DoD Instruction 1010.15, *Smoke-Free DoD Facilities*, issued in January 2001, applied the executive order to all facilities owned, rented, or leased by DoD, including military installations. The instruction allowed for the same indoor–smoking-area exemption as the executive order. It stipulated that smoke-break areas be outdoors and include a measure of protection from the elements. An exemption was also given to DoD MWR facilities for a 3-year phase-in after which they were also to be smoke-free. All the armed services later adopted tobacco-free policies for their facilities (see Table 5-3). The committee notes that DoD Instruction 1010.15 does not specify that facilities be tobacco-free,

only smoke-free. This instruction is to be implemented by the acquisition, technology, and logistics staff on installations.

TABLE 5-3 Tobacco-Use Restrictions in Military Settings

Restriction	Army	Navy/Marines	Air Force
Workplace	Tobacco use prohibited in all areas except designated smoking areas; must display notice that smoking is not allowed (Army Regulation 600-63, 2007)	Tobacco use prohibited except for designated smoking areas (SECNAV Instruction 1500.13E, 2008)	Tobacco use prohibited in all indoor areas, including medical-treatment facilities, except for designated smoking areas (Air Force Instruction 40-102, 2002)
Designated tobacco-use areas	Indoor smoking areas must comply with provision of DoD Instruction 1010.15 (Army Regulation 600-63, 2007)	Indoor smoking areas must display tobacco-use warnings and availability of cessation programs; smoking areas exist on ships and submarines (SECNAV Instruction 1500.13E, 2008)	Indoor tobacco-use areas are separate from common areas and must be enclosed and exhausted directly outside; prohibited in all recreation facilities oriented toward children (Air Force Instruction 40-102, 2002)
Smoke breaks	Smokers not allowed additional time for breaks (Army Regulation 600-63, 2007)	Same for users and nonusers (SECNAV Instruction 1500.13E, 2008)	Same for users and nonusers (Air Force Instruction 40-102, 2002)
Smokeless tobacco	No information	Allowed only in designated tobacco-use areas (SECNAV Instruction 1500.13E, 2008)	Same restrictions as for other tobacco products (Air Force Instruction 40-102)
MWR facilities	Comply with Army Regulation 600-63 and DoD Instruction 1010.15; designated smoking areas must exhaust directly outside (Army Regulation 215-1, 2007)	Prohibited unless separately exhausted and authorized by commanding officer; may be indoors (SECNAV Instruction 1500.13E, 2008)	Indoor smoking areas permitted in recreation facilities that exhaust directly outside; may not be public common-use areas; prohibited in facilities with children's programs (Air Force Instruction 40-102, 2002)
Smoking in uniform	No information	Not allowed while walking in uniform (includes all tobacco products) (SECNAV Instruction 5100.13E, 2008)	Not allowed while walking in uniform (Air Force Instruction 36-2903, 2006)

Some of the services have specific tobacco-use restrictions that are specific to them. For example, Navy Instruction 5100.13E (June 2008) specifies that on surface ships, smoking is permitted on weather decks and in some unmanned indoor spaces if there is direct ventilation to the outside; the instruction also identifies numerous areas that may not be used as smoking areas. Smoking is permitted aboard submarines in well-ventilated areas away from stationary watch stations; several areas are not to be used as smoking areas. There is a restriction on the number of people that can use the smoking areas on submarines on the basis of ventilation capacity. Jackman et al. (2004) found that exposure of nonsmokers to secondhand smoke on submarines was minimal during a 10-day deployment (Jackman et al., 2004). Seufert and Kiser (1996), however, found that after 62 hours in a nonventilated submerged submarine the end-expiratory carbon monoxide (EECO) levels of nonsmoking crew members were equal to the initial EECO levels of crew members who smoked suggesting that nonsmokers were exposed to elevated levels of carbon monoxide. The committee notes that smoking on submarines poses other risks, as demonstrated by a fire on a Russian submarine that might have been caused by unauthorized

smoking. The Navy prohibits the use of smokeless tobacco during briefings, classes, formations, and inspections and while on watch. Tobacco spit must be held in containers with sealed lids and disposed of in a sanitary manner that prevents public exposure (Navy Instruction 5100.13E, June 2008).

Each Marine Corps base has a separate base order that serves as its tobacco-prevention and tobacco-control policy. For example, Camp Pendleton has Base Order 6200.2C, *Tobacco Use Prevention Program*, dated November 1993; Quantico has Marine Corps Base Order 5313.1C, *Smoke-Free Workplace*, dated October 2002; and Marine Corps Air Station Iwakuni in Japan has Marine Corps Air Station Order 5100.24, *Tobacco Prevention and Control Program*, dated November 2000.

The committee found a paucity of information on the attitude of military personnel toward tobacco-use restrictions in the workplace and other community settings. Hurtado et al. (1995) found that a slight majority of 2,221 crewmembers onboard an aircraft carrier, 36% of who were smokers, favored a newly implemented smoke-free policy, including 18% of the current smokers. However, 32% of the current smokers indicated that they planned to request a transfer off the ship as a result of the no-smoking policy (Hurtado et al., 1995). The committee notes that the no-smoking policy was voluntarily implemented by the commanding officer in response to the designation of secondhand smoke as a human carcinogen.

Finding: There are inconsistencies between the services with regard to the use of tobacco on military installations, while personnel are in uniform, and the location of designated tobacco-use areas.

Recommendation: Any tobacco use while in uniform should be prohibited.

Recommendation: Designated indoor and outdoor tobacco-use areas on military installations should be discontinued such that military installations are tobacco-free.

Education and Training Settings

New military recruits begin their enlistments by attending basic training or boot camp, which lasts for 8–12 weeks, depending on the service. The requirements for meeting Goal B.1 of the strategic plan, promoting a tobacco-free lifestyle and culture, also pertain to tobacco-use restrictions, including assessing and evaluating tobacco-use policies in the services for basic and initial skills training, assessing service policies on tobacco use by students and instructors during the duty day for all formal military training schools (such as basic training and officer-training school, technical schools, and professional military-education schools), drafting policy that extends the prohibition on tobacco use to cover all formal military training, and informing all personnel selected for such training of the services' tobacco-free goal. Goal B.2, educating commanders on encouraging healthy lifestyles, requires the development of policy requiring instructors in formal positions to serve as "role models" regarding tobacco use in the school environment.

All the services have tobacco policies that apply to basic training, to technical training, or to the service academies (the US Air Force Academy, the US Military Academy, and the US Naval Academy) (see Table 5-4). All the services require recruits to be tobacco-free during basic training. They also state that instructors should not use tobacco products in the presence or line of vision of recruits. The committee notes that although the requirements for basic training are effective in eliminating tobacco use by new recruits during this time, loopholes in the policies governing instructors' use of tobacco may send a contradictory message to recruits. For example, an instructor may smoke a cigarette out of the presence of a recruit, but residual tobacco odors on the instructor might make the recruit aware that the instructor smokes; such circumstances

undermine the intent of the policy. Given the important role of instructors during basic training and their influence on recruits, recruits might consider tobacco use after training to be acceptable.

A recent study evaluated the influence of role models on the initiation of smoking by US Air Force personnel who recently completed basic training (Green et al., 2008). The results indicated that previous nonsmokers were more likely to initiate smoking if they perceived that their military-training leader or classroom instructor used tobacco products (odds ratio [OR], 1.69; 95% confidence interval [CI], 1.12–2.56). Similarly, previous smokers were more likely to resume smoking if their military-training leader or classroom instructor used tobacco products (OR, 1.95; 95% CI, 1.29–2.94). Those findings highlight the importance of military education and role models during training in preventing tobacco use by new recruits.

TABLE 5-4 Tobacco-Use Restrictions in Military Education and Training Settings

Restriction	Army	Navy/Marines	Air Force
Basic training	Prohibited during initial entry training (IET) weeks 1-9; prohibited by cadre and soldiers in areas where they may be observed by IET soldiers (TRADOC Regulation 350-6, 2007)[a]	Use or possession of tobacco or tobacco paraphernalia prohibited in Recruit Training Command Instruction 5100.6K (May 2008)	Use or possession prohibited by non-prior-service airmen while on post or while in uniform (Air Force Instruction 40-102; AETC Instruction 36-2216); posters, pictures, or items regarding tobacco are prohibited in dormitories (AETC Instruction 36-2216, 2006)
Service academies	Prohibited in all buildings except Five Star Inn; commandant may designate smoking rooms if there is separate ventilation system, nonsmokers prevail; may designate outdoor smoking areas that are away from entrances and exits and are not commonly used by nonsmokers (USMA Policy Memorandum Number 17-00, 2000; Army Regulation 215-1, 2007)	Prohibited in uniform; may smoke only in designated areas (Commandant of Midshipmen Instruction 5400.6L, 2008); may not use tobacco on large training ships (DNAS Instruction 3120.1D, 2000)	Prohibited in all indoor areas; prohibited during duty hours or while in uniform; designed outdoor tobacco-use areas (Air Force Cadet Wing Manual 36-3501)
Military instructors and staff	Prohibited in presence or view of cadets while on duty (USMA Policy Memorandum 17-00, 2000; Army Regulation 600-63, 2007)	Prohibited in presence of students, recruits, officer candidates, and midshipmen (SECNAV Instruction 1500.13E, 2008; Recruit Training Command Instruction 5100.6K, 2008); prohibited in presence of marine recruits (MCO Semper Fit Manual P1700.29, 1999)	Prohibited in presence or line of sight of non-prior-service airmen (AETC Instruction 36-2216, 2004)

[a]Tobacco use is also prohibited on the grounds of any DoD education-activity school over which the Army exercises control; visitors, faculty, and staff may not use tobacco products in the presence or view of students (Army Regulation 600-63, May 2007).

Finding: All the armed services ban tobacco use during basic training. The committee commends this ban on tobacco use and finds it to be an effective mechanism for reducing tobacco consumption.

Recommendation: The ban on tobacco use during basic training should be extended to all technical and advanced training of enlisted and commissioned personnel. Furthermore, the committee recommends that all service academies, following the trend among civilian universities and colleges, become tobacco-free within 2 years of the publication of this report.

Living Areas and Transportation

Military personnel may live in military housing on installations or in private residences in the surrounding community. Many military personnel are transient and live on or off an installation for only a few weeks, months, or years until they are reassigned. This makes it important that exposure to tobacco residue be minimized in living quarters. DoD and the services cannot mandate tobacco restriction in private residences off an installation, but they do have authority over on-installation housing. All the services have policies that address tobacco use in living areas on military installations (see Table 5-5). For some lodging restrictions, the policies state that reasonable accommodations may be made for smokers, such as designating smoking areas or buildings, but in general the needs of nonsmokers prevail (see, for example, Air Force Instruction 40-102, June 2002). The 1999 Tobacco Use Prevention Strategic Plan requires a review of service policies and practices on prohibiting tobacco use in all common areas used by nonusers. Each of the services specifies that tobacco use is prohibited in common areas of living quarters and lodging (see Table 5-5).

TABLE 5-5 Tobacco-Use Restrictions in Living Areas and Transportation

Restriction	Army	Navy/Marines	Air Force
Living areas	Permitted in individually assigned family and unaccompanied-personnel housing with separate ventilation systems; nonsmokers prevail; prohibited in common spaces of any lodgings (Army Regulation 600-63, 2007)	Permitted in family or bachelor living quarters, lodges, and multiple housing units unless common heating, ventilation, and air conditioning are in use; prohibited in common spaces of living areas (SECNAV Instruction 1500.13E, 2008)	Permitted in assigned government housing; smokers and nonsmokers do not share rooms or adjoining rooms in dormitories; prohibited in all lodging common areas and guest rooms and in common areas of family housing (Air Force Instruction 40-102, 2002)
Transportation equipment	Prohibited in all military vehicles and aircraft (Army Regulation 600-63, 2007)	Prohibited by soldiers and all others at West Point in military vehicles and aircraft (USMA Policy Memorandum Number 17-00, 2000)	Prohibited by military or civilian personnel in Air Force vehicles and in Air Force or contract aircraft (Air Force Instruction 40-102, 2002)

Finding: Tobacco use is banned in common areas of living quarters, but given the health effects described in Chapter 2, the committee finds that such a restriction may not be sufficiently protective against exposure to secondhand smoke.

Recommendation: Tobacco use should be banned in all living quarters on military installations.

Outdoor Areas

The 1999 strategic plan does not call for elimination of use of tobacco products in outdoor areas. All the services permit tobacco use in at least some outdoor areas on military installations, including the service academies. The restrictions in general follow the stipulations on tobacco use in DoD Instruction 1010.15 (January 2, 2001). Designated smoking areas are supposed to provide some measure of protection from the elements, may not be within 50 ft of common points of entry or exit, and typically cannot be in areas that are used by nonsmokers, such as playgrounds or picnic tables (see Table 5-6).

TABLE 5-6 Tobacco-Use Restrictions in Outdoor Areas

Restriction	Army	Navy/Marines	Air Force
Outdoor areas	Permitted in designated outdoor smoking areas; must have protection from elements, be more than 50 ft from points of entry or exit, and not be in areas commonly used by nonsmokers (Army Regulation 600-63); MWR facilities may designate similar outdoor smoking areas (Army Regulation 215-1, 2007)	Permitted in family or bachelor living quarters, lodges, and multiple family housing units unless common heating, ventilation, and air-conditioning are in use; prohibited in common spaces of living areas (SECNAV Instruction 1500.13E, 2008)	Permitted in designated outdoor areas that are reasonably accessible and provide some measure of protection from elements; these areas may not be near points of entry or exit and must be at distance that prevents smoke intake into buildings (Air Force Instruction 40-102, 2002)

Finding: DoD and the armed services have developed regulations in compliance with federal requirements for tobacco-free workplaces, including recreational areas, educational settings, residential spaces, and transportation equipment. However, tobacco use is still allowed in designated areas, including areas at the service academies, on ships, and on submarines, thus increasing the risk of exposure to secondhand smoke and encouraging the perception that tobacco use is acceptable by DoD and the services.

Recommendation: Tobacco use should be banned on military installations, and in all military aircraft, all surface vehicles, and all ships and submarines.

TOBACCO RETAIL ENVIRONMENT

Historically, DoD has made tobacco products widely available to military personnel (Joseph et al., 2005; Nelson and Pederson, 2008; Smith et al., 2007). Until 1975, DoD provided free cigarettes in military meal packages (K and C rations). Over the decades, DoD sold tobacco products at deeply discounted prices in commissaries and exchanges (see Chapter 2 for a description of commissaries and exchanges). Tobacco products are still sold at discounted prices on military installations in exchanges, commissaries (except for Navy and Marine Corps commissaries), and package stores (which are similar to commercial convenience stores).

Access to Tobacco Products

Access to tobacco products on installations is regulated by DoD, the specific services, and even individual installations. Goal C.1 of the 1999 strategic plan, decreased accessibility and availability of tobacco products through pricing and restrictions, requires a determination of service practices for and of compliance with the prohibition of tobacco sales to persons under 18

years old, and it requires a draft of a policy that prohibits single-serve tobacco products (such as single packs) from being sold by self-serve at checkout registers. DOD Instruction 1330.21 (Section 6.4.1, July 14, 2005) limits the total amount of shelf-space allocated to tobacco products; this space may not be increased to accommodate new products. The committee does not know when the limit for shelf-space devoted to tobacco products was established.

Some services limit access to tobacco products but not consistently. For example, tobacco is not sold in Navy or Marine Corps commissaries, but it is sold in Navy and Marine Corps exchanges; however, the Navy is exploring having some exchanges, such as the one in Portsmouth, Virginia, not sell tobacco (Mark Long, US Navy, personal communication, July 23, 2008). The approach to the sale of tobacco products varies widely on Army bases. For example, the policies that force clients to access a separate part of an army exchange, require clearly posted information regarding smoking cessation, and limit in-store advertising contrast sharply with the extensive "power walls" (areas of the commissary or exchange that prominently display large quantities of tobacco products) found in some commissaries and exchanges. Table 5-7 summarizes service regulations pertaining to access to tobacco products on military installations.

TABLE 5-7 Restrictions on Access to Tobacco Products on Military Installations

Restriction	Army	Navy/Marines	Air Force
Sale of tobacco products prohibited to those under 18 years old (DoD Instruction 1330.21, 2005)	—	Yes (SECNAV Instruction 1500.13E, 2008)	Yes (Air Force Instruction 40-102, 2002)
Sale of tobacco products in vending machines on installation prohibited	Yes, except in areas where minors are not allowed (Army Regulation 215-1, 2007)	Yes (SECNAV Instruction 1500.13E, 2008)	Yes (Air Force Instruction 40-102, 2002)
Distribution of free tobacco products prohibited	—	Yes (SECNAV Instruction 1500.13E, 2008)	Yes (Air Force Instruction 40-102, 2002)
Sale in medical-treatment facilities on installation prohibited	—	—	Yes (Air Force Instruction 40-102, 2002)

Sales and Pricing

Like tobacco-use restrictions, raising the price of tobacco products is highly effective in reducing tobacco consumption. DOD Instruction 1330.09, Section 4.10.3 (December 7, 2005), states that "prices of tobacco products . . . shall be no higher than the most competitive commercial price in the local community and no lower than 5 percent below the most competitive commercial price in the local community. Tobacco shall not be priced below the cost to the exchange." Any changes in prices for commissary goods must be submitted to Congress (10 USC 2486(d)(2)). Goal C.1 of the 1999 strategic plan, decreased accessibility and availability of tobacco products through pricing and restrictions, also requires, in addition to other provisions that address tobacco sales, that tobacco products be priced at no more than 5% below the local competitive price (Requirement C.1.3).

The 5% discount is based on the lowest local retail shelf price for a product (which includes excise taxes). Because the price in the commissary or exchange excludes state and local sales taxes, the actual discount is often larger than 5%. Indeed, the wide variation in sales taxes among states and localities means that discounts can be substantial in jurisdictions that have high sales taxes.

For sales of tobacco products in commissaries, the exchanges set the prices. That means that tobacco is not sold at cost, as are other commissary products; nor does the purchaser pay the

5% surcharge on commissary goods. 10 USC 2486(f) allows the secretary of defense to authorize the sale of tobacco products as noncommissary store inventory. As a result, the commissary shelf price equals the exchange retail price. Any revenue from the sale of tobacco products at a cost that is above the cost that the commissary pays to the exchange is treated as though it is a surcharge (10 USC 2484(3)(B)).

Exchanges, which are unsubsidized, sell goods at a discount approaching 20%. In 1996, policy was changed to bring commissary prices for tobacco products into line with exchange prices (Smith et al., 2007). Because the 1986 DoD authorization bill included language prohibiting price increases in commissaries, the price increase was achieved by requiring commissaries to sell tobacco products on consignment for exchanges. Tobacco sales fell by 27% after the policy change, but revenues from tobacco increased by $75 million (Smith et al., 2007).

Despite the changes in tobacco pricing on military bases mentioned above, there is virtually no evidence on how the changes have affected smoking behavior in the military (as opposed to tobacco purchases in the commissaries). Nelson and Pederson (2008) reviewed over 80 studies on the correlates of tobacco use in the military. Only one study mentioned price as a factor in the perception of a "mixed message" from the military, that is, promoting tobacco cessation but discounting the price of tobacco (Nelson and Pederson, 2008).

The 1999 strategic plan calls for support of pricing tobacco-cessation products below the local competitive price (Requirement C.1.7). Tobacco-cessation products are not mentioned specifically in DeCA directives, but DoD Instruction 1330.21 (2005) states that "Armed Service Exchanges shall endeavor to display tobacco cessation products in areas that provide visibility and opportunity to customers who desire to change their tobacco habits" and that "military departments shall support the pricing of smoking cessation products below the local competitive price."

Finding: DoD indirectly encourages the use of tobacco by military personnel and dependents via the availability of discounted tobacco products in the exchange and commissary system in deployed and nondeployed locations.

Recommendation: DoD should discontinue selling tobacco products on military installations. Until all tobacco sales are stopped, DoD should discontinue selling tobacco products at a discount; require separate, restricted access areas for sale and display of tobacco products; and prohibit all promotion and advertising of tobacco products in exchanges and commissaries and provide tobacco-cessation information, such as quitline telephone numbers, at all points-of-sale. At the very least, tobacco products should not be sold in Army and Air Force commissaries.

TOBACCO-CESSATION INTERVENTIONS

DoD offers a variety of tobacco-cessation interventions to active-duty military personnel and their dependents, military retirees and their dependents, and active-duty National Guard personnel and reservists through the MHS and the TRICARE Management Activity (TMA). In contrast with general civilian medical settings in which the availability of community tobacco-cessation programs can vary considerably, DoD ensures that some form of tobacco-cessation program is available to the entire population of tobacco users. The 1999 Tobacco Use Prevention Strategic Plan has two goals for tobacco cessation: D.1, "Military health system actively identifies tobacco users and provides targeted interventions", and D.2, "Military Health System provides effective tobacco cessation programs". The committee acknowledges that when the plan was prepared, the TMA was prohibited by statute from paying for tobacco-cessation treatments. The FY 2009 NDAA reversed that prohibition and mandated that TRICARE offer smoking-cessation programs to its beneficiaries. The committee stresses that the language in the

appropriation act calls specifically for smoking-cessation programs: this might not cover programs for cessation of other forms of tobacco use. That may be of concern inasmuch as smokeless-tobacco use is increasing in some military populations (see Chapter 2).

There are two mandates for smoking-cessation programs in DoD: DoD Instruction 1010.15, "Smoke-Free DoD Facilities", and 32 CFR 85, "Health Promotion". DoD Instruction 1010.15, Section 6.4 states that DoD components shall "provide effective smoking cessation at all levels of commands" with an emphasis on primary prevention practices and motivating users to quit smoking. It further states that all smokers and high-risk personnel shall receive medical counseling about the risks posed by smoking. The instruction does not mention access to any therapeutic interventions (such as behavioral and medication treatments). Section 6.5 says that information shall also be provided in health-promotion programs on the health risks posed by environmental tobacco smoke (secondhand smoke). Nevertheless, all the armed services have established smoking-cessation or tobacco-cessation programs that include health-care beneficiaries and usually civilian employees on a space-available basis: see Army Regulation 600-63 (2007), "Army Health Promotion"; Air Force Instruction 40-102 (2002), "Tobacco Use in the Air Force"; and SECNAV Instruction 5100.13E (2008). The Navy instruction states that all medical treatment facilities must have tobacco-cessation programs; other installations must provide professional assistance, but referrals must be made if it is not readily available.

The *Code of Federal Regulations* states that—operationally—health promotion includes smoking prevention and cessation. 32 CFR 85 includes restrictions on smoking on military installations and in medical-treatment facilities, living quarters, and vehicles. Health-care providers are to advise pregnant smokers about risks to the fetus, and the armed services are required to provide public-education programs on the adverse health effects of smoking. The regulation does not require DoD to offer tobacco-cessation treatment.

Although secondhand smoke is not considered in depth in this report, effective comprehensive tobacco control programs in the DoD and the VA will inevitably reduce exposure to secondhand smoke. Secondhand-smoke exposure is of concern both for military personnel who are exposed on military bases and for families of military personnel or veterans whose health care is the responsibility of DoD or VA. Because secondhand smoke poses a well-documented and substantial risk to the health of nonsmokers, their protection should be given high priority by policy-makers and providers of military and veteran health care. Nonsmokers, including families of military personnel, should be asked about exposure to secondhand smoke as part of their routine medical care; smokers should be strongly encouraged not to smoke at home or in vehicles occupied by nonsmoking family members or friends.

In the sections below, the committee considers some of the activities that DoD and the armed services have taken to address the requirements listed in the strategic plan to identify tobacco users and provide effective tobacco-cessation programs. The committee notes that in the discussions of tobacco-use interventions and their delivery in the next section, the focus is on interventions offered by the DoD MHS, not the TMA. As discussed earlier, it is only with the FY 2009 DoD NDAA that smoking-cessation programs are now covered under TRICARE. It is too early to tell which programs TRICARE will select, how they will be implemented, and what effect they will have on smoking prevalence in TRICARE beneficiaries.

Evidence-Based Treatments

Requirement D.1.1 in support of Goal D.1 of the 1999 strategic plan calls for the development of a draft policy for the ASD(HA) that requires the MHS to use all avenues to identify and document tobacco users and their readiness to quit and to offer appropriate "stage of change" intervention. The "stage of change" interventions are specified in the requirements for Goal D.2 and include requirements to "assess and develop draft policy that requires tobacco cessation programs to include behavior modification, nicotine replacement therapy (NRT)/other FDA-approved medications as a TRICARE Prime preventive services benefit" (D.2); "support partnership with TRICARE managed care support contractors to identify interventions that work

and to facilitate tobacco use avoidance education" (D.2.3); and "assess installation tobacco cessation programs for flexibility to accommodate individual needs, to include: individual or group contact, recognition of problems encountered in quitting (skills training), at least 4 encounters and encouragement to use Nicotine Replacement Therapy appropriately [and] prepare policy recommendations as necessary" (D.2.4).

With the publication in 2000 of the clinical-practice guideline *Treating Tobacco Use and Dependence* sponsored by the Public Health Service (PHS), DoD and VA established a working group to develop a similar guideline that would provide guidance to health-care providers in the MHS and the VA health-care system on assessment of and treatment for tobacco use in the military and veteran populations served by these systems. The resulting VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use*, published in 2004, met that need by providing guidance on treatment for tobacco use in military and veteran populations and addressed Requirement D.2 of the strategic plan (VA/DoD, 2004). The VA/DoD guideline adheres closely to the 2000 PHS clinical-practice guideline (Fiore et al., 2000). The VA/DoD guideline presents evidence-based recommendations for assessment and treatment of military personnel and veterans and for prevention of tobacco use and includes several appendixes that provide specific information on counseling strategies and techniques, medications, and relapse prevention.

Behavioral Interventions

DoD follows the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* to determine which behavioral interventions should be offered by the MHS. For veterans who are tobacco users, the VA/DoD guideline advocates the 5 A's (ask, advise, assess, assist, and arrange). It also recommends the most intensive counseling that a patient is willing to attend—four or more sessions of at least 10 min each, with brief counseling (under 3 min) as a minimal intervention. The guideline indicates that there is a dose-response relationship between the length of counseling and the rate of abstinence. It states that effective counseling can be conducted in person or by telephone and that both group counseling and individual counseling are effective when delivered in multiple sessions of sufficient duration. Self-help materials are also suggested for patients who receive brief counseling or who might be motivated to quit or to supplement other interventions (VA/DoD, 2004).

A 2007 DoD evaluation of tobacco use control programs available at 130 military treatment facilities across the services, found that over 90% of the programs contained content on assessing readiness to quit, understanding nicotine addiction, setting a quit date, understanding triggers, stress management, handling withdrawal, problem-solving skills, preventing weight gain, finding support, and relapse prevention and management. Fewer programs offered pre-program interviews (63%) and telephone support after the classes (74%) (DoD, 2008).

Tobacco-Cessation Medications

Requirement D.2.2 in support of Goal D.2 is that DoD "draft policy to fund Military Treatment Facilities pharmacies to specifically stock a variety of NRT and other approved pharmacological interventions that have substantial empirical support for their use (e.g. bupropion) to accommodate individualized therapy". The services also use the VA/DoD guideline as a framework for their tobacco-cessation programs. Air Force Instruction 40-102 states that "tobacco cessation programs incorporate cognitive and behavior change strategies, the 'cold turkey' approach, or the use of nicotine replacement therapy when appropriate." The instruction also designates a provider from the military treatment facility to be the point of contact to assess appropriateness of NRT and contraindications for use and to prescribe therapy as needed. Air Force Instruction 40-101 (May 9, 1998) on health-promotion programs requires medical group commanders to make NRT available to all eligible beneficiaries and requires tobacco-cessation facilitators to receive behavior-modification training to conduct the programs.

On many bases, access to tobacco-cessation medications, including FDA-approved over-the-counter and prescription medications, requires a tobacco user to attend cessation classes (G. Wayne Talcott, US Air Force, presentation to committee, March 13, 2008). The committee finds that such a requirement is likely to pose a barrier for Air Force personnel seeking tobacco-cessation treatment as discussed in Chapter 4. The Navy Bureau of Medicine and Surgery has issued a position stating that all providers who are familiar with the VA/DoD guideline should be allowed to prescribe tobacco-control medications and that no restrictions should be placed on providers who wish to prescribe the medications to patients who use tobacco or on patients who wish to use the medications without attending tobacco-cessation programs. The statement provides some recommendations for patient prescribing, followup, and adjunct treatments, such as counseling. The Naval Submarine Medical Research Laboratory conducted an analysis of the cost effectiveness and efficacy of tobacco-cessation aids and concluded that bupropion was the most cost-effective medication but was inappropriate for nuclear field personnel because of the risk of seizures, NRTs were found to be the least cost-effective, and varenicline was effective and safe and, with counseling, should be considered for use by submariners and nuclear field-service personnel (Brill et al., 2007). The committee considers that the Navy may have based this conclusion on a misunderstanding of the contraindications for bupropion.

The committee was unable to locate specific information on the availability of tobacco-cessation medications at MHS pharmacies; however, in a survey of Army general medical officers in 1997, 53% of 153 respondents reported that nicotine patches were in the formulary whereas only 20% reported that nicotine gum was in the formulary, and 82% reported that smoking-cessation classes were available (Hepburn and Longfield, 2001).

Combined Behavioral Interventions and Medications

In response to Requirement D.2.4 of the 1999 strategic plan, each of the armed services offers some form of a tobacco-cessation program that includes individual or group contact (generally group), recognition of the problems encountered in quitting, at least four encounters (all the programs appear to include a minimum of four group sessions), and NRT as appropriate pharmacotherapy (prescription required but available in all programs). The tobacco-cessation programs offered by the armed services include programs that were developed by the services themselves (for example, those developed by the Army CHPPM and by the Air Force) and programs that are commercially available (for example, the ACS Freshstart program and the American Lung Association [ALA] Freedom from Smoking program). The requirement of a prescription for all tobacco-cessation medications, including over-the-counter NRTs, may dissuade military personnel and their dependents from obtaining these medications and thus reduce their chance of remaining abstinent.

The Army CHPPM provides materials to conduct a 6-week tobacco-cessation program with participant workbooks, slide presentations, registration forms, and medication information (http://usachppm.apgea.army.mil/dhpw/Population/TobaccoCessation.aspx). The program is based on a program given at Fort Knox, Kentucky (Army, 2009); its effectiveness does not appear to have been evaluated. Several other studies have assessed smoking-cessation programs that combine behavior counseling and medications in military personnel (Bushnell et al., 1997; Carpenter, 1998; Earles et al., 2002; Helyer et al., 1998). A smoking-cessation program of 11 weekly 60-min sessions that combined bupropion sustained release with cognitive-behavioral therapy had a 6-month followup abstinence rate of 35.4% (Earles et al., 2002), but a comparison of the ACS Freshstart program with a more intensive behavioral-counseling program developed by the Vanderbilt University Medical Center showed no difference in abstinence rates at 6 months (Bushnell et al., 1997). At 12 month followup, 26.7% of participants in a smoking-cessation program that combined a wellness approach with stress-management skills, problem-solving techniques, and NRTs reported not smoking (Helyer et al., 1998). The Army Health Promotion and Prevention Initiatives Program compared three tobacco-cessation programs in 2005: the Army CHPPM program (see above), the ACS Freshstart program, and the ALA Freedom from Smoking program. Abstinence rates were not determined. Participants in the

CHPPM program found the medications to be most helpful, whereas the ACS and ALA participants found the group setting to be most helpful (Army, 2006).

The Air Force Health Promotion personnel are now required to use the ACS Freshstart program for on-site classes or in-person education with adjunct tobacco-cessation medications as needed (Loftus, 2008). The Army is promoting the use of the ALA Freedom from Smoking program, and the primary source for spit-tobacco cessation is chewfree.com at the Oregon Research Institute (Brad Taft, US Army, personal communication, December 15, 2008).

In spite of the strategic plan requirement that partnerships with TRICARE managed-care support contractors be encouraged to identify interventions that work and to facilitate tobacco-use education, the committee was unable to find information on such partnerships. TRICARE, through the ATAC, has supported a demonstration project called Tobacco Free Me, discussed below in the section on computer-based interventions. The ATAC also gathers information on innovative programs in tobacco cessation and provides such information to its members.

Tobacco Cessation, Physical Fitness, and Weight Management

Most people who quit smoking gain weight. That is of particular concern in the military, in which active-duty personnel must meet weight standards. Petersen and Helton (2000) found that 88% of active-duty Air Force members who completed an 8-week smoking-cessation program gained weight. The average gain was 5.5 lb in men and 9.8 lb in women. Being close to or over the allowable weight standard may pose an additional barrier to tobacco cessation in active-duty military personnel and increase the likelihood of relapse (Russ et al., 2001). In a review of interventions for preventing weight gain after tobacco cessation, Parsons et al. (2009) found that tobacco-cessation medications were effective in reducing weight gain as long as they were used but had no long-term benefit. However, cognitive-behavioral therapy helped to reduce long-term weight gain. Petersen and Helton (2000) suggested that each service grant a one-time temporary weight waiver for active-duty military members who successfully quit, allowing for a temporary waiver so that ex-smokers have time not only to overcome their smoking addiction but to address the weight gain (Peterson and Helton, 2000).

The committee has found in its review of the various tobacco-cessation activities an inconsistency in DoD's determination of physical fitness for military personnel. For example, Army Regulation 350-1, *Army Training and Leader Development* (August 2007), states that "the objective of the Army physical fitness training is to enhance combat readiness by developing and sustaining a high level of physical fitness in Soldiers as measured by . . . Body Composition standards as prescribed by AR 600–9 [*The Army Weight Control Program*]" and a "Healthy Lifestyle (provide nutrition, avoid smoking and substance abuse, manage stress)." The justification for the physical-fitness requirement is to ensure a soldier's safety and that of other unit members. The committee believes that although the regulation states that avoiding smoking is one aspect of physical fitness, the statement, which does not give tobacco-free living a priority equivalent to that of weight control, is not sufficiently stringent to ensure that tobacco cessation is considered crucial for military readiness.

Finding: The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* is a valuable resource for DoD and VA health-care providers.

Recommendation: VA and DoD should revise their current guideline or adopt the 2008 PHS guideline with whatever modifications are necessary for military and veteran populations.

Finding: Given the long-term and short-term health consequences of tobacco use for military readiness, the armed forces' policies regarding tobacco use are inconsistent with those used for physical fitness, weight control, personal hygiene,

dress, appearance, and other lifestyle-related behaviors. To ensure military readiness and performance, the DoD requires that military personnel meet basic physical-fitness requirements, including weight management, when they enter the military and throughout their careers.

Recommendation: DoD and the individual services should review those policies and revise them to ensure that they are consistent and address the potential effects of all health-related behaviors on military readiness. Tobacco abstinence should be included as a physical fitness requirement for the armed services as is weight management.

Finding: Many tobacco-cessation programs do not address weight management.

Recommendation: Weight-management education and counseling should be included in military tobacco-cessation programs.

DELIVERY OF INTERVENTIONS

In the sections below, the committee considers how each of the armed services provides tobacco-cessation interventions to its members, including behavioral and pharmacologic interventions in medical facilities or health-promotion facilities, quitlines, and computer-based programs. The committee also considers how the services ensure that their health providers are familiar with current tobacco-cessation interventions.

Clinical Settings

The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* was last updated in June 2004 based on an evidence review through December 2002. Overall, the guideline follows the population approach recommended by the 2000 and 2008 PHS guidelines (see Chapter 4). The guideline recommends similar system-level resources for practitioners (such as dedicated practice staff, reminders, and vital-sign indicators) and access to behavioral and pharmacologic treatments. A 2007 DoD evaluation of tobacco use cessation programs available in medical treatment facilities across the services, found that only about half of the 130 facilities in the survey followed any tobacco use cessation clinical practice guideline (DoD, 2008).

VA/DoD guideline recommendations are mirrored in service-specific regulations and in the 1999 Strategic Plan. For example, Army Regulation 600-63 (May 7, 2007) on health promotion specifies that "as a part of routine physical and dental examinations and at other appropriate times, . . . health care providers will inquire about the patient's tobacco use . . . and advise the patient of risks associated with use . . . and where to obtain help to quit." It recommends that patients be referred to the MEDCOM Web site on tobacco-use management: http://www.qmo.amedd.army.mil/smoke/smoke.htm. [Note: the committee was unable to access this page and suggests that the regulation be changed to refer patients to the DoD Web site, http://www.ucanquit2.com.] It also specifies that "installations will provide tobacco cessation programs for all health care beneficiaries and as resources permit, for civilian employees." The regulation requires that military treatment facilities use the most current VA/DoD clinical-practice guideline and that its use be enforced in all primary-care facilities on the installation. The SECNAV Instruction 5100.13E (June 2008) specifies that "Military Treatment Facilities (MTFs) [and] Fleet and Family Service Centers . . . shall provide current tobacco use information, cessation encouragement, and professional assistance to those wishing to stop using tobacco" and also requires that all medical-care providers at all medical and dental facilities

apply tobacco-use cessation clinical-practice guidelines. The committee notes that although Air Force Instruction 40-102 (June 3, 2002) requires that tobacco-cessation programs be available during both duty hours and nonduty hours at least quarterly, there is no requirement or guidance on using the VA/DoD guideline. Furthermore, holding classes quarterly may not be an effective strategy for tobacco cessation. Counseling should be available when the person wants to quit; a delay of even 24-48 hours may mean that the opportunity for abstinence is lost.

Not all military installations have the resources to offer tobacco-cessation programs and the committee was unable to determine the frequency with which such programs are offered. Lack of ready access to tobacco-cessation programs may prove a barrier to military personnel and their dependents who are seeking assistance with quitting. Army Regulation 600-63 (May 2007) states that if a tobacco-cessation program is not available through a military treatment facility, programs are to be coordinated through local community resources, such as ACS and ALA. Civilian employees on Army installations may also participate in tobacco-cessation programs but civilians are to be referred to community resources if space is not be available or if there is no such program in the occupational-health clinic. The committee was unable to identify tobacco-use rates in DoD civilian employees or their need for tobacco-cessation services.

Primary-Care Providers

Medical-care and health-promotion activities are often conducted by different but complementary staff on military installations. In each service, the major responsibility for tobacco-prevention and cessation education and programs falls to the health-promotion staff. Depending on the professional discipline, the health promotion staff might not have the authority to prescribe NRTs or other tobacco-cessation medications, such as bupropion and varenicline. That authority resides in the medical staff, that is, physicians, physician assistants, and nurse practitioners (Kathy Green, US Air Force, personal communication, December 12, 2008). In most cases, the health-promotion and medical staff deliver their care concurrently as part of a comprehensive tobacco- cessation program but this approach requires military personnel interested in quitting tobacco use to seek assistance from two sources. The committee believes that this multilevel process may be a barrier to using evidence-based treatment for achieving tobacco cessation. Implementation of the VA/DoD guideline that primary-care providers use brief counseling, as well as prescriptions for medications, might help motivate patients to quit. Alternatively, allowing health-promotion staff to write prescriptions for NRTs that can be obtained over the counter in the civilian sector might encourage tobacco users to use those medications.

Other Health Professionals

Some health professionals conduct tobacco-cessation programs at military treatment facilities, although this varies by service. The 2007 DoD evaluation of tobacco use cessation programs at 130 medical treatment facilities found that most cessation classes were conducted by health educators (63%) or nurses (36%), with fewer classes conducted by providers (the survey does not specify what type of provider), technicians, behavioral health professionals, and others (DoD, 2008).

Air Force Instruction 40-102 states that "health promotion personnel ensure installation health promotion programs . . . incorporate education programs and information on resources available in the community to discourage tobacco use." Health-promotion staff are also the lead advocates for tobacco cessation on Navy installations, as are Semper Fit (health-promotion) staff on Marine Corps installations (BUMED Position Statement, February 2, 2008). The health-promotion staff coordinate tobacco-prevention and tobacco-cessation programs and education with other base health and fitness groups, and interact with community resources (SECNAV instruction 5100.13E, 2008). Army Regulation 600-63 (2007) requires that health-care providers ask about tobacco use at all routine physical and dental examinations. In the Army, nurses conduct the overwhelming majority of tobacco-cessation programs (77%), whereas in the Navy

and Air Force, most of the programs are conducted by health educators and clinical psychologists (Mark Long, US Navy, personal communication, December 16, 2008; Kathy Green, US Air Force, personal communication, December 12, 2008). Even a 1-hour presentation on the hazards of tobacco by an Army nurse certified to teach the ACS Freshstart program had an effect on motivating tobacco users to contemplate quitting (Morgan, 2001).

Other health-care professionals who are tasked with tobacco-prevention and tobacco-cessation responsibilities include Air Force fitness assessment monitors, who must ask about tobacco use at the physical fitness evaluation; medical providers, who are to ask about tobacco use at every encounter; and dental providers, who are to ask about tobacco use at least annually (Air Force Instruction 40-102, 2002). Medical, dental, and primary-care managers are to provide tobacco-cessation advice to all tobacco users, as stated in the 2000 PHS clinical-practice guideline, and to refer tobacco users who want a cessation program to health-promotion personnel. Unlike the civilian sector, all the military services require that dental professionals ask patients about tobacco use and provide referrals. Inasmuch as military personnel are required to have annual dental and medical examinations, that provides an ideal recurring opportunity to assess tobacco use and encourage cessation. Military dentists can be a good source of tobacco-cessation guidance and patient education (Burns and Williams, 1995; Chaffin, 2003). The Army Dental Command has implemented a program that makes tobacco-use assessment mandatory during dental examinations. The tobacco-cessation program empowers dentists to provide clinical level counseling (including the 5 A's, brief motivational interviewing, and "teachable moment" techniques) and to prescribe NRTs (Covington et al., 2005). The Navy encourages Navy dentists and pharmacists to be active in using the 5 A's (at the very least, to ask, advise, and refer patients) to assist patients to quit tobacco use, including the prescribing of tobacco-cessation medications if they are properly trained and follow the VA/DoD guideline (Navy BUMED position statements, February 21, 2008).

Occupational-health clinics in the Army are designated to provide tobacco-cessation programs for civilian employees or, if such programs are not feasible on an installation, to provide referral to local community programs (Army Regulation 600-63, 2007), but the committee was unable to determine whether these clinics do so, inasmuch as it does not appear that this information is collected or is made public if it is collected.

Finding: Lack of easy access to tobacco cessation medications may pose a barrier to military personnel seeking to quit tobacco use. Military health providers see all military personnel at least once a year; this is an ideal opportunity for all of them to motivate and counsel personnel who use tobacco to quit.

Recommendation: DoD should consider allowing health educators to provide medications, especially NRTs, to patients interested in quitting tobacco use. Medical providers should receive training and be encouraged to use the 5 A's for tobacco cessation.

Quitlines

Military personnel have access to several quitlines. The first source is the National Cancer Institute (NCI) quitline; the second is the state quitlines, which are generally open to residents of the individual states; and the third is quitlines that have been contracted to provide services to military personnel. For example, the Air Force encourages bases to fund their own quitlines; if they are unable to do so, they are to promote their states' quitlines (Loftus, 2008). As of July 2008, 30 of 76 Air Force bases had contracted telephone quitlines. The Air Force is also working to obtain funding for an Air Force–wide telephone quitline so that individual bases do not need to contract for these service on their own (Kathy Green, US Air Force, personal communication, July 30, 2008). The Army and the Navy do not appear to have similar

requirements. The committee was unable to determine whether Army or Navy installations have contracted with commercial quitlines or with state quitlines to offer tobacco-cessation services to military personnel. The committee further notes that although the Air Force is to be commended in encouraging the use of quitlines, it does not provide guidance to health-promotion staff or installation commanders on which quitlines are the most helpful or provide the best services. There is no information on the training received by quitline counselors to deal with military personnel. Counselors should be familiar with military terminology and jargon and with the stressors and triggers for tobacco use in military personnel, particularly deployment.

Quitlines tailored to meet the needs of military personnel are being studied, but results are not available. The National Heart, Lung, and Blood Institute and the Air Force are sponsoring a study to assess the effectiveness of a tobacco quitline program (in conjunction with nicotine patches) in helping active-duty Air Force personnel to quit smoking (http://clinicaltrials.gov/ct2/show/NCT00632411).

Finding: Quitlines may be particularly helpful for military personnel in that they can be accessed remotely and are generally available during nonwork hours when military personnel may be more likely to access them.

Recommendation: DoD and the services should explore, possibly via a demonstration program, the effectiveness of having either a DoD-wide or servicewide quitline with counselors trained to work with military personnel, their families, and retirees; such a quitline should be evidence-based and validated.

Computer-Based Interventions

DoD has been active in promoting computer-based tobacco-cessation services. Its primary resource is the "Quit Tobacco. Make Everyone Proud" Web site, which provides all military personnel and their dependents with tobacco-cessation advice. An important feature of the Web site is the link to a live tobacco-cessation counselor who can provide real-time advice. The site was discussed earlier in the section "Counteradvertising and Public Education".

DoD also has educational information about tobacco use on its "Military OneSource" Web site (http://www.militaryonesource.com), which may be accessed by all service personnel and their families. The Web site contains articles about tobacco use and cessation, audios, worksheets, booklets, and other materials, including information on smoking and pregnancy and on smoking and chronic obstructive pulmonary disease. There is also a link to the "Quit Tobacco. Make Everyone Proud" site. The committee notes that this site contains "toolkits" with a variety of information to deal with such issues as Internet security, applying to college, and weight loss; this might be expanded to include a similar tobacco-cessation toolkit.

Each armed service has a health-promotion Web site that provides patient-education materials. For example, the Army has information about tobacco control on the CHPPM Web site (see Box 5-1); more patient-education materials are found at the Army HOOAH 4 Health Web site where tobacco cessation is listed as the first of five top DoD health goals. The Navy and Marine Corps public-health center Web site also lists smoking and other forms of tobacco use as a core health issue and provides a long list of cessation resources. The site has the "Smoking Lamp is Out" Navy tobacco-cessation program with a number for calling tobacco-cessation counselors. The Air Force does not have a central Web site for tobacco cessation, but each base has such information on its local site. The Air Force Crossroads Web site on health and wellness or medical issues refers people to the DoD "Quit Tobacco. Make Everyone Proud" site.

BOX 5-1 Military Web Sites for Tobacco-Cessation Information

Army CHPPM:
http://chppm-www.apgea.army.mil/dhpw/Population/tobaccoCessation.aspx
http://usachppm.amedd.army.mil/dhpw/population/tobaccocessation.aspx
http://www.hooah4health.com/4You/stoptobaccoshop/default.htm

Navy and Marine Corps:
http://www-nehc.med.navy.mil/hp/tobacco/Tobacco_smoking.htm

Air Force:
Installation-specific Web sites and
http://www.afcrossroads.com/medical/medical.cfm

The TMA with the ATAC sponsored an Internet-based smoking-cessation demonstration program, "Tobacco-Free Me", from 2006 to 2008 for TRICARE Prime enrollees 18–64 years old. The program included: access to a toll-free quitline 24 hours/day, 7 days/week; behavioral counselors available by appointment to discuss behavior-change strategies; access to print and Web-based tobacco-cessation materials; and NRT and bupropion via the TRICARE mail-order pharmacy with a prescription from the participant's primary-care manager. DoD is analyzing the results and recommendations from the project.

Finding: DoD is attempting to take advantage of computer-based tobacco-cessation programs, such as the "Quit Tobacco. Make Everyone Proud" program. Such programs may need to be tailored for each of the services and specific military users, including retirees, dependents (children or spouses), and members of the reserve and National Guard. A series of demonstration programs may be an effective way to determine the audience for and content of such programs.

Recommendation: DoD computer-based interventions should be evaluated for efficacy and effectiveness, as well as content and audience.

Provider Education

All the armed services call for the education of military health-care providers regarding tobacco prevention and cessation. This education component has two aspects: informing of health providers themselves about tobacco-prevention and tobacco-cessation treatments, and ensuring that health-promotion programs for all military personnel, retirees, and their dependents include information on tobacco prevention and cessation.

Educating health-care providers about the health effects of tobacco and the psychologic and pharmacologic treatments for tobacco cessation and giving them access to public-education materials are important for ensuring that the most effective approaches for reaching tobacco users are available. Air Force Instruction 40-101 (1998) requires that health-promotion staff be trained to provide oversight and training on health-promotion topics to other base agencies, and recommends that Air Force tobacco-cessation facilitators have behavior-modification training. The Army MEDCOM Quality Management Office maintains a Web page on the management of tobacco use. The page has links to on-line resources for provider education, including courses on treating tobacco use and dependence with continuing-medical-education (CME) credits for physicians, and courses on smoking-cessation approaches for primary care providers. Other links

on the site promote resources for hospital and clinic staff to obtain tobacco-cessation information and patient and provider education materials (available at https://www.qmo.amedd.army.mil/smoke/smoke.htm). CHPPM offers a Tobacco Cessation Provider Competency Course on its Web site to train providers in prescribing NRT. The course covers the effects of tobacco, the mechanism of nicotine's effects, tobacco-cessation assessment tools, discussion of Food and Drug Administration–approved medications for tobacco cessation, alternative tobacco-cessation modalities, patient management, and the connection among stress, depression, and tobacco use in relation to triggers and relapse (available at http://usachppm.apgea.army.mil/dhpw/Population/TobaccoCessation.aspx). The site also offers other materials that may be used by medical or health-promotion staff to provide tobacco-cessation guidance for new trainees.

The Navy has a comprehensive provider-education page (http://www-nmcphc.med.navy.mil/hp/tobacco/educators.htm) that contains training materials for primary-care providers, nurses, and tobacco-cessation facilitators and patient-education materials. The site also has links to tobacco-cessation training for CME credit. The Marine Corps has a tobacco-cessation training guide as part of its Semper Fit health-promotion program (http://www.usmc-mccs.org/healthpromotions/tobacco_cess.cfm). The program includes a Through with Chew toolkit and links to other tobacco-cessation resources in the government. Overall, those programs appear beneficial and tend to follow the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use*; however, the effectiveness of most programs is not known, and the military would benefit from conducting program-evaluation research. Tobacco-cessation education programs such as Rxforchange (see Chapter 4) may also be considered for training military health-care providers in tobacco-cessation interventions.

Finding: All the armed services have educational materials on tobacco prevention and cessation available to health-care providers. They also make training opportunities available to medical and health-promotion staff.

Recommendation: Education programs should be consistent with the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* and should be coordinated across the services.

SPECIAL POPULATIONS

Active-duty military personnel traditionally are thought of as being in top physical and mental condition, however, the MHS and TRICARE provide health care for diverse populations, including those with mental illness, dependents, retirees with comorbidities, pregnant women, and smokeless-tobacco users. Each population may have specific tobacco-use needs and require modifications of standardized tobacco-cessation treatments. Goal D.1 of the 1999 strategic plan calls for the MHS to identify tobacco users and provide targeted interventions.

In the sections below, the committee considers selected military populations that might require specialized tobacco-prevention and tobacco-cessation treatments: military personnel with mental-health disorders, particularly posttraumatic stress disorder (PTSD); smokeless-tobacco and dual tobacco users; deployed personnel; women; and National Guard personnel and reservists. Among the military populations that might be targeted for tailored interventions are those who indulge in high-risk drinking. Williams et al. (2002) found that high-risk military drinkers (those that responded positively to 2 or more CAGE questions) tended to be enlisted male soldiers who were young, white, never married, had a high-school education or lower, and had a military occupational specialty of infantry or craftsworker. These men were also more likely to drive more than 15 miles over the speed limit, wear a seatbelt less often, and smoke more than a pack of cigarettes per day (Williams et al., 2002).

Tobacco Users with Mental-Health Disorders

Many active-duty personnel have been wounded, both physically and mentally, during deployment. The data suggest that treating tobacco use in military personnel who have mental-health disorders is important for the health of military personnel and their dependents. Of the almost 1.7 million military personnel who have been deployed to Iraq and Afghanistan, 5–17% met the screening criteria for PTSD on return, 7–17% met the screening criteria for anxiety disorders, 7–15% met the screening criteria for depression, and 18–35% indicated some level of alcohol misuse (Hoge et al., 2004, 2006). The rates of PTSD symptoms increased 3–6 months after return from deployment and were highest (24.5%) in National Guard and reserve personnel (Milliken et al., 2007). Tobacco use in military members with PTSD has been estimated to range from over 32% (DoD, 2006) to almost 50% (Smith et al., 2008). The 2008 suicide rate in the Army was estimated to be 20.2 per 100,000 soldiers, higher than the national average of 19.2 per 100,000 (Kuehn, 2009). Tobacco use by deployed military personnel is higher than for nondeployed personnel (see Chapter 3).

Specific programs should be developed and evaluated to ensure the availability of effective tools to address tobacco cessation in military personnel with PTSD. It should be noted that one of the most promising new medications for tobacco cessation, varenicline, was given a safety alert by FDA in 2008. In June 2008, the following DoD medication safety notice was issued (http://www.health.mil/Press/Release.aspx?ID=244):

> "In light of recent reports linking varenicline (Chantix) to hallucinations and even suicide, the Military Health System would like to re-issue our Medication Safety Notice concerning the use of varenicline (Chantix), a prescription drug used across the country in smoking cessation programs. While the drug is not on the TRICARE formulary, many MHS patients have prescriptions for it. It is highly recommended that a doctor be consulted immediately in rare cases of psychiatric side effects including nightmares, paranoia, or feelings of suicide. In response to the recent FDA warnings, the Military Health System is analyzing all available information in a continuing effort to maintain the highest levels of safety and security for our beneficiaries."

Finding: Military service, particularly deployment, increases the likelihood of tobacco use as a result of stress and boredom (see Chapter 3). Deployed military personnel have higher rates of mental-health disorders than nondeployed personnel. Evidence suggests that people with mental-health disorders are willing and able to participate in tobacco-cessation treatments.

Recommendation: Military health-care providers should continue to ask patients who have mental-health disorders about their interest in tobacco cessation and should provide cessation treatments to patients willing to make an attempt to quit.

Smokeless Tobacco and Dual Use

One of the groups at highest risk for adoption and use of smokeless tobacco is the US military (Peterson et al., 2007). Recent data (DoD, 2006) indicate that 14.5% of all military personnel regularly use smokeless tobacco; the largest group of users (21.6%) is white men 18–24 years old. The Marine Corps has the greatest use (22.3%), and the Air Force the lowest (9.2%). Smokeless-tobacco use decreased from 1995 to 2002 in the armed services, but all

services showed an increase from 2002 to 2005 (DoD, 2006). Initiation of smokeless-tobacco use was greatest in the Army and the Marine Corps (DoD, 2006). Initiation and continuation of use of smokeless tobacco may be higher in the military than in the general population for several reasons. First, the demographics (young men) place the military at higher risk for adoption and use (SAMHSA, 2007). Second, all indoor military facilities are smoke-free, and smokeless tobacco is the only form of tobacco that can be used during active-duty hours. In the Navy and Air Force, smokeless tobacco is subject to the same restrictions as smoked tobacco (SECNAV Instruction 1500.13E, 2008, and Air Force Instruction 40-102, 2002, respectively), but this may be harder to enforce for spit-less tobacco products. Third, as noted in the section "Advertising and Promotions", smokeless tobacco is advertised in military periodicals.

Another possible reason for the increased use of smokeless tobacco is deployment to a war zone (Wilson, 2008). In a survey of 408 marines stationed in Iraq in 2007–2008, tobacco use was nearly double that of the civilian US population. The survey found that 64% of troops used some form of tobacco: 52% smoked cigarettes, 36% used smokeless tobacco, and 24% were dual users of smokeless tobacco and cigarettes. Most of the marines surveyed stated that both being in the military and being deployed increased their tobacco use, and most were also interested in quitting (Wilson, 2008).

Effective interventions for smokeless-tobacco use in the military are largely lacking, because little is known about the specific determinants of initiation and cessation of smokeless-tobacco use in this population (see Chapter 4). Some behavioral interventions, such as proactive telephone counseling and oral examinations, have been shown to be effective in increasing long-term smokeless-tobacco abstinence rates in military personnel (Cigrang et al., 2002; Klesges et al., 2006). Only one randomized clinical trial has been conducted to evaluate the efficacy of a smokeless-tobacco–cessation program in military personnel (Severson et al., 2009). Participants were 785 active-duty military personnel who were randomly assigned to receive a minimal-contact behavioral treatment (n = 392) or usual care (n = 393). The behavioral treatment included a smokeless-tobacco–cessation manual, a videotape cessation guide tailored to military personnel, and three 15-min telephone counseling sessions that used motivational interviewing methods. Usual care consisted of standard procedures that are part of the annual dental examination, including recommendations to quit using smokeless tobacco and referral to existing local tobacco-cessation programs. Results showed that participants in behavioral treatment were significantly more likely to be abstinent from all tobacco at the 6-month followup point than participants in usual care (25.0% vs 7.6%, respectively, using 7-day point prevalence), including smokeless tobacco abstinence (16.8% vs 6.4%). Those results indicate that minimal-contact behavioral treatment can significantly reduce smokeless-tobacco use in military personnel (Severson et al., 2009).

Most smokeless-tobacco users also smoke cigarettes; current smokers are 3 times as likely as never-smokers to use smokeless tobacco (Ebbert et al., 2006). In a study of over 36,000 Air Force personnel, the prevalence of self-reported smokeless-tobacco use was 24%, but 95% of smokeless-tobacco users also "regularly" or "occasionally" used another form of tobacco, commonly cigarettes. At least 82% of all smokeless-tobacco users were regular cigarette smokers (Robert Klesges, University of Tennessee Health Science Center, personal communication, January 23, 2009). In addition, restrictions on where and when tobacco may be smoked may encourage smokers to use smokeless tobacco during active-duty hours. Because dual users have a higher estimated nicotine exposure (Wetter et al., 2002) and are less likely (relative to those who use cigarettes or smokeless tobacco exclusively) to quit smoking (Rodu, 2003; Wetter et al., 2002), obtaining onset and cessation data on dual users in the military should have high priority in planning tobacco-control programs for the military services. The committee believes that finding effective tobacco-cessation interventions for dual tobacco users will be challenging.

Finding: Smokeless tobacco should be subject to the same restrictions as smoked-tobacco products.

Recommendation: DoD and the armed services should make tobacco-cessation interventions for smokeless-tobacco use as available as those for smoked tobacco. Furthermore, they should track its use by military personnel to determine the effectiveness of any interventions. Given the growing rate of dual use of tobacco products by military personnel, DoD should develop targeted interventions for these tobacco users, including a comparable pricing structure with cigarettes, and counteradvertising campaigns.

Women

Goal D.1 of the 1999 DoD strategic plan requires that targeted interventions be developed by the MHS for selected groups, such as pregnant women, but there is little evidence that such interventions exist or have been studied in selected military populations, particularly women. Although military women have lower tobacco-use rates than military men, their rates are higher than those of their civilian counterparts (see Chapter 2). As the number of women in the military continues to increase, tailored interventions to assist them may become more necessary. Validated target interventions for pregnant active-duty personnel are also needed.

Like male military recruits, female recruits are prohibited from using tobacco during basic training. Conway et al. (2004) compared three tobacco-cessation methods in female recruits who used tobacco before basic training. The women received either standard treatment (a tobacco ban and a small amount of health education) during basic training, a year-long series of mailings of motivational literature to support relapse prevention and encourage quit attempts, or access to a toll-free telephone help line for counseling, encouragement, and support. The interventions used a cognitive-behavioral approach and were designed to address issues peculiar to Navy life and to women. At 12-month followup, however, smoking rates in the two intervention groups did not differ from that in the standard-treatment group, although the rate of smoking at 12 months was lower overall (57%) than the rate in the incoming female recruits (77%). Daily smokers were more likely to relapse to smoking after basic training than experimenters; the authors did not determine how many women initiated smoking after Navy basic training (Conway et al., 2004).

The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* and the 2008 PHS clinical-practice guideline *Treating Tobacco Use and Dependence* both recommend that health-care professionals advise pregnant women to quit tobacco use and provide tobacco-cessation treatment. That is codified in 32 CFR 85.6(d)(1), which requires all appropriate DoD health-care providers to advise all pregnant smokers of the risk posed to the fetus by tobacco use. In 2005, there were 42,833 deliveries in DoD military treatment facilities in the continental United States including both military women and military spouses (David Arday, OASD(HA) TRICARE Management Activity, personal communication, November 7, 2008). The Navy Bureau of Medicine and Surgery has issued a position statement on tobacco cessation and pregnancy, recommending that all pregnant women receive behavioral counseling to quit tobacco use before, during, and after pregnancy and be provided with NRT or bupropion if necessary to supplement the counseling. New mothers should also be screened for postpartum depression to prevent the use of tobacco for depression (Navy, 2008).

Finding: Women in the military use tobacco at higher rates than their civilian counterparts.

Recommendation: DoD and the armed services should follow the treatment guidelines for women as given in the VA/DoD and PHS guidelines. Further research is needed to determine whether there are sex-specific issues with regard to tobacco cessation in military women.

Deployed Personnel

Deployment is associated with increased tobacco use (Cunradi et al., 2008; Smith et al., 2008; Wilson, 2008) (see also Chapter 3). The Army conducted a small feasibility study of service members stationed at Camp Cropper, Iraq, during June 2006–June 2007 to determine whether personnel who had received prescriptions for NRT or bupropion during this time would be interested in participating in behavioral group counseling once a week for tobacco cessation; 81% of survey respondents stated that they would not attend a 90-min weekly group session. The medications were not effective in improving quit rates but did reduce the number of cigarettes smoked; the medications had no effect on smokeless-tobacco use (Army, 2008). Van Geertruyden and Soltis (2005) also assessed the feasibility of conducting a smoking-cessation program at an Army Level 1 aid station in Iraq. Providers screened soldiers for willingness to quit, requested that participants pick a quit date, provided bupropion and NRT, and encouraged soldiers to avoid areas that they associated with smoking. The authors reported anecdotally that several long-term "hard-core" smokers quit and encouraged others to use the program (van Geertruyden and Soltis, 2005).

Junior enlisted personnel are particularly at risk for tobacco initiation during deployment. Poston et al. (2008) conducted 24 focus groups at Air Force and Army installations of junior enlisted personnel who had been deployed. Reasons for smoking during deployment included managing stress, anxiety, boredom, and sleep deprivation; lack of activities and privileges; the perception that dangers in the field were greater than the health effects of smoking; and the encouragement of smoking by the military environment in spite of rules against it (for example, smokers were able to take more breaks than nonsmokers). The authors suggest that in spite of DoD efforts to reduce tobacco use by military personnel, there is a pervasive attitude that tobacco is not of great concern to DoD, particularly during deployment (Poston et al., 2008). Similar reasons for smoking during deployment to Iraq were cited by Army personnel (Army, 2008).

Finding: There is anecdotal evidence that deployed personnel may use tobacco-cessation programs. The tobacco-use rate in deployed personnel is much higher than that in nondeployed military personnel or civilians, and there is a pervasive attitude that tobacco use by deployed personnel does not have DoD priority. There is a lack of information on tobacco-cessation needs and treatments for deployed personnel.

National Guard and Reservists

Many National Guard and reserve personnel, particularly Army National Guard members, have been federalized and activated. While on active duty, these service members are subject to the same policies and eligible for the same benefits as any other active-duty personnel, and when they leave active duty, they are eligible for TRICARE for 6 months. They are also eligible to sign up for the TRICARE Reserve Select program to receive coverage. TRICARE now covers smoking-cessation services, so National Guard and reserve members have access to these services. The committee is concerned that there is a lack of basic information on those service members. They do not appear to have been included in the 2005 DoD Survey of Health Related Behaviors Among Active Duty Personnel (the committee has no information on whether they were included in the 2008 survey); if they were included with regular active-duty military personnel, there is no information about them after deactivation. That is of particular concern given the large number of Army National Guard members who have been deployed to Iraq (over 145,000 as of 2008), many of them more than once. National Guard and reserve members appear to have about the same smoking prevalence as regular military (Smith et al., 2008).

Finding: Many National Guard and reserve personnel are deployed and then return to civilian life with little or no access to tobacco-cessation programs in military or VA health-care facilities. Additional information is required about tobacco use by National Guard and reserve members and their need for and access to military and civilian tobacco-cessation programs.

RELAPSE-PREVENTION INTERVENTIONS

DoD is unique as an employer with regard to tobacco use. All new employees (recruits) are required to be 100% tobacco-free during basic training. However, the relapse rate after basic training ends is substantial. Furthermore, many young people who enter the military and were not tobacco users or had only experimented with tobacco before entering the service become tobacco users after completing basic training. Approaches for reducing the relapse rate and preventing the initiation of tobacco use after basic military training are the focus of this section.

Basic Training

All the armed services prohibit smoking by recruits during basic training (Army TRADOC Regulation 350-6, May 8, 2007; Navy Recruit Training Command Instruction 5100.6K, May 8, 2008; Air Force Instruction 40-102, June 3, 2002; Air Force Education and Training Center Instruction 36-2216, June 16, 2004). The bans create, albeit for a brief period, a tobacco-free force. The total bans do not extend beyond initial training, and service members, to varied degrees, initiate or resume smoking, in some cases at higher rates than before entry into the service. The early unqualified success in tobacco cessation may lead to equally successful opportunities after basic training. For example, the Air Force has extended its tobacco-use ban into some phases of technical training that follow basic training.

A major question is whether the forced cessation during basic military training is related to long-term smoking rates. Two studies have evaluated the impact of the smoking ban on long-term (1-year) cessation rates to determine whether a brief intervention (a 50-min session with questions and answers in computer-interactive format, facilitated role-playing situations, and commitment cards) can augment the cessation rates associated with the smoking ban during the 6-week basic training. In the first study (Klesges et al., 1999), 75% of the 25,996 active-duty enrollees in Air Force basic training were randomized to receive a brief (1-hr) tobacco-control intervention and the remaining 25% were only banned from tobacco use. At the 1-year followup, 18% of all the recruits were abstinent. There were no statistically significant differences between the two groups. However, female recruits were nearly 30% more likely to quit smoking than male recruits (21% vs 17%), ethnic minority-group members were 40% more likely to quit than white recruits (22% vs 17%), and those reporting an intention to remain nonsmoking after the ban were nearly 60% more likely to quit than those who were either thinking of returning to smoking or actively planning to resume smoking (19% vs 13%). The intervention had an impact on the highest-risk group, those planning to resume smoking (13% vs 8%). Among minority-group members who were not planning to quit, the intervention had a particularly large impact—a 14% difference in cessation rates between treatment and controls (18% vs 4%)—although there was no overall intervention effect (Klesges et al., 1999).

In a followup study, Klesges et al. (2006) evaluated the effect of a brief tailored tobacco-control intervention during Air Force basic training. The 33,215 participants were randomized to receive an intervention based on their prior tobacco use: those who smoked cigarettes before basic training received a smoking-cessation intervention, and those who used other tobacco products before basic training received a smokeless-tobacco intervention, those who did not use tobacco received a prevention intervention. The controls viewed health-related and first aid videos. The smoking interventions proved to be associated with long-term tobacco cessation.

Based on 7-day point prevalence and continuous abstinence, respectively, smokers who received the active intervention were 1.16 (95% CI, 1.04–1.30) and 1.23 (95% CI, 1.07–1.41) times more likely to be abstinent from smoking cigarettes than controls at the 1-year followup ($p < 0.01$). The cessation-rate difference was 1.60% (31.09% vs 29.49%) and 1.73% (15.47% vs 13.74%) for point prevalence and continuous abstinence, respectively. Smokeless-tobacco users were 1.33 times (95% CI, 1.08–1.63) more likely than controls ($p < 0.01$) to be continuously abstinent at the followup with an overall cessation-rate difference of 5.44% (33.72% vs 28.28%). However, the smoking-prevention program had no impact on smoking initiation. A study of Air Force recruits who were tobacco users before basic training and received NRTs at the end of basic training found that those who used NRTs were more likely than those who did not use them to plan to resume tobacco use after military training, to have friends who smoked, and to take cigarettes from friends who smoked and were less likely to be abstinent (7-day point prevalence) (Klesges et al., 2007).

A variety of focus groups targeting tobacco-use policies and practices were conducted during Air Force technical-school training, which occurs immediately after the completion of basic training (Peterson et al., 2003). Several focus groups included trainees who had been regular smokers before basic training. The results were surprising: most trainees reported that they had no difficulty in quitting, and most did not report any withdrawal symptoms. Most reported that basic training was so intense that they did not even recognize that they had quit smoking; sleep deprivation, intense physical conditioning, and an overall demanding training schedule left most with no time to think about tobacco use.

Focus-group participants were also asked their opinions of the tobacco-free policy in basic training. The vast majority of former smokers indicated that they approved of the policy and thought it was consistent with the overall training mission. In addition, focus groups with Air Force technical-school students who had relapsed to smoking indicated that if the Air Force wanted them to remain tobacco-free, it should just extend the tobacco ban for the duration of their enlistment. Most felt that staying tobacco-free after the completion of basic training would be relatively easy if a policy prohibited the use of tobacco (Peterson et al., 2003).

Preventing Initiation and Relapse after Basic Training

There appears to be substantial initiation in the first year of military service in those who were not tobacco users before entering the military (Williams et al., 1996). Two studies that evaluated smoking initiation in the military (Klesges et al., 1999, 2006) found that 8–10% of trainees who reported never smoking ("not even a puff") before basic training were smoking at a 1-year followup, and 26–30% of experimental smokers, defined as having had one to two cigarettes in their lifetimes, reported smoking at follow-up. Klesges et al. (2006) randomized Air Force personnel who entered basic training and reported either being nonsmokers or experimental smokers into a smoking-prevention intervention group or a control group. The prevention program had no effect on smoking initiation (Klesges et al., 2006). Similar results were found by Conway et al. (2004), who posited two possible reasons for the finding: either the prevention-intervention strategy validated on younger people did not translate to the slighter older population, or military personnel may be particularly recalcitrant to tobacco-use prevention efforts.

The VA/DoD clinical-practice guideline provides a detailed discussion of tobacco-use prevention and relapse. Approaches include motivating current tobacco users to quit with such strategies as the 5 R's (relevance, risks, rewards, repetition, and roadblocks) and motivational interviewing and encouraging continued abstinence for those who do quit. Of particular relevance to DoD is preventing the initiation of tobacco use in military personnel who had not used tobacco before entering the service. The guideline provides practical advice on assessing the likelihood that those people will start to use tobacco and encouraging them not to do so. All military personnel see a health-care provider, which includes seeing a dentist, at least once a year; this is an ideal opportunity to provide them with strategies to resist trying tobacco.

Finding: Ironically, the very environment that appears to be conducive for tobacco users to remain abstinent (the post–basic-training period) also appears to be conducive to tobacco initiation by never-users and experimental users.

Recommendation: Given the high rate of eventual tobacco-use initiation, the committee believes that future research in tobacco-use prevention efforts in the military should have high priority.

Finding: The committee commends the services for their bans on tobacco use during basic training.

Recommendation: The committee recommends that DoD promptly establish a timeline to extend the tobacco ban beyond entry-level enlisted and officer training programs to eventually close the pipeline of new tobacco users entering military service and to eliminate tobacco use on all US military installations.

SURVEILLANCE AND EVALUATION

Surveillance activities—the processes of monitoring tobacco-related attitudes, behaviors, and health outcomes at regular intervals—can occur at many organizational levels and serve a variety of functions. Survey instruments are one mechanism for collecting short-, intermediate-, and long-term data on process and population outcomes and eliminating disparities. The data are evaluated to provide an indication of how tobacco-control programs are operating and whether they are meeting their goals.

The 1999 strategic plan's Goal D.1 specifies that the MHS should actively identify tobacco users and provide targeted interventions. To identify tobacco users, a systematic approach is best. The strategic plan calls on DoD to "develop and monitor a centralized, Tri-Service (Army, Navy, And Air Force) reporting and surveillance system to track tobacco use" (Requirement D.1), "develop a plan to annually conduct a health risk appraisal that includes the assessment of tobacco use habits and mandates participation for active duty personnel" (Requirement D.1.3), "develop a draft policy that requires tobacco use to be documented as '5th vital sign' at all medical and dental appointment" (Requirement D.1.4), and "assess Service policies, and draft policy if necessary, to require routine screening of all beneficiaries as part of 'Put Prevention Into Practice' program, with providers using guidelines from the Agency for Health Care Policy and Research" (Requirement D.1.5). DoD and the armed services have made great strides in meeting those requirements.

DoD conducts periodic surveys to ascertain tobacco use by active-duty military personnel. The most recent one for which data are available, the 2005 DoD Survey of Health Related Behaviors Among Active Duty Military Personnel (DoD, 2006), determined the prevalence of alcohol use, tobacco use, and illicit-drug use on the basis of self-reports by 16,146 military personnel in all four services. Achievement of selected Healthy People 2010 objectives and adverse outcomes were also assessed. The TMA conducts the annual congressionally mandated Health Care Survey of Department of Defense Beneficiaries to assess user satisfaction with and access to the MHS. The healthy-behaviors section asks participants whether they have ever smoked; if so, how much; if they quit, for how long; whether they were advised by their doctors to quit; and whether their doctors or other health-care providers discussed methods and strategies (other than medication) to assist in smoking cessation. Questions on the use of medications are not included. Composite data from both surveys are publicly available. The DoD Health Plan Analysis and Evaluation staff conduct beneficiary surveys that include information on smoking and advice to quit. DoD also maintains the Medical Data Repository, which contains

information on the use of tobacco-related diagnosis and treatment codes within the MHS direct-care system.

Each armed service uses a variety of self-reported metrics to assess its tobacco-cessation programs in support of its health-promotion activities. The Navy and the Air Force use metrics to track tobacco use and cessation by service personnel. The Navy Health Promotion Wellness Tobacco Program metrics are used by staff at 32 military treatment facilities, including three medical centers, 15 naval hospitals, and 14 health and medical clinics. Metrics are submitted semiannually and cover the number of tobacco-cessation programs offered, individual and group counseling sessions held, training of facilitators, and costs for tobacco-cessation medications (Navy, 2009). NAVHOSPGLAKES Instruction 6220.7 (July 8, 2005) on tobacco-cessation services for the Great Lakes Naval Hospital includes a tobacco-cessation form to be used when a patient inquires about quitting tobacco use. The form is used to conduct followup with patients and to track success rates.

The Air Force, like the Navy, uses The National Committee for Quality Assurance's Healthcare Effectiveness Data and Information Set to assess compliance with standards of care. The Air Force has also developed a list of metrics to evaluate its tobacco-cessation programs. Those metrics, which track only active-duty personnel, include reporting of number of personnel who are tobacco users, type of product used, number of personnel making or contemplating quit attempts, attendance at cessation classes, referrals to outside resources (such as the ALA Freedom From Smoking Web-based program), number of installations funding quitlines, and number of calls to the quitlines (Kathy Green, Air Force, personal communication, July 30, 2008). The Army does not appear to use any comparable metrics.

The 1999 DoD Tobacco Use Prevention Strategic Plan has two goals that apply to the evaluation of tobacco-cessation programs. Goal D.2, that the MHS provide effective tobacco-cessation programs, is to be determined by developing an evaluation of the effectiveness of the programs. Goal E, to "continually assess best practices in the area of tobacco prevention", is to be reached by developing plans to assess prevention and early-intervention strategies and by developing and evaluating pilot programs of best prevention practices. The committee notes that each of the goals in the strategic plan has an accompanying metric or objective that helps in addressing the requirements to meet it. For example, Goal D.1, which includes identifying tobacco users, requires the development of a "centralized, Tri-Service reporting and surveillance system to track tobacco use". The metric for determining whether the goal is being met is the percentage of medical records that note tobacco-use status on forms DD2766 or AF 1480A (adult preventive-care and chronic-care flowsheets, which were in development when the strategic plan was developed).

The Army CHPPM Web site has a document, "Evaluation of Tobacco Use Cessation Efforts in the Military Health System (MHS) Direct Care System", that describes an in-depth evaluation of the tobacco-cessation efforts at installations and among the services. The evaluation assesses the types of programs; which health professionals conduct the programs; how quit rates are measured by program and tobacco-use type at 1, 6, and 12 months; which tobacco-cessation medications are used and whether they have an effect on quit rates; and how frequently tobacco-use and intervention ICD-9 and CPT-4 codes are used in the MHS. The committee understands that this evaluation has been undertaken by a DoD contractor and that results are available but cannot be released to the public, including this committee, for confidentiality reasons. A 3-page factsheet, based on the evaluation and available in the Spring 2009, reported that the MHS offers comprehensive programs for tobacco use and prevention with most military treatment facilities offering formal programs with some outreach (DoD, 2008). The committee believes that such data should be available publicly so that military personnel, retirees, families, and other interested parties can independently assess the tobacco-cessation efforts that are being undertaken by DoD and the services, identify problems with the programs, and propose solutions to the problems.

Finding: DoD and the armed services appear to track and evaluate some important tobacco-related activities, such as revenue from the sale of tobacco in commissaries and exchanges, and a variety of tobacco-cessation metrics, including number of patients asked about their tobacco use and tobacco-cessation medications prescribed. However, important information gaps exist. Those gaps include rates and types of tobacco advertising in military publications, abstinence rates for various tobacco-cessation programs, the number of policy changes that have been made in response to the 1999 DoD strategic plan, and the extent to which the policies are enforced. If such information has been collected, it is not publicly available, nor is there any indication of how the OASD(HA) or the services' surgeons general should use the information or how it informs policy and program changes by senior leaders.

Recommendation: DoD should report regularly and publicly on the performance of its tobacco-control programs, adherence to clinical-practice guidelines for tobacco-use management, and tobacco-cessation rates.

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6

DEPARTMENT OF VETERANS AFFAIRS TOBACCO-CONTROL ACTIVITIES

The Department of Veterans Affairs (VA) is responsible for providing health care and benefits to veterans and their dependents. Given the growing number of veterans leaving active military service and the recent rise in the proportion of these veterans who use tobacco, tobacco-cessation services will be an increasingly important element of VA programs. This chapter describes the services offered by VA, its structure and resources, and the population it serves with a view to identifying opportunities for improving and coordinating tobacco-control programs.

VA estimates that there are about 24 million living veterans, many of whom have served in a US military conflict. Living veterans, their spouses and dependent children, and survivors of deceased veterans make up about 20% of the US population (VA, 2008c). VA provides health care, disability compensation, pensions, assistance with education and training, home-loan assistance, life insurance, vocational rehabilitation, and burial benefits to eligible veterans. In 2007, about 7.8 million veterans were enrolled in the VA health-care system (see Chapter 2 for a description of eligibility requirements for enrollment in the system), and 5.5 million individual veterans were treated (VA, 2008d). VA's FY 2009 spending is projected to be about $93.4 billion, including $40 billion for health care, $46.9 billion for benefits, and $230 million for the national cemetery system (VA, 2009a). VA employs almost 280,000 people, the overwhelming majority of them in the Veterans Health Administration (VHA). VA's other two service organizations are the Veterans Benefits Administration and the National Cemetery Administration.

ORGANIZATIONAL OVERVIEW

In this section, the committee briefly describes the organizational structure of VA with an emphasis on identifying where responsibilities and activities related to tobacco control reside. The relevant structure includes VHA, which provides health care for veterans; the National Leadership Board (NLB, a senior advisory group); the Public Health Strategic Health Care Group (PHSHCG) in VA headquarters, which develops policies and programs related to several major public-health concerns, including tobacco; and the Veterans Integrated Service Networks (VISNs, the regional units that administer VA health facilities).

Veterans Health Administration

VHA is charged with providing medical and rehabilitation services to veterans, medical research, graduate medical education, and emergency management. The VHA mission has shifted since the 1990s from a focus on inpatient care toward outpatient care. The changing focus

has been reflected in the growth of outpatient clinics in the VA medical centers (VAMCs) and community-based outpatient clinics (CBOCs) to serve veterans who do not live near VA medical centers. VHA continues to provide long-term care for veterans in VA nursing homes and state-owned and state-operated veterans' homes and contract care in private nursing homes, home health services, and adult day care. VHA does not provide health-care services for dependents or survivors of veterans, with a few exceptions.

VHA is directed by the VA under secretary for health, who reports to the secretary for veterans affairs, a member of the Cabinet. Headquarters staff report to the principal deputy under secretary for health, as does the deputy under secretary for health for operations and management (see Figure 6-1).

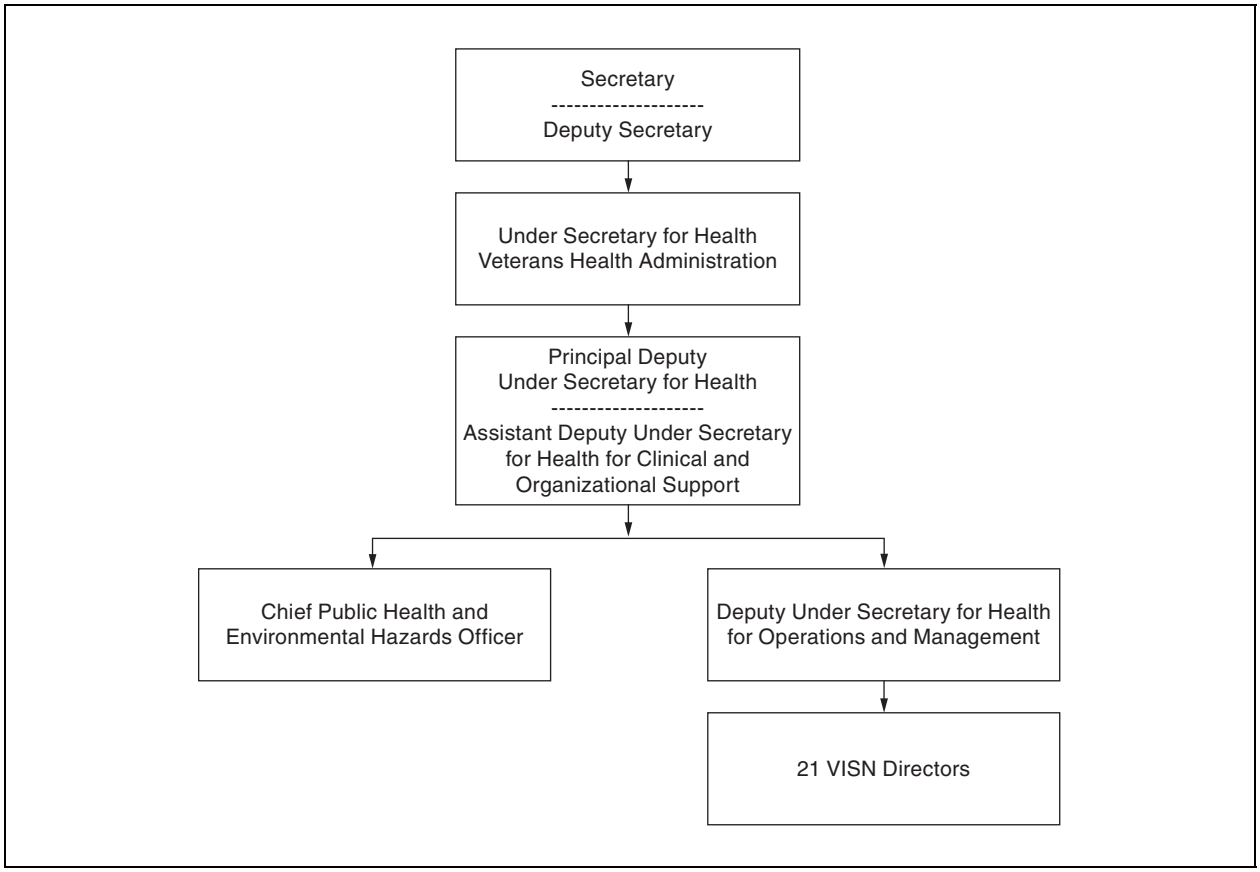

FIGURE 6-1 VA organizational chart for tobacco-control responsibilities.
SOURCE: Adapted from VA (2008a).

The VA health-care system provides direct health care, including outpatient and inpatient services. Veterans who enroll in the VA health system are assigned to one of eight priority groups (see Chapter 2, Box 2-8, for a description of the priority groups) on the basis of whether they have service-connected disabilities and on the basis of their income. Veterans who have medical conditions related directly to military service, those with lower incomes, and those who are uninsured are given higher priority than those with higher incomes or non–service-connected disabilities. Reservists and National Guard members who are called to active duty by a federal executive order may qualify for VA health-care benefits. Returning service members, including reservists and National Guard members who served on active duty in a theater of combat operations (for example, Iraq and Afghanistan), have special eligibility for hospital care, medical services, and nursing-home care for 5 years after discharge from active duty.

VHA is a discretionary program and thus relies on annual budget appropriations from Congress. The number of veterans enrolled in VA health care grew from 4.18 million in 1999 to 7.42 million in 2004, and VA's medical budget grew from about $20 billion in 1999 to about $28 billion in 2004 (Congressional Budget Office, 2005). If in a given year VA does not have sufficient funds to care for all enrollees, care is allocated to higher-priority groups first; when necessary, VA can freeze enrollment of veterans in lower-priority groups. The Congressional Budget Office notes that only a small fraction of eligible veterans are enrolled in the VA health-care system; about 20% of veterans in priority groups P7 and P8 were enrolled in 2004 (Congressional Budget Office, 2005). Many veterans are enrolled in private health-insurance programs through their employers or receive Medicare or Medicaid; some veterans have no insurance but have not enrolled in the VA system. Over 78% of enrollees have some type of public or private health insurance: 40.7% are covered by Medicare B, 25.9% by Medigap, 16.2% by a health-maintenance organization (HMO) or managed care, 11.6% by non-HMO or non–managed-care insurance, and 9.4% by Medicaid (VA, 2006). Of veterans eligible for VHA medical care as of 2004, including enrolled and nonenrolled veterans, priority groups P1, P2, P3, and P4 together made up only 13% of the total veteran population. Most veterans are in priority groups P8, P7, and P5—37%, 22%, and 24%, respectively (Congressional Budget Office, 2005).

National Leadership Board

The VHA NLB was established by VA Directive 2008-035 to serve as a forum to advise the under secretary for health regarding the department's mission, goals, and priorities. According to the directive, the NLB has "an active and extensive role in determining VHA policy, strategy, and oversight of organizational performance [and in] determining standards and measures for organizational performance, including financial performance, and ensuring that those standards and measures are met" (VA, Directive 2008-035, 2008). The NLB comprises the under secretary for health, all directors of VISNs, all chief officers, and other senior leaders.

Finding: The NLB has the authority and expertise to develop and encourage the implementation of a VA-wide tobacco-control strategic plan and to ensure that VA leadership is engaged in the success of the plan.

Public Health Strategic Health Care Group

National oversight of tobacco-use cessation and tobacco-control policy and advocacy for tobacco control resides in the PHSHCG in the Office of the Chief Public Health and Environmental Hazards Officer (see Figure 6-1). The Public Health National Prevention Program, directed by the PHSHCG, is responsible for developing and overseeing public-health policy and clinical programs in VHA related to smoking and tobacco-use cessation. In headquarters, the director of the National Prevention Program is the primary staff member working on tobacco issues. The director administers a budget that includes policy development, dissemination, and training and is also responsible for non-tobacco–related programs, such as HIV prevention.

The director of the National Prevention Program is assisted by a technical advisory group (TAG) of VA health-care practitioners from the VISNs that provides consultation and expert advice on best practices in tobacco-use cessation for veteran populations, on the health effects of tobacco use and related illness, and on new treatment services. Those practitioners represent pulmonary and critical care, primary care, preventive medicine, mental health, and substance-use treatment and are administrators, researchers, and educators, including a representative of the Pharmacy Benefits Management Strategic Health Care Group. The TAG has monthly conference calls to discuss tobacco-related issues and meets twice a year; it also can arrange emergency calls to deal with special issues, such as VA use of varenicline for patients who have mental-health disorders (Kim Hamlett-Berry, VA, personal communication, December 3, 2008). The

committee notes that the TAG does not include representatives of all 21 VISNs or every VAMC, nor are there formal mechanisms for disseminating information from the TAG to the lead clinicians in VAMCs or for the lead clinicians and other health providers to request advice from the TAG.

The PHSHCG also participates in the Interagency Committee on Smoking and Health (ICSH), sponsored by the Department of Health and Human Services (HHS) and convened by the Surgeon General. The ICSH coordinates research, educational programs, and other smoking and health efforts for HHS, in addition to similar activities of other federal, state, local, and private agencies. Other federal agencies engaged in health care—such as the several institutes of the National Institutes of Health, the Department of Education, and the Centers for Disease Control and Prevention—are also members of the ICSH.

Veterans Integrated Service Networks

In addition to VHA headquarters staff, 21 VISNs that provide health care to veterans (see Table 6-1). The VISNs include hospitals and medical centers, residential rehabilitation centers, outpatient clinics (including CBOCs), and Veterans Centers for treating posttraumatic stress disorder and other mental-health disorders. The VISN directors report to the deputy under secretary for health for operations and management. All outpatient clinics and CBOCs are affiliated with a VAMC.

TABLE 6-1 Veterans Integrated Service Networks and Numbers of Facilities[a]

VISN	Hospitals and Medical Centers	CBOCs	Other Outpatient Clinics	Veterans Centers	Other Facilities[b]
VISN 1: New England	11	18	0	21	0
VISN 2: Upstate New York	6	29	0	6	0
VISN 3: New Jersey, New York	8	28	0	12	1
VISN 4: Stars and Stripes	12	47	0	13	0
VISN 5: VA Capitol	5c	15	0	9	0
VISN 6: Mid-Atlantic	8	13	5	10	
VISN 7: Southeast	9	31	3	9	0
VISN 8: Sunshine	8c	39	8	19	2
VISN 9: Mid-South	9	30	6	11	0
VISN 10: Ohio	5	29	3	6	0
VISN 11: Partnership	8	23	22	9	0
VISN 12: Great Lakes	7	0	33	9	0
VISN 13and14: now 23					
VISN 15:Heartland	9	42	1	7	0
VISN 16: South Central	11	32	14	13	0
VISN 17:Heart of Texas	7c	18	11	9	0
VISN 18:Southwest	7	41	1	14	0
VISN 19: Rocky Mountain	6c	37	2	14	0
VISN 20: Northwest	9c	26	1	15	2
VISN 21:Sierra Pacific	8	9	26	20	0
VISN 22:Desert Pacific	5	29	5	11	1
VISN 23:Midwest	12	40	3	14	0
Total	170	576	144	251	6

[a]As of April 10, 2009.
[b]Includes domiciliaries, federal hospitals, rehabilitation facilities, posttraumatic stress disorder clinics, and care facilities.
[c]Includes at least one VA health-care system in addition to the medical centers.
SOURCE: Adapted from VA (2009b).

The VISN administrators are responsible for implementing the many policies and programs for health-care services in the hospitals and clinics in each VISN, including tobacco-use cessation. Although the VISN administrators report to the deputy under secretary for health for operations and management, they have substantial autonomy and authority for the medical services offered within their own VISNs, including tobacco control. They can be instrumental in emphasizing tobacco-cessation activities at all their medical facilities.

Virtually all the VAMCs have some form of tobacco-control program although the programs are not standardized or uniform (VA, 2006c). The agency's 2005 report *Smoking and Tobacco Use Cessation* indicated that although 99% of the facilities included in a survey had tobacco-control programs, they varied in who managed the programs, who was responsible for documenting patients' smoking status in the electronic medical records, who could prescribe medications, and whether they accommodated special populations, such as women, inpatient psychiatric patients, and hospitalized patients (VA, 2006a).

There is even greater variation among the CBOCs' tobacco-control services, although each one is affiliated with a specific VAMC. CBOCs were established in the 1990s to provide access to and continuity of care for underserved veteran populations, many of them in rural areas. They provide primary health care, and a growing number also provide primary mental-health services. CBOCs are staffed by VA employees or independent contractors engaged through an outside care provider. The quality of care provided by CBOCs, whether through VA or contract staff, has been studied extensively since their growth in the early 1990s (Borowsky et al., 2002a; Borowsky et al., 2002b; Chapko et al., 2002; Fortney et al., 2002; Kirchner et al., 2008; Liu et al., 2008; Maciejewski et al., 2007). Most of the studies have either compared the level of care provided by CBOCs with that provided by medical-center clinics or determined the types of care that CBOCs provide and the veteran populations served by them. Kirchner et al. (2008) looked at mental-health services offered at 13 VAMCs and 12 CBOCs that integrated mental-health care with primary care at a VISN in the south central United States. Tobacco-cessation services were offered in the integrated clinics at 17% of the VAMCs and 67% of the CBOCs (Kirchner et al., 2008).

TOBACCO-CONTROL PROGRAMS IN THE DEPARTMENT OF VETERANS AFFAIRS

VA has been a leader in addressing tobacco use as a health priority for veterans. For example, in 2004, it held the national conference "VA in the Vanguard: Building on Success in Smoking Cessation" which brought together about eighty tobacco experts to identify successful approaches to smoking cessation treatment and possible obstacles to their implementation. This conference helped provide a roadmap for VA policies and best practices on tobacco use with an emphasis on special veteran populations such as those with psychiatric disorders. (VA, 2004a). VHA has translated a number of evidence-based initiatives into its health-care system, including policy revisions to expand access to tobacco-cessation medications, particularly NRTs; elimination of copayments for smoking-cessation counseling, and integration of smoking cessation into care for the growing veteran mental-health population. The VA has developed training programs to educate mental-health providers on integrating tobacco cessation in the treatment of mental-health disorders (Hamlett-Berry et al., 2009; VA, 2006c), has identified clinicians at each VAMC as a resource for tobacco-cessation information, and discontinued the sale of tobacco products at its facilities. The VA has in place many elements that would enable it

to implement a comprehensive tobacco-control program, including communication networks, restrictions on tobacco use, and effective tobacco-cessation interventions.

In Chapter 4, the committee identified the key elements that are required of any organization that wants to establish a comprehensive tobacco-control program: a strategic plan, dynamic leadership; essential intervention components (enforceable and enforced policies, communication interventions, and evidence-based treatments); adequate resources; surveillance and evaluation of the program's effectiveness, and management capability to adjust the program in response to that evaluation. In this section, the committee describes VA's tobacco-control efforts and highlights the policies and programs that are in place and working well. The section also provides guidance on where important activities are lacking or where existing ones could be enhanced to improve tobacco cessation in the VA patient population and in VA employees.

The key components already in place—including many effective and enforceable policies, communication mechanisms, surveillance activities in the form of performance measures, and periodic evaluation of tobacco-control practices throughout the VISNs—can be leveraged to expand and coordinate tobacco-control activities throughout VA. The agency lacks a strategic plan, senior leadership that believes that tobacco cessation should have high public-health priority for VA, a dedicated funding source for tobacco-control activities, and innovative approaches for raising veterans' awareness of available tobacco-cessation services.

VA is ideally structured to ensure adequate capacity and collaboration at all program levels while each VISN tailors tobacco-cessation activities to local circumstances and the needs of veterans and health-care providers. VA has an advantage over private-sector health-care systems in that it is able to make institutional changes at the highest administrative levels without worrying about profits or stockholders. That does not mean that the secretary of veterans affairs or the under secretary for health can make changes without consulting their staff, the NLB, or the veterans, but they do have the ability to change policy, procedures, and the institutional culture in VA quickly and uniformly. If tobacco cessation has high priority for the secretary and the under secretary, it will have high priority for the VISNs and all the VA heath-care providers.

As noted earlier, responsibility for developing VA tobacco-control programs resides in the PHSHCG at VA headquarters, and the programs are implemented as part of the National Prevention Program. VHA Directive 2008-081,[1] dated November 26, 2008, outlines VA's National Smoking and Tobacco Use Cessation Program and lists all the necessary resources for program implementation. The directive requires that VA continue its commitment to prevention with a "strong public health educational effort on the health benefits of quitting tobacco use . . . with a strong emphasis on outreach and an increasing awareness of the availability of the full range of evidence-based smoking and tobacco use cessation treatment options in VA." The specific components of the public-health education effort are not listed, but the directive identifies the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* as a key resource. The directive advocates the tobacco-use screening and cessation counseling program given in the guidelines. In accordance with the guidelines, the directive requires that smoking-cessation medication be made available to all smokers interested in quitting regardless of whether they attend a smoking-cessation program. The directive does not elaborate on how the guidelines are to be implemented or by whom or how outcomes are to be evaluated. Nor does it encompass policy aspects of tobacco-use control, such as smoke-free policies at VA facilities, funding for the programs, or reporting requirements (VHA, Directive 2008-081, 2008).

Leadership is necessary for the medical facilities in a VISN to develop and maintain comprehensive tobacco-use cessation programs (VA, 2007a). Lead staff members necessary to support tobacco-cessation programs reside in both Headquarters and VAMCs as evidenced by the National Prevention Program; at least one part-time employee assigned to the smoking-cessation program at each VISN is also necessary (VA, 2007a). VHA Directive 2008-081 mandates that the director of each VAMC designate a smoking and tobacco-use cessation lead clinician to be the point of contact for all clinical and other communication on tobacco cessation.

[1]VHA Directive 2008-081, issued November 26, 2008, rescinded VHA Directive 2003-042.

According to the 2005 *Smoking and Tobacco Use Cessation Report*, some type of smoking-cessation program was offered at 96% of the 158 VAMCs surveyed. Although virtually all VAMCs have a lead clinician of the smoking cessation program, this position is not full-time. A 2005 survey of lead clinicians at each of 151 VAMCs that had tobacco-cessation programs found that the equivalent of only 61 full-time employees were allocated to the programs (VA, 2006b). About one-third of the 423 full-time and part-time employees of the programs had tobacco-cessation care as part of their job description; in most of the facilities, two or more part-time staff provided tobacco-cessation services. Most of the services were provided by psychologists (22%) or registered nurses (12%), but other health-care professionals also provided tobacco-cessation services, including social workers, physicians, nurse practitioners, and pharmacists. The number of staff at medical-center outpatient clinics or CBOCs who provided tobacco-use cessation services was not determined. The availability of staff at CBOCs for tobacco-use cessation services, other than prescribing medications and brief counseling, was highly variable; some CBOCs had trained staff who offered group or individual counseling on site, and others only referred patients to outside tobacco-counseling services (Timothy Carmody, VA, personal communication, July 15, 2008; Clint McSherry, VA, personal communication, July 29, 2008).

VA funds tobacco-control programs from its general public-health budget rather than as a separate budget item. Funding for tobacco control varies by VAMC, personnel available, and interest on the part of staff and patients. It is difficult for VAMC directors to justify having a staff member dedicated to tobacco-control services without a dedicated funding mechanism for a smoking-cessation lead clinician. VA health-care providers who conduct tobacco-cessation programs indicated that lack of dedicated staff and resources makes it difficult to provide services and to obtain educational materials (VA, 2007a). The National Prevention Program does have a budget for tobacco-control activities and can leverage funding from other sources, including the Employee Education System, for such activities as employee travel for training if the event for which the employee is traveling has continuing-education merit (Kim Hamlett-Berry, VA, personal communication, December 3, 2008).

VISNs and their medical facilities are required to provide many health services, such as suicide prevention and treatment for posttraumatic stress disorder (PTSD), and tobacco use is only one high-priority concern among many. Although the PHSHCG is the VA organizational lead for tobacco-use cessation programs, unless the secretary of veterans affairs and the Executive Office of the administration are actively concerned with the issue, individual VISNs are unlikely to be completely engaged in tobacco-control programs.

Finding: VA has adopted several tobacco-control policies and programs, including its National Smoking and Tobacco Use Cessation Program, but they are not comprehensive, and implementation varies among VISNs, VAMCs, and CBOCs as a result of organizational discrepancies, lack of accountability, and inadequate funding.

Finding: The infrastructure to support VA tobacco-control programs varies among VISNs and VAMCs, especially with respect to staffing and funding, and is inadequate in some geographic areas.

Recommendation: VA can develop a comprehensive tobacco-control program by expanding and coordinating its current programs under engaged leadership and clear direction.

COMMUNICATION INTERVENTIONS

VA can play a valuable role in motivating veterans to quit tobacco use by offering relevant information and treatment options. Increasing veterans' interest in and willingness to quit tobacco use requires that veterans and their families be educated about the harmful effects of tobacco and about the treatment options available to them. It also requires that health-care providers be available to provide services when veterans seek assistance. This section summarizes methods of communicating that information.

Tobacco advertising and promotions are not allowed at any VA facility or in any VA newsletter or Web site, but veterans live in the civilian population and as part of the general public are exposed to tobacco advertising. VA can counter such advertising by providing educational materials to veterans enrolled in VA health services. The committee was unable to identify any antitobacco mass-media campaigns in the VHA health-care system. It has, however, occasionally run articles about veterans who have stopped smoking or about VA tobacco-cessation programs in its on-line and print versions of veterans-health newsletters. For example, the summer 2008 edition of *Veterans' Health: The Wellness Magazine for Ohio Veterans*, from the VA Healthcare System of Ohio, featured a 71-year-old veteran who graduated from the Ohio VA's tobacco cessation program. The article profiled his tobacco-cessation attempts and success. It emphasized that although quitting tobacco is not easy, it is beneficial to one's health at any age, and professional help is available for all veterans who want to quit. Many VISNs have on-line newsletters that contain information and stories that promote VA tobacco-cessation programs.

VA has several Web sites that assist veterans in obtaining health information, such as My HealtheVet (www.myhealth.va.gov), which includes smoking and tobacco cessation as one of the featured programs under the healthy living centers section; however, it does not include tobacco use as a vital sign. Highlighting tobacco cessation on VA Web sites could motivate veterans to consider quitting and help those who are already interested in quitting to get information more easily. There are also Web sites for specific VA health-care facilities with information on tobacco cessation, but the pages are not easily accessed through the VA home page and require the user to search for individual medical facilities. For example, the Web site for the Overton Brooks VA Medical Center in Shreveport, Louisiana, outlines how its smoking-cessation program works.[1] It might be helpful to include links to such programs on the VA My HealtheVet Web site.

No formally organized group in or outside VA is actively promoting tobacco-use cessation programs on behalf of veterans. At the VA Provider Feedback Forum on Smoking and Tobacco Use Cessation (VA, 2007a), participants thought that VA should explore ways to promote tobacco cessation for veterans at VA medical facilities, including use of the My HealtheVet Web site. Suggestions for increasing participation in the programs included motivational videos in waiting rooms, audio messages for people holding on the telephone, and informational kiosks with computers that could show patients how the cessation programs work. Participants at the forum also noted that many cessation resources, including on-line resources, are available at little or no cost from the Centers for Disease Control and Prevention Office on Smoking and Health. Participants agreed that state and local health departments were important partners for referrals for quitlines and other support. In states with active tobacco-control programs for the general population, VA may be able to leverage its resources by connecting veterans with free cessation services in their communities.

VA engages veteran service organizations (VSOs) at many levels, but it is not apparent whether VSOs have been included in discussion about tobacco use by their members. The PHSHCG and individual VAMCs may want to assess whether VSO members are interested in receiving tobacco-cessation services at their local VA health-care facilities and to broadcast information about the availability of such services to the VSO members.

[1]Accessible at http://www.shreveport.va.gov/PatientEducation/QuitSmart_Main.asp. Accessed on April 9, 2009.

Finding: VHA has many options for increasing the effective use of tobacco-cessation programs among its patients, but it has not been aggressive or uniform in developing and delivering antitobacco messages to its patients via newsletters, mailings, Web sites, or other media outlets, or providing information on how to access tobacco-cessation treatments.

TOBACCO-USE RESTRICTIONS

Department of Veterans Affairs Tobacco-Free Policies

VA has worked toward a tobacco-free policy that is applicable to all its health-care facilities since 1991. However, the Veterans Health Care Act of 1992 (PL 102-585, Section 526) required VA to establish and maintain indoor smoking areas in VAMCs, nursing homes, and domiciliary-care facilities for veterans or detached smoking areas that are accessible to patients and have heating and air-conditioning. Several VA circulars and directives specify who may use the smoking areas, but they vary to some degree by facility. VHA Directive 2008-052, *Smoke-Free Policy for VA Health Care Facilities*, issued in August 2008, states that all VA health-care facilities are to be smoke-free and restricts required smoking areas to detached buildings that must be accessible, heated, and air-conditioned and meet Joint Commission (formerly Joint Commission on the Accreditation of Healthcare Organizations) requirements for ventilation. All acute-care patients, ambulatory-care patients, outpatients, and domiciliary patients must use the detached smoking areas. Smoking may be allowed on the grounds of a facility, but smoking areas may not be situated within 35 ft of any facility entrance that is routinely used by staff or patients. Smoking areas for VA employees should be separate from those for patients. Specifically designated indoor smoking areas are still maintained at some long-term care and mental-health program facilities, and they must have a ventilation system that meets American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 62-2001. All remaining indoor smoking areas in long-term-care, spinal-care injury, and inpatient psychiatric facilities were to be phased out by February 2009, provided that appropriate outdoor areas were made available. The directive also prohibits sale or distribution of tobacco products to long-term-care patients, inpatients, residents, employees, staff, and volunteers, and on VHA grounds. Finally, the VHA directive states that nicotine-replacement therapies (NRTs) should be used by inpatients to prevent nicotine withdrawal unless medically contraindicated (VHA, Directive 2008-052, 2008).

According to the 2005 *Smoking and Tobacco Use Cessation Report* on tobacco use practices at 158 VA hospital facilities (VA, 2006a), 51 VA facilities provide 134 smoking shelters for patients only, 41 facilities provide 76 shelters for employees only, and 137 facilities provide 573 shelters for use by both patients and employees, with some facilities providing up to 32 shelters for combined use by patients and employees. Almost all (91%) the VHA facilities indicated that patients and employees smoke in the same designated smoking areas. Of the 158 facilities surveyed, 77% are smoke-free indoors; 23% (36, such as long-term-care inpatient areas, locked psychiatry wards, resident rooms, and nursing-home units) permit some indoor smoking; and 94% have separate ventilation systems. Almost half the facilities allow smoking only in designated areas; the rest allow smoking outside a specified distance from buildings. VHA Circular 10-90-141 (November 23, 1990) prohibits employees from using indoor smoking areas intended for patients, so they must smoke outside.

Finding: VA has worked to develop and implement tobacco-free medical facilities; however, it has been hampered in its efforts by congressional mandates that require each VAMC to maintain a smoking area for veterans. The language of the Veterans Health Care Act of 1992 prevents VA from eliminating tobacco use at its

medical facilities and thus prevents VA from following the national trend toward tobacco-free facilities, in which it was initially a leader. VA does not sell tobacco products at its medical facilities.

Tobacco Use by Department of Veterans Affairs Employees

The committee was unable to determine how many VA employees use tobacco. However, more health providers at a primarily psychiatric VA hospital were smokers (30%) (Essenmacher et al., 2009) than were providers at a general VA hospital (11%) (Duffy et al., 2008). This suggests that VA tobacco-cessation programs should include both employees and veterans.

In keeping with general VHA policy favoring tobacco abstinence, VHA facilities have taken steps to help their employees who want to quit tobacco use. The majority of VAMCs provide outdoor smoking areas for employees; many of them have three to 10 employee shelters. However, at 91% of the VAMCs, patients and staff use the same smoking shelters (VA, 2006a). The 2008 VHA Directive 2008-052 requires that, whenever possible, patients and staff have separate smoking areas and that VAMC directors work toward a goal of having a single smoking area for patients and a single one for staff.

Most VAMCs (65%) offer tobacco-cessation services for employees who are not veterans, and 85% of VAMCs refer employees to VA tobacco-cessation programs. Of facilities that offer employee tobacco-cessation programs, 84% allow staff to participate in them during work hours (VA, 2006a). Staff members who are not veterans cannot receive NRTs from the VA pharmacy, but some facilities offer NRTs to employees at reduced cost. It has been suggested that VA facilities provide a break room for nonsmoking employees to counteract the perception that smokers are permitted more breaks (VA, 2007a).

VA employees and contracted professionals perform ordinary functions that do not require the unique standard of physical fitness needed for military action. Therefore, it would be difficult to justify a policy that requires abstinence from tobacco use for VA personnel beyond the requirement not to smoke on VA premises or in the same areas as patients. Although there are few legal restrictions on adopting such a policy, it has the disadvantage of necessarily applying to many personal traits and behaviors beyond tobacco use, such as weight management. If VA were to require its employees to be nonsmokers, several principles might be available for justifying the use of smoking as a disqualification for employment: anything that adversely affects a person's health also adversely affects the person's ability to work; employers have the right to refuse to hire anyone who might increase costs to the employer regardless of the probability or amount of such cost increases; employers have the right to require their employees to behave in their private lives so as to promote the interests of the employer; and employers have the right to refuse to hire anyone for any reason or no reason regardless of ability. If VA adopts any of those principles, it could encourage similar policies by other public agencies and private organizations that are seeking to exclude employees for reasons other than tobacco use.

Finding: Many VAMC facilities have multiple smoking areas for both veterans and employees although this may change in response to a new VHA directive. Most VAMCs have taken steps to offer tobacco-use cessation services to interested employees, but such services are not available in all VA facilities.

Recommendation: VA patients and staff should have barrier-free access to tobacco-cessation services if they use tobacco.

TOBACCO-CONTROL INTERVENTIONS

The VHA is a full-service health-care system that provides treatment for medical and mental-health conditions in inpatient and outpatient facilities. Tobacco-use cessation is one of the services offered to both inpatients and outpatients. After leaving active duty, veterans who participated in tobacco-cessation programs while on active duty in the military and want to continue in such programs must find new ones when they enter the VHA health-care system. DoD and VHA health services are distinct, both jurisdictionally and geographically, so there is a lack of continuity between military and VA services that may interrupt or end a new veteran's efforts to quit tobacco use. Evidence-based treatments can be offered by DoD and VA to help to bridge the gap in health-care service. In this section, the committee discusses the treatments currently offered by VA and identifies treatments that VA could add to develop a more comprehensive program.

Evidence-Based Interventions

The gold standard in VA for tobacco-cessation treatment is the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use*. The guideline, published in 2004, is modeled on the 2000 *Treating Tobacco Use and Dependence: Clinical Practice Guideline* (Fiore et al. 2000) sponsored by the Public Health Service (PHS). In VA's 2005 *Smoking and Tobacco Use Cessation* report, 51% of the 158 VAMCs in the survey used the VA/DoD clinical-practice guideline often (76–99% of the time), 24% used them always, and only 1% never used them; 1% of the VAMCs reported not knowing about them. Most often, a nurse is responsible for assessing a patient's tobacco use, and a primary-care provider is able to provide smoking-cessation treatment, whether brief counseling, telephone counseling, or medications. The VA/DoD guideline presents evidence-based recommendations for assessment and treatment of veterans and prevention of tobacco use and includes several appendixes that provide specific information on counseling strategies and techniques, medications, and relapse prevention.

Behavioral Interventions

VA appears to offer a broad array of tobacco-cessation counseling interventions to patients, but there is little information on their effectiveness in veterans as a separate population. As with tobacco users in the MHS (see Chapter 5), for veterans who are tobacco users the VA/DoD guideline advocate the 5 A's and recommend intensive counseling of at least four sessions of 10 min each (VA/DoD, 2004). A variety of counseling formats are effective, including group and individual counseling in person and individual counseling over the telephone. Self-help materials may also be appropriate for patients who receive brief counseling or might be motivated to quit or as a supplement to other interventions.

Participants in the 2007 *Provider Feedback Forum on Smoking and Tobacco Cessation* report stated that in addition to providing pharmacotherapeutic interventions for veterans who use tobacco, it would be advantageous to provide more behavioral counseling to improve long-term outcomes, particularly therapy that would address stress management and other coping skills to prevent relapse. Motivational interviewing and the use of incentives were also suggested as adjunct interventions. Some participants suggested that behavioral interventions should be incorporated into other behavioral programs, such as those for weight loss, stress management, and substance-abuse treatment (VA, 2007a).

Tobacco-Cessation Medications

The VA National Formulary provides many of the tobacco-cessation medications approved by the Food and Drug Administration (FDA), including varenicline; however, it does not include nicotine nasal spray or nicotine inhaler, because these are rarely used by the VA

population (Michael Valentino, VA, presentation to committee, June 2, 2008). Nevertheless, participants in the 2007 Provider Feedback Forum cited a lack of uniformity among and within VISNs with regard to policies related to access to NRTs. Although NRTs are available as over-the-counter medications in non-VA pharmacies, for a veteran to receive them free of charge from VA the medications must be prescribed by a VA health-care provider and the prescriptions must be filled at a VA pharmacy. Forum participants noted that it could take considerable effort for health-care providers without prescribing privileges to obtain an NRT prescription for a patient (VA, 2007a).

Although the 2003 National Smoking and Tobacco Use Cessation Program stated that tobacco-cessation medications must be available for all patients regardless of whether they attend a tobacco-cessation program, the 2005 *Smoking and Tobacco Use Cessation Report* suggested that some VAMCs were still restricting patients' access to NRTs and bupropion (VA, 2006b). Of the 104 VAMCs responding, 23% indicated that a patient must be in a tobacco-cessation program to receive NRTs or bupropion, in spite of a VA policy that tobacco-cessation medications must be available to all patients regardless of whether they participate in a tobacco-cessation program. Lack of adherence to the VA policy is a barrier to ensuring that veterans have easy access to tobacco-cessation medications. Virtually all the VAMCs have the nicotine patch on their center's formulary, and over 73% of them have the nicotine patch, bupropion, and bupropion SR available at their pharmacies; fewer than 10% of the pharmacies had other NRTs available (VA, 2006b). Participants in the Provider Feedback Forum indicated that special drug requests are required for NRTs at some VISNs and obtaining combination therapies, such as multiple NRTs or NRTs with another tobacco-cessation medication, is challenging (VA, 2007a).

The use of varenicline is of concern to VA because of recent adverse reactions to it in veterans. The PHSHCG Web site has a posting for the latest FDA public-health advisory on varenicline[1] (dated February 1, 2009), and VA follows the FDA recommendations on its use. It is not a first-line medication in the VA National Formulary, and its use is restricted until a patient has failed to quit tobacco by using NRTs and bupropion. The Provider Feedback Forum found that most patients were receptive to using varenicline, but a nonformulary request was required to prescribe it, although this practice may have changed. It was also noted that many VA pharmacies were not following National Formulary guidelines for varenicline, and this was preventing patients from receiving it. Another concern was that the VA National Formulary does not include the varenicline starter pack, thus ensuring that the patient is receiving the correct dosage is problematic (VA, 2007a).

The committee considers the requirement that veterans have a prescription for over-the-counter NRTs and that these prescriptions be filled at VA pharmacies to be a barrier to access for veterans. Another barrier is that all VA pharmacies do not have all tobacco-cessation medications available that are listed on the VA National Formulary.

Combined Behavioral Interventions and Medication

The VA/DoD guideline echoes the 2000 PHS guideline by advocating a combination of behavioral interventions with tobacco-cessation medications to achieve long-term abstinence. Combinations of medications, such as NRTs and bupropion, may also be used (VA/DoD, 2004).

Most VAMCs that offer tobacco-cessation programs provide both behavioral therapy (group or individual) and medications. Almost every VAMC in the 2005 Smoking and Tobacco Use Cessation Survey indicated that medications are a part of treatment, and 82% of 151 VAMCs indicated that even if a patient chooses not to attend a tobacco-cessation program, he or she can still obtain tobacco-cessation medications. Of the VAMCs in the survey, 39% limit the number of tobacco-cessation treatments—behavioral or medication—that a patient may receive in a year to two (VA, 2006a).

[1]U.S. Food and Drug Administration, May 16, 2008. *Public Health Advisory: Important Information on Chantix (varenicline)*. Online at: http://www.fda.gov/CDER/Drug/advisory/varenicline.htm. Accessed April 9, 2009.

Other Individual Interventions

The VA/DoD guideline finds that there is insufficient evidence to advocate the use of other tobacco-cessation interventions, such as acupuncture and hypnosis, although VA has conducted studies of hypnosis (Carmody et al., 2008) and the use of financial incentives (Volpp et al., 2006) for tobacco cessation. However, as noted in Chapter 4, the evidence base on the effectiveness of those treatments for long-term tobacco cessation in the general population and in veteran populations is unclear.

Finding: VA has a long history of attempting to reduce smoking by veterans and has been responsible for numerous scientific advances regarding the health effects of smoking.

Finding: VA offers a wide array of tobacco-cessation treatments, including all medications approved by FDA and behavioral counseling. However, the availability of the treatments is not uniform among facilities and lack of availability may discourage or prevent patients from seeking or obtaining treatment and health-care providers from prescribing them or referring patients to a tobacco-cessation program.

Recommendation: With the release of the updated 2008 PHS *Clinical Practice Guideline for Treating Tobacco Use and Dependence* in 2008, VA and DoD should revise their current guideline or adopt the 2008 PHS guideline.

DELIVERY OF INTERVENTIONS

There is no requirement that all VISNs use a standard tobacco-cessation program, such as that of the American Cancer Society or the American Lung Association or the commercially available QuitSmart™, although many of them do so. See Box 6-2 for some examples of tobacco-cessation programs used by VA. The committee was unable to determine which standardized tobacco-cessation programs are used by VA medical facilities and whether there is any mechanism for determining which are most effective for veteran populations. All VA medical facilities must offer some type of tobacco-cessation program even if it is only a brief counseling session with a clinician during an office visit and a prescription for medications. Many of the smaller outpatient clinics and CBOCs that do not have staff available or trained to run tobacco-cessation programs cannot offer more than brief counseling and prescriptions, and refer veterans to local health departments or state quitlines for more intensive counseling (Timothy Carmody, VA, personal communication, July 15, 2008; Clint McSherry, VA, personal communication, July 29, 2008; Jean Beckham, VA, personal communication, July 18, 2008). The disconnect between receiving tobacco-cessation counseling outside VA and for receiving tobacco-cessation medications from VA makes it difficult for clinicians to follow up and assist patients, and may pose a barrier for veterans seeking treatment for tobacco use.

BOX 6-1 Tobacco-Cessation Programs Used by VA

- Forever Free™ was designed to help prevent relapse—to help former smokers remain smoke-free for life. Booklets are written at an easy-to-read level (5th–6th grade). The new *Forever Free for Baby and Me*™ program was written for pregnant women and new mothers. (From the Tobacco Research and Intervention Program at the H. Lee Moffitt Cancer Center and Research Institute at the University of South Florida; accessed at http://www.smokefree.gov/pdf.html.)
- QuitSmart™ Quit Smoking Program is a commercial four-session program that complements behavior-modification techniques with the latest nicotine-replacement strategies. Counselors can be certified to teach the program. (Accessed at http://www.quitsmart.com/.)
- American Cancer Society's FreshStart Program (see Chapter 4 for brief program description).
- American Lung Association's Freedom from Smoking Program (see Chapter 4 for brief program description).

Clinical Settings

Of the VAMC tobacco-cessation programs, 53% are in the mental-health divisions, 22% in primary care, 9% in psychology, and 16% in other medical services (VA, 2006a). The 2006 VA survey found that over half the programs offered individual counseling, with 60% of the patients received three or more sessions. Only about 20% of the programs offered more than three individual sessions. Most sessions were 10–30 min long. The overwhelming majority (93%) of the programs offered group counseling, most being four or more sessions of 30–60 min, although many of the programs (46%) had sessions longer than an hour (VA, 2006b). Although the committee has no information on how often such counseling programs are offered, it notes that should veterans not be able to attend a program once they have decided to quit, the lack of access to a program may prove to be a barrier to their quit attempts.

The Guideline Implementation for Tobacco (GIFT) study (Joseph et al., 2004) and the Quality Improvement Trial for Smoking Cessation (QUITS) study (Sherman et al., 2006b) reported that for many veterans referred to a specialty smoking-cessation clinic, the wait for an appointment is a month or longer at most of the facilities. In their chapter in *VA in the Vanguard: Building on Success in Smoking Cessation*, Sherman and Farmer (2004) note that many patients may forgo using tobacco-cessation medications because of long waits to have the VA pharmacy fill their prescriptions. Again, the committee notes that a lengthy wait for a counseling session may pose a barrier to veterans' accessing a tobacco-cessation program. Not all cessation programs require that the veteran be referred to it by a health-care provider; veterans may self-refer (VA, 2006a).

The 2005 Smoking and Tobacco Use Cessation Survey found that 13% of the VAMCs in the survey use telemedicine to deliver tobacco-cessation services to their patients (VA, 2006a, 2006b). VA is working to expand its use of telemedicine for this and other health programs, but most clinics are not yet able to provide such services (Timothy Carmody, VA, personal communication, July 15, 2008) and the effectiveness of this approach is unknown.

Primary-Care Providers

In most VAMC primary-care clinics, nurses or physicians are responsible for assessing a patient's tobacco-use status (Sherman et al., 2006a; VA, 2006a). According to the 2005 *Smoking and Tobacco Use Cessation Report*, 96% of primary-care providers are able to provide tobacco-cessation counseling to patients, and 89% are authorized to prescribe tobacco-cessation

medications. Similar results were seen in two studies of 40 VHA medical facilities—including VAMCs, ambulatory-care clinics, and CBOCs—around the country: the GIFT study (Joseph et al., 2004), and the QUITS study (Sherman et al., 2006b). Both GIFT and QUITS found that most facilities referred tobacco-using patients to specialty tobacco-cessation clinics; only nine of the 151 facilities allowed primary-care providers to prescribe tobacco-cessation medications without restrictions, and six required clinicians to have specific training before they could prescribe the medications. The inability of all VA primary-care providers to provide tobacco-cessation medications may dissuade veterans from obtaining such medications, possibly reducing their incentive to quit tobacco and forming a barrier to their receiving treatment.

Many VAMCs have policies on who may prescribe tobacco-cessation medications. A few require a physician's prescription, but most permit physician assistants and nurse practitioners to prescribe the medications (VA, 2006a). Participants in the Provider Feedback Forum suggested that a variety of health-care providers, not only primary-care providers, should be able to write prescriptions for tobacco-cessation medications, particularly NRTs, which are available over the counter outside VA. Removing this barrier to treatment could increase patient use of the medications (VA, 2007a).

Primary-care providers' attitudes about tobacco cessation are strongly associated with the likelihood that they will counsel patients to quit tobacco use or refer them to a tobacco-cessation program; VA providers who perceived barriers to such counseling and referrals were less likely to use them (Meredith et al., 2005). The availability of an on-call tobacco-cessation counselor who can provide immediate counseling, referral to a smoking-cessation clinic, medication management, and telephone followup for 2 months was effective in increasing the number of patients who were referred to and attended the clinics and who received tobacco-cessation medications (Sherman et al., 2007).

Nurses

Nurses play a key role in managing and encouraging tobacco cessation in VA patients. In VA primary-care clinics, nurses are responsible for assessing patients' tobacco-use status 91% of the time. Duffy et al. (2008) assessed the attitudes and effectiveness of hospital nurses in delivering tobacco-cessation interventions to inpatients at a VAMC. Although most of the patients indicated that they were interested in quitting and were already limited in their access to tobacco—and in many cases had already quit temporarily and thus may have already experienced the worst of their withdrawal symptoms—only about 17% of them received tobacco-cessation interventions during their hospital stays. Fewer than half the nurses surveyed said that they provided such services, primarily because of a lack of confidence, lack of training in tobacco-cessation counseling, and a perception that such advice might upset the patient (Duffy et al., 2008). Essenmacher et al. (2009) found similar results in 150 clinical and nonclinical staff surveyed at a primarily psychiatric VA hospital. Lack of time to provide such services was also an important disincentive. Nurses were less likely than other health providers to feel that it was important to provide smoking-cessation services regardless of their own tobacco-use status. More of the health providers smoked at this psychiatric hospital (30%) than at a general VA hospital surveyed by Duffy et al. (11%). Over half the nurses at the psychiatric hospital felt comfortable in providing smoking-cessation services regardless of their smoking status (Essenmacher et al., 2009).

Other Health-Care Providers

VA has assessed the effectiveness of a pharmacist-managed tobacco-cessation program known as "Vets without Cigarettes", at a VA CBOC in Montana. Patients are referred to the program by their health-care providers, at which point they are added to the program roster. When the next class is offered, pharmacists invite up to 15 veterans to attend three sessions, one every 2 weeks. Participants receive medications from the pharmacy through the mail. Quit dates are typically set for shortly after the second session. The counseling sessions include behavioral

strategies, cognitive techniques, stress management, and relapse prevention. In a followup survey of 87.8% of the program participants 6 months to 4 years after they attended the program, 41.5% of participants self-reported that they were abstinent; abstinence rates decreased with longer followup (Dent et al., 2004).

Finding: Many VA health-care providers are in a position to counsel patients about tobacco cessation, but many of them do not take the opportunity to do so, because of lack of time and training. Restrictions on who is able to prescribe tobacco-cessation medications in a primary-care clinic may also limit patients' access to the medications. Several VA studies suggest that health-care providers, such as hospital nurses and pharmacists, might be good resources for tobacco-cessation counseling in the context of a well-managed program.

Finding: Services available to veterans appear to be limited by VA resources rather than by veterans' needs or wishes.

Recommendation: All VA primary-care health providers should be able to provide brief counseling and prescribe tobacco-cessation medications. NRTs should be available without a prescription.

Quitlines

Telephone quitlines are widely used by VA because they are cost-effective and convenient mechanisms for engaging veterans in tobacco-use cessation programs (Joseph and An, 2004). Although some VA facilities have their own quitlines, most refer veterans interested in quitting tobacco either to the federal service offered by the National Cancer Institute (NCI, 1-800-QUIT-NOW) that serves as a portal to state quitlines or directly to their states' quitlines. Veterans can also be referred to the NCI toll-free quitline (1-877-44U-QUIT) to speak with a smoking-cessation counselor. VA does not have a national tobacco quitline dedicated to assisting veterans.

In 2005, over half the 158 VAMCs offered smoking-cessation treatment by telephone (VA, 2006a). Of those that did, 50% provided telephone care as part of their tobacco-cessation programs, 75% provided it for those unable to attend the regular programs, 13% had their own formal telephone counseling programs, and 49% used telephone counseling for followup calls. Referral to an external telephone counseling program was used by 29% of the VAMCs that had telephone care. For veterans that received only telephone counseling, 66% of the VAMCs provided smoking-cessation medications.

VA has conducted several demonstration programs for telephone counseling for tobacco-use and smoking cessation for veterans with trained VA counselors or external quitlines. The first program was TELESTOP, conducted at five VAMCs in the upper Midwest, which compared telephone care with usual care (mailed self-help materials and access to referral-based tobacco-cessation programs and medications). Telephone care consisted of seven calls by trained VA counselors over 2 months for up to three quit attempts in a year; counselors encouraged the use of tobacco-cessation medications, initially the nicotine patch. Telephone care resulted in higher participation in the counseling program, greater use of smoking-cessation medications, and higher 12-month abstinence rates than usual care (13% vs 4%) (An et al., 2006).

In the later TeleQuit study, two California VISNs participated in a randomized trial to determine the efficacy of proactive quitlines and computerized referrals (Sherman et al., 2008). Intervention sites had a two-click computerized referral, care coordination, medications, and five followup telephone calls. Control sites provided standard care. Health-care providers (physicians, physician's assistants, or nurse practitioners) at the intervention sites had only to click on two boxes in a patient's electronic medical record to refer him or her to the program. Of

the 2,965 referred, 1,345 were connected to the proactive California Smokers' Helpline. At 6-month followup, 11% of all the referred and 25% of the helpline veterans were abstinent. Providers at the sites with computerized referral were more likely to refer patients to telephone counseling than those at the control sites (15.6 vs 0.7 referrals in the prior month). Further assessment of the program at 35 VA facilities compared proactive and reactive quitlines. All veteran smokers received brief counseling and referral to a tobacco-cessation program; medications and self-help materials were also available (Sherman et al., 2008).

Patients also received multisession counseling from the California Smokers' Helpline or self-help materials (Joseph and An, 2004). Patients contacted proactively and those receiving only self-help materials were more likely to enroll in the proactive program than those who were referred to the reactive quitline or who were Helpline patients. At 6-month followup, abstinence rates did not vary substantially among the four groups: reactive self-help, 15%; proactive quitline, 20%; reactive quitline, 22%; and proactive quitline, 25%. However, because of the greater reach of proactive quitlines and self-help materials, their potential impact is larger. It was estimated that the veterans using the California Smokers' Helpline as part of TeleQuit made up 8% of the total quitline volume (Joseph and An, 2004).

Quitlines are effective in increasing tobacco cessation in veterans. When VA refers veterans to state quitlines, it avoids the costs of providing such a service itself. However, the state quitlines are not tailored specifically to veterans, particularly those who may be suffering from comorbid mental-health disorders, such as PTSD. Furthermore, veterans must be registered with and attend a VA medical facility to receive a prescription for tobacco-cessation medication. Most state quitlines do not provide tobacco-cessation medications, thus requiring veterans to seek assistance from the VA for medications. Whether the quitlines would be more effective if staffed by counselors specifically trained to deal with veterans and offering tobacco-cessation medication is unknown (Joseph and An, 2004), but the committee considers that such a quitline could be tested in a pilot program to determine if veterans found it helpful and if it increased tobacco abstinence. The committee is concerned that veterans receiving health care through VA may prefer to receive tobacco-cessation services from VA rather than from a state quitline or a counseling service that puts them outside the VA health-care system. Moreover, if state quitlines determine eligibility for their services on the basis of income (such as a means test), veterans may not be able to obtain state services. VA is beginning a study to look at the effectiveness of a quitline designed specifically for veterans with mental health disorders (Scott Sherman, VA, personal communication, January 7, 2009).

In an example of leveraging resources to address tobacco use in veterans, the Massachusetts Department of Public Health and the Massachusetts Department of Veterans' Services jointly launched a free 8-month program in November 2008 to encourage veterans to quit smoking. Veterans and their families are asked to call the state 1-800-TRY-TO-QUIT line. After a simple medical screening over the telephone, eligible veterans receive tailored counseling over the telephone, a free 4-week supply of nicotine patches, and a Quit Kit with tips on quitting and informational resources. The goal is to combine nicotine-patch therapy with counseling and support from trained specialists to maximize the chances of quitting for this high-risk population. Because the program is new, outcomes are not yet available (Massachussetts Department of Veterans' Services, 2008).

Finding: VA has conducted several short-term quitline demonstration projects that have shown that referring veterans to quitlines, particularly proactive ones with multiple counseling sessions, is more effective than usual care in promoting tobacco cessation. Some VA facilities rely on external quitlines that disconnect veterans from the VHA for tobacco-cessation treatment and may not be available to all veterans who seek treatment. VA has not established a national quitline that is dedicated to veterans, nor has it worked with state quitlines to train counselors to meet the specific needs of veterans.

Recommendation: The VA should develop and test a national quitline for veterans and their dependents. Quitline counselors should be able to provide free tobacco-cessation medications, at the very least NRTs, to callers.

Computer-Based Interventions

VA has experimented with the use of computer-based tobacco-cessation programs. Lenert et al. (2003) conducted a pilot study of an 8-week on-line course for tobacco cessation that combined tools for self-monitoring behaviors with computer-tailored e-mails timed for each veteran's quit stage. Results showed that most participants completed only two of the eight education modules, but there appeared to be some success in reducing tobacco use.

VA has established a computer-based program for weight management, MOVE!, that might be used as a prototype for a tobacco-cessation program. MOVE!—Managing Obesity/Overweight for Veterans Everywhere is part of the HealthierUS Veterans program sponsored by VA and HHS to reduce obesity and diabetes by helping veterans to lose weight and keep it off. Those goals are similar to the goals of a tobacco-cessation program. The VA secretary and under secretary for health have promoted the weight-management program. The MOVE! Web site is easily accessed from the VA home page[1] and contains information for veterans and health professionals. The program can be individualized to each veteran: on the basis of their responses to a questionnaire, the program produces a report with a list of downloadable MOVE! handouts (containing information on nutrition, physical activity, and healthy behavior change); health professionals can also access the veterans' questionnaires to discuss weight loss with them during a clinic visit. A short video viewable on the site explains and motivates veterans to join the free program.

The My HealtheVet Web site is also a resource for information on smoking and tobacco-use cessation (accessible at www.myhealth.va.gov). The site provides information on self-management for tobacco cessation, but VA does not include tobacco use as one of its vital signs for veterans who may use the site to track their health.

Finding: VA runs a computer-based intervention for weight management that could be used as a model for developing an on-line tobacco-cessation program for veterans who cannot attend programs at VA clinics, who prefer to work at their own pace, or who may need long-term support with quitting. The effectiveness of the MOVE! program, however, has not been evaluated.

Recommendation: VA should explore developing its own computer-based program, similar to the MOVE! program if that program is found to be effective, that is tailored to veterans' particular concerns. Alternatively, the VA could contract with a commercial vendor to develop and implement such a program.

Provider Education and Awareness

Many veterans who are interested in quitting tobacco may not do so without motivation and help from a health-care provider. To provide such motivation and assistance, a veteran's health-care provider must be both knowledgeable about how to help patients quit tobacco and be consistent and comfortable in providing advice and referrals. Each VAMC has a smoking-cessation lead clinician trained in tobacco-cessation services, but, as was shown in the 2005 Smoking and Tobacco Use Cessation Survey, no VAMC has a full-time staff member dedicated solely to tobacco cessation (VA, 2006b).

[1]Accessible at: http://www.move.va.gov/Default.asp.

Some VAMCs have modified their electronic medical-record system to include reminders to assist clinicians in approaching patients and identifying available treatment options. The computer screens include premade order sets that a clinician can use to generate a prescription for nicotine patches, nicotine gum, or bupropion; they also have reminders that automatically schedule telephone followup at 2 weeks and 3 months and that print out patient-education materials. The reminders include a hyperlink to the VA/DoD clinical-practice guideline for additional information (Scott Sherman, VA, personal communication, September 25, 2008). Responses to the electronic prompts can provide a useful metric to determine compliance with performance measures. However, although the VA/DoD clinical-practice guideline describes evidence-based treatments and the electronic medical record prompts health-care providers to ask patients about their tobacco-use status, providers will not necessarily follow the guidelines or respond to the prompts. As in any health-care organization, there are many reasons for that; the most important is lack of time to provide patients with advice.

As a result of the broad array of training materials that can be used by VA for tobacco cessation, it was suggested by participants in the Provider Feedback Forum that the PHSHCG review the materials for quality and inform VISN staff about the best resources. Participants also suggested that tobacco-cessation providers be certified and that the PHSHCG take the lead in identifying a certification program, such as that offered by the Mayo Clinic or the University of Pittsburgh School of Pharmacy, or designing one of its own (VA, 2007a). The QuitSmart program used by some VAMCs requires certification of its program counselors.

Interventions that include VA provider education have mixed results. A 90-min education session for primary-care providers resulted in increases in advising smokers to quit, in assisting them in quitting (with treatment or referral), and in arranging followup (Andrews et al., 2001). Having an on-call counselor perform monthly educational visits to VA primary-care providers and adding small financial incentives for the providers increased patient referrals for brief counseling, medications, and referral to a smoking-cessation program, but the rate of referrals was not sustained at 6 months (Sherman et al., 2007). Yano et al. (2008) found that quality-improvement plans for primary-care providers resulted in improved patient attendance at cessation clinics but no increase in cessation rates (Yano et al., 2008).

The GIFT study of a multicomponent intervention (Joseph et al., 2004) showed that train-the-trainer education for two staff members at each VAMC and removal of restrictions on prescribing of tobacco-cessation medications resulted in a slight increase in the number of patients being asked their tobacco-use status and an increase in documentation of that status; however, it had no effect on the number of patients being counseled to quit or receiving medications. VA has also conducted train-the-trainer programs, such as its Preceptor Training Program, that have been effective in increasing tobacco-cessation awareness among VA mental-health care providers. The Preceptor Training Program trained over 160 preceptors representing all 21 VISNs in an integrated-care approach to incorporate tobacco-cessation treatments into mental-health treatment. Trainers monitored preceptors' progress at their medical facilities; preceptors were assisted in overcoming barriers to change through "best practices" information, site progress reports, consultations with peers and mentors during regular conference calls, and dissemination of patient-health promotion materials and provider-education videos, print materials, and Web-based materials (VA, 2006c).

Staff members are needed to obtain and disseminate educational materials for other staff and patients. Moreover, all staff should be knowledgeable about discussing tobacco use with their patients and making any necessary referrals for additional services; this may include referrals to community resources for veterans' dependents who use tobacco. Lack of dedicated staff to conduct those tobacco-cessation activities is a barrier to improved tobacco-cessation treatment (VA, 2007a).

Finding: VA has instituted many provider-education programs that have been effective in raising awareness of the need for tobacco-cessation services for veterans. However, the programs may not be reaching all primary-care providers

or other health professionals serving veterans. The use of reminders and prompts in patient medical records for tobacco-cessation counseling, referrals, and prescribing is one way in which VA has made innovative and effective advances.

Recommendation: The committee recommends that all VA health-care providers receive training in tobacco-cessation interventions.

SPECIAL POPULATIONS

The VA health system provides care for a number of populations that may require special attention for tobacco-cessation treatment, including veterans with mental-health disorders, those with medical comorbidities, smokeless-tobacco users, women veterans (whose numbers are increasing), and veterans who are inpatients in hospitals, nursing homes, and psychiatric residences. As described in Chapter 2, VA serves a veteran population that tends to be older, less healthy, and of lower socioeconomic status than the general population. Reducing tobacco use in those populations poses a challenge to VA.

The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* addresses tobacco cessation in several special populations that are treated by VA, including pregnant women, hospitalized patients, older patients, and psychiatric and mental-health patients. The guideline encourages health-care providers to advise all those patients to quit and to offer tobacco-cessation treatment. Additional recommendations on treating those patients refer to the population as a whole (including the general population, the military, and veterans); there are no modified recommendations for dealing with veterans in particular (VA/DoD, 2004).

Veterans with Mental-Health Disorders

VA provided mental-health care to an estimated 800,000 veterans in 2003 at a cost of more than $2 billion (Ziedonis et al., 2004). It is estimated that 25–40% of veterans in the VA health-care system have a mental illness; diagnoses range from mild depression to severe forms of psychiatric illnesses. Those veterans smoke at nearly twice the rate of people without mental-health disorders, and they smoke more heavily (VA, 2006c). VA is situated to care for veterans returning from the conflicts in Iraq and Afghanistan, one-third of whom are estimated to have a mental-health disorder; smoking is reported to have increased by 50% in those deployed veterans (Smith et al. 2008). Many of them also have diagnoses of more than one psychiatric disorder.

VA is an acknowledged leader in research in the diagnosis and treatment of mental-health disorders, such as PTSD. It has worked to improve tobacco-cessation services for those with mental illness. As described above, VA established a Preceptor Training Program to integrate tobacco-cessation treatment into mental-health care. That program had three training sessions over 3 years and trained more than 160 preceptors representing all 21 VISNs, however, it has been discontinued. VA continues to hold train-the-trainer national conferences on such topics as the PHS *Clinical Practice Guideline for Treating Tobacco Use and Dependence: 2008 Update*. In 2004, VA sponsored a conference titled "VA in the Vanguard: Building on Success in Smoking Cessation" on best practices in tobacco cessation in veteran populations served by VA; it included a session on mental health and PTSD (VA, 2004).

Pharmacotherapy for treating nicotine dependence has been shown to be effective in people who have mental illness. That population faces additional challenges—studies have indicated that those with comorbid conditions, particularly mental illness, are more likely to smoke and have a lower quit rate (see Chapter 4). The committee notes some important points regarding the use of smoking-cessation medications to treat tobacco dependence in people who have mental illness: treatment of tobacco dependence in people who have mental illness requires a tailored approach to meet individual needs, treatment can be enhanced through a combination

of pharmacotherapy and psychosocial therapy, and tobacco use can alter the effectiveness of a variety of medications used to treat mental illness, particularly antipsychotics, and should be monitored closely.

The VA National Formulary contains all the FDA-approved tobacco-cessation medications that can be used by veterans with and without a mental illness. The formulary also has medications prescribed for psychiatric disorders. Mental-health professionals, primary-care physicians, and medical specialists need to be aware of all medications that their patients are taking, including such over-the-counter medications as NRTs.

The cost of medications for comorbid disorders in both DoD and VA is likely to decrease substantially if military personnel and veterans quit smoking. Patients with serious mental illnesses, such as schizophrenia and bipolar disorder, are commonly prescribed antipsychotic medications, such as olanzapine or clozapine. Those medications are expensive, and smokers who use them tend to need about twice the dose that nonsmokers need, because smoking increases their metabolism.

VA uses several approaches to provide tobacco-use interventions to patients who have mental-health disorders and use tobacco. For many VA patients, the VA mental-health care provider is the de facto source of primary care. VA advocated an integrative approach to tobacco cessation for patients who have mental-health disorders in which mental-health care providers address both the mental illness and tobacco use rather than referring patients to a separate tobacco-cessation program (VA, 2006c). Specifics of how and why tobacco cessation should be integrated into mental-health care in VA are given in the VA conference proceedings *Integrating Tobacco Cessation Treatment into Mental Health Care: A Preceptor Training Program to Improve Delivery of Tobacco Cessation Treatment for Veterans with Mental Disorders* (VA, 2006c). As described in Chapter 4, an integrative approach to tobacco cessation and mental-health care has several advantages:

- Tobacco cessation works best when counseling is frequent and long-term; given the long-term nature of mental-health counseling, there is an opportunity for the therapist to provide continuing tobacco-cessation counseling.
- Patients may be more receptive to a combination of treatments at an appointment, inasmuch as many patients have substantial commutes or must take time out of their workday to attend a session, thus, the notion of a "one-stop" session may be appealing.
- Given the potential for drug interactions, both favorable and adverse, between tobacco-cessation medications and medications for psychiatric disorders, the mental-health therapist can more effectively monitor side effects or psychologic changes that the patient experiences when taking multiple medications.

The committee finds that the patient, provider, and programmatic barriers identified in the VA report are accurate, but believes that the evidence indicates that many of the barriers, particularly those related to providers and programs, can be overcome by establishing a more comprehensive program and emphasizing that the population in question requires the same considerations and appropriate treatment as any other veteran population.

Some VA researchers have advocated a stepped-care harm-reduction approach for VA tobacco users who have schizophrenia, particularly if they lack motivation to quit (McChargue et al., 2002). This approach combines setting simple and progressive smoking-reduction goals with the use of atypical antipsychotics that reduce smoking spontaneously and eventually with the use of standard NRTs and bupropion. The approach steps up treatment once smoking reduction is maintained for a long period, but its effectiveness has not been evaluated.

The VA PHSHCG is supporting a national VA study to include a targeted brief smoking-cessation component in the standard mental-health sessions received by veterans who have psychiatric disorders (McFall et al., 2007). The goal of this large, randomized, multisite effectiveness trial of integration of smoking-cessation treatment into mental-health care is to have selected mental-health care providers who are trained in smoking-cessation techniques

educate other mental-health professionals at their own facilities (Sherman and Farmer, 2004). All mental-health care providers would ask their patients about tobacco-use status, abstinence history, and reasons for smoking. The providers would also educate those who use tobacco about how it affects their psychologic and physical health, what improvements they might expect if they stopped using tobacco, and healthier strategies for managing emotional distress (Ziedonis, 2004). Ambivalent smokers receive given motivational interventions.

McFall et al. (2006) reported on the results of an earlier observational study of the above techniques in 107 veterans who had PTSD and smoked cigarettes. The study participants received psychotropic medications for PTSD and supportive psychotherapy in the form of five weekly sessions of smoking-cessation behavior counseling (and one followup session), self-help reading materials, intrasession support and assistance in identifying extrasession social support, self-directed behavioral methods for reducing anxiety (a relaxation training tape and stress-management materials), and pharmacologic interventions (bupropion and NRTs) from their mental-health care providers, including their case managers. The individual sessions were conducted during visits for PTSD or comorbid mental disorders. The integrated care was modeled on that given in the 2000 PHS clinical-practice guideline. Staff received 3 hours of training in smoking-cessation treatment. Results indicated that the integrated approach resulted in smoking quit rates comparable with those seen in studies involving smokers who had current mental disorders, such as schizophrenia and alcohol abuse. Those who continued to smoke reduced their tobacco consumption. Furthermore, stopping smoking did not exacerbate the PTSD or comorbid depression (McFall et al., 2006).

Finding: Veterans who have mental-health conditions may rely on the VHA for all their health-care needs and may be unable to get access to tobacco-cessation treatment programs outside VA. VA programs that integrate mental-health and tobacco-cessation treatment may increase cessation in veterans who have mental-health disorders.

Recommendation: The VA should use an integrated approach for treating mental-health disorders and tobacco use. Mental-health providers should receive training in tobacco-cessation treatments and provide them to any patients who are willing to quit.

Other Populations

Smoking by veterans who have multiple sclerosis is common (28.5%). Many of them have attempted to quit, but most of those interested in quitting report that they do not receive smoking-cessation services (Turner et al., 2007).

Veterans make up about one-third of the homeless population, and virtually all those veterans are male. Most homeless veterans are single, have poor and disadvantaged backgrounds, and are older and better educated than homeless nonveterans. About 45% of homeless veterans suffer from mental illness, and slightly more than 70% suffer from problems of alcohol or other drug abuse with substantial overlap in morbidities (VA, 2009c). There is virtually no information on tobacco use and tobacco-cessation services for homeless veterans.

VA does not have a formal policy regarding tobacco-cessation services for spouses of veterans and nonveteran VA employees. Spouses of veterans and nonveteran VA employees are not eligible for VA pharmacy benefits that might cover the costs of tobacco-cessation medications or of formal counseling. Some VA tobacco-cessation counselors, however, allow and even encourage veteran smokers to bring another person for support and to participate in cessation counseling sessions, but this practice is at the discretion of each counselor. The evidence shows that it is more difficult for a person to quit smoking if his or her spouse continues to smoke (Monden et al., 2003; Murray et al., 1995; Osier and Prescott, 1998). VA

employees, including union employees, may not have health-insurance coverage for prescription tobacco-cessation medications and may have to pay for both over-the-counter NRTs and prescription medications themselves whereas veterans can receive both types of medications as a covered benefit.

Recommendation: The VA should assess the costs and benefits that might result from providing tobacco-cessation medications to partners of veterans and to nonveteran VA employees. Medications might be offered free-of-charge or at cost to the VA.

SURVEILLANCE AND EVALUATION

Ensuring the quality of all VA health programs is a continuing task and one that requires constant surveillance to determine what programs and policies are working and what should be done to correct the ones that are not. VA has used quality measurements and performance standards for many years but has not integrated them into an evaluation process that helps it to meet its goal of providing veterans with high-quality health care (Rosenheck, 2004). An assessment of performance does not necessarily result in improvement unless problems are addressed (Fink, 2005).

VA conducts periodic internal surveys of veterans' health, for example, the 2005 *Survey of Veteran Enrollees' Health and Reliance upon VA with Selected Comparisons to the 1999-2003 Surveys*. The surveys provide information on how many veterans use tobacco and how tobacco use varies by socioeconomic status, public and private insurance, health status, enrollee priority group, and VISN. That information is designed to assist VA decision-makers in policy development and strategic planning. The most recent survey shows that about 22% of veterans enrolled in the VA health service use tobacco (VA, 2006b). Evaluation programs can help VA in determining which of its programs have been most effective in helping various populations of veterans to cease tobacco use.

VA has also conducted surveys of tobacco use and control throughout its health-care system. In particular, the 2005 *Smoking and Tobacco Use Cessation Report* (VA, 2006a), conducted for the Office of the Assistant Deputy Under Secretary for Health for Policy and Planning, provides a quantitative snapshot of smoking and tobacco-use cessation activities and smoke-free policies in VA. This survey of 158 VAMCs assessed facility resources to improve outcomes, identify best practices, and promote collaborations among facilities. The smoking-cessation lead clinician at each VA facility completed the survey. The VA PHSHCG also held a Provider Feedback Forum on smoking and tobacco-use cessation (VA, 2007a) to ask VA front-line health-care providers about their experiences in conducting smoking-cessation and tobacco-cessation programs for VA patients. The forum addressed implementation of evidence-based tobacco-use cessation interventions, special populations, pharmacy issues, tobacco-free policies, and current resources and future opportunities. However, beyond the data on required brief counseling and offer of medications, VA does not appear to have any data on whether its outpatient clinics and CBOCs offer tobacco-cessation programs, what types of services or referrals are offered and to whom, or how many veterans avail themselves of the services.

The VA/DoD guideline and the 2008 PHS guideline for tobacco cessation recommend that VA health-care providers use the 5 A's for each patient. Before 2007, performance measures for VA health-care providers were based on whether patients were asked about tobacco use and whether they were advised to quit if they were users. Over 90% of providers were in compliance with these measures. The VA Office of Quality and Performance (OQP) is responsible for implementing and monitoring performance measures for VHA health-care providers, including adherence to the use of clinical reminders to ask about tobacco use and followup. In 2006, VA developed new performance measures that are used by the OQP to increase the provision of tobacco-cessation treatment to outpatients. The three performance measures are how many

patients were provided with brief counseling in the preceding year; how many patients who used tobacco were offered medication to assist in cessation, and how many patients who used tobacco were offered referral to a smoking-cessation clinic to assist in cessation. Compliance with the performance measures for FY 2008 ranged from 75% to 99% among the VISNs (VA, 2007b).

Although VA is one of the health-care leaders in asking patients about tobacco use and has instituted electronic prompts in the patients' medical records to ensure that patients can receive tobacco-cessation medications and referrals if they want them, there is an almost total lack of information on whether the performance measures have an effect on tobacco-use rates. Furthermore, data on performance measures, number of veterans who smoke, types of tobacco-cessation treatments available and their use, and costs and benefits of the programs are maintained in a variety of VA offices and facilities. Such scattering of the dataset makes evaluation of tobacco-control efforts difficult and opaque. The cost of treating veterans for tobacco use is comparatively small compared with the cost of treating veterans for tobacco-related diseases (Jonk et al., 2005), but the efficacy of the tobacco-cessation treatments is unclear. Without systematic and periodic evaluation of the outcomes of VA's tobacco-cessation efforts, it is impossible for it to modify programs for maximum effectiveness or to introduce new and perhaps more successful approaches. The committee notes that VA does prepare an annual *Performance and Accountability Report* that includes a Clinical Practice Guidelines Index measure. This composite measure comprises "the evidence and outcomes-based measures for high-prevalence and high-risk diseases that have significant impact on overall health status. The indicators within the Index are comprised of several clinical practice guidelines in the areas of ischemic heart disease, hypertension, diabetes mellitus, major depressive disorder, schizophrenia, and tobacco use cessation. . . . The measure demonstrates the degree to which VA provides evidence-based clinical interventions to veterans seeking care in VA. The measure targets elements of care that are known to have a positive impact on the health of our patients who suffer from commonly occurring acute and chronic illnesses" (VA, 2008b). The measure, however, does not specifically report annual compliance with the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use*.

Finding: The VA does conduct periodic surveys of its tobacco-cessation programs but it has no central repository of information about the nature and implementation of tobacco-cessation activities. There is a lack of information about which treatment methods have been most sought by veterans and most effective in enabling veterans to cease tobacco use.

Recommendation: The VA should assess the reach and effectiveness of its tobacco-cessation programs.

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7

SUMMARY AND RECOMMENDATIONS

The health and economic costs of tobacco use in military and veteran populations are high. In the military, the proportion of smokers, more than 30%, is half again as high as in the civilian population (19.8%) (CDC, 2008), and more military personnel use smokeless-tobacco products than a comparable civilian population (DoD, 2006). The cost of treating people for tobacco-related diseases in the Department of Defense (DoD) is estimated to be over $500 million per year for medical care and $346 million in lost productivity. The veteran population served by the Department of Veteran Affairs (VA) also has a higher smoking rate, 22% (VA, 2006), than the general population. The VA costs to treat people with such diseases as chronic obstructive pulmonary disease (COPD) and arteriosclerosis, both of which are strongly associated with tobacco use, in an older and less healthy population, exceeded $5 billion and $1.3 billion, respectively, in 2008.

There are many proven methods for reducing tobacco consumption in the US population, as discussed in Chapter 4. They include legal and regulatory approaches, such as restricting advertising of tobacco products and limiting where tobacco products can be used; economic approaches, such as raising the price of cigarettes; behavioral approaches, such as public-education campaigns to deglamorize tobacco use; and therapeutic interventions, such as counseling and medications to help tobacco users quit. The ultimate goals are to prevent people from starting to use tobacco products and to help those who use tobacco products to stop.

As seen in the preceding chapters, although DoD and VA both serve military populations in their health-care systems, the similarity ends there and the many differences begin. The differences include the age and demographics of the populations that each organization serves; the resources that they can bring to an issue; their authority over their populations and activities, including their health-care practitioners; and their missions and cultures. Those differences have an effect on the ability to change social norms around tobacco use and ultimately on prevention of tobacco use in military personnel and veterans and on whether and how tobacco users are supported in their cessation efforts. The committee summarizes its observations on those issues below and then looks at synergies between DoD and VA that can be used to enhance tobacco-control activities in both organizations.

TOWARD A TOBACCO-FREE MILITARY POPULATION

The idea of establishing a tobacco-free military is not novel. There are numerous reasons why the military would support the goal of becoming tobacco-free, such as improved military readiness, better health of the force, and decreased health-care costs. The US military has set goals to become tobacco-free several times (Arvey and Malone, 2008). Those goals were not reached, but the efforts highlight the military's interest in achieving a tobacco-free force. The committee finds that a comprehensive tobacco-control program that combines prevention efforts with restrictions on tobacco use and sales, increases tobacco prices, incorporates a

counteradvertising campaign to change social norms around tobacco use, and provides easy access to tobacco-cessation interventions based on best practices would be the most effective approach for helping DoD to achieve a healthier, tobacco-free military.

The committee believes that the most realistic plan for reaching the long-term goal of a tobacco-free military is a phrased approach that requires policy changes to close the pipeline of new tobacco users entering the military. As people enter active-duty military service through basic training and officer-commissioning programs, they become part of a pipeline of service members who will then enter advanced military training and technical-school training and eventually meet a projected personnel need. Over 300,000 enlisted personnel are recruited into the military each year. The committee encourages each US military service and DoD as a whole to establish a timeline to end tobacco use in new officer and enlisted accessions into the military.

The services are encouraged to be as creative as possible to reach that goal. A variety of approaches could be used, some of which might be based on the success achieved and lessons learned from each service's initiation of a tobacco ban during basic training. Different groups of new accessions could be targeted over a timeline specified by each service. Military officers might be one of the easiest groups to initially target inasmuch as they are held as role models for the enlisted force and their tobacco use is already the lowest among military groups (see Chapter 2). Among new officer accessions, people attending the US military service academies would be the easiest to target initially. For example, the Air Force Academy could establish a date when entering freshmen would be informed that tobacco use would be forbidden while they are at the Academy and later in the Air Force and that their graduating class would be the first to be commissioned with the expectation that they remain tobacco-free during their military careers.

People who are accepted into the US military academies already constitute an elite group of high-school seniors. Selection for each service academy is extremely competitive, and the committee believes that adding the expectation of a tobacco-free lifestyle is unlikely to be seen as too severe a challenge. A similar approach could be used for other officer-commissioning programs, such as the Reserve Officers' Training Corps (ROTC). Before entry into these training programs, all officer candidates would be informed that the military policy for officers is that they not use any tobacco products during their active-duty military careers.

Shortly after or simultaneously with the institution of the tobacco-free policy for new officer accessions, a similar plan could be established for new enlistees. Establishing a tobacco-free policy for military personnel that continues after the completion of initial basic training and into the advanced and technical training schools might be relatively easy. The committee finds that an extended period of nonuse of tobacco during advanced and technical training should make it easier for enlisted personnel to remain tobacco-free. That ban on tobacco use could eventually be extended to all new enlistees, who would be informed during recruitment that tobacco use would be prohibited during active-duty military service, and that new military service members would be expected to remain tobacco-free during their entire military careers. Recruits and trainees would be given all necessary assistance to remain tobacco-free. If such a ban is in place within a year of the release of this report, the military might be virtually tobacco-free within 20 years although the committee expects that, except for a few highly addicted smokers, the goal could be reached sooner.

In preparing this report, the committee was struck by a contradiction: DoD and the four armed services acknowledge that tobacco use impairs the readiness of military personnel and results in enormous costs to service members, but DoD still sells tobacco products at a discount, permits tobacco use in some areas of military installations (including the military service academies), and has given tobacco use less attention than alcohol abuse, physical fitness, and weight management. In the future, tobacco use in the military should be treated in the same way as those other health-related behaviors. Current policies mandate that service members who do not pass their annual physical fitness examinations engage in extra physical-conditioning programs, those who are overweight are often required to attend weight-management programs, and those identified as having had alcohol-related incidents are required to attend alcohol-awareness and education programs. Those that cannot meet the requirements may be subject to sanctions.

Tobacco use could be monitored in new accessions after a tobacco-free policy has been implemented. People identified as tobacco users during established screening procedures would be required to attend a tobacco-cessation program to help them to quit. To monitor illicit drug use by service members, the military has established a mandatory drug-screening program. Every new accession is screened with a urinary drug test; and every service member is subjected to random drug screening at least once per year. The committee suggests that screening for urinary cotinine (a metabolite of nicotine that is widely used as a biomarker of tobacco use) or a similar screening test be added to the current random drug-testing program that already exists in all the services.

The comprehensive tobacco-control programs discussed in Chapter 4 all addressed restrictions on where tobacco products could be used and how much they cost. DoD should exercise similar regulatory restrictions. DoD and the services have established regulations that restrict tobacco use on military installations and in some cases have gone entirely tobacco-free, particularly at medical-treatment facilities. The committee emphasizes that such restrictions should be strictly enforced. The committee recommends that DoD establish a timeline to eliminate all tobacco use on military installations—including service academies, ships, and submarines—in the interest of protecting the health of all military personnel, civilian employees, family members, and visitors.

The committee finds it unfortunate that DoD and Congress continue to allow the sale of tobacco products on military installations. Profits from the sales of tobacco products benefit the morale, welfare, and recreation programs on military installations, but the committee believes that DoD should not be selling products that are known to impair military readiness and health, and it recommends that these sales be eliminated on all military installations. Again, a phased approach may be most effective. The committee recommends that at the very least, tobacco sales be eliminated in Army and Air Force commissaries (as they are currently in Navy and Marine Corps commissaries) and if tobacco products are to be sold in military exchanges, they be sold at prices commensurate with local civilian retail prices (inclusive of sales taxes). Discounting the price of tobacco products sends the message that they are acceptable and even encouraged. Evidence from state tobacco-control programs shows that increasing the price of tobacco products is an effective mechanism for reducing consumption, preventing initiation, and increasing cessation. The committee recommends that there be no legislative barriers to DoD's increasing the prices of tobacco products or discontinuing their sale in commissaries and exchanges.

Prevention is only one goal of tobacco control in DoD, although perhaps the easiest to achieve in the long term. A second goal is to expand and enhance established programs to encourage voluntary tobacco cessation in active-duty personnel, retirees, and families. The committee understands that with the great demands placed upon the US military since 2001 with the conflict in the Middle East, tobacco control policy, practice, and program evaluation has not been a high priority within the DoD. The committee recognizes that DoD does not wish to apply undue pressure on active-duty military personnel to quit tobacco use during a time of war or intense military conflict but notes that even during this stressful time, some personnel desire to quit tobacco use and should be encouraged to do so. The committee notes that even among deployed troops, the majority of them do not use tobacco. For current tobacco users, military leaders should encourage tobacco cessation and support the idea that tobacco use is incompatible with a fit fighting force. The committee has heard from service members that military leaders, although recognizing that tobacco use is detrimental to military readiness, also believe that when military members are engaged in conflict it is not fair to restrain any legal activities that they enjoy while deployed. The committee acknowledges that military members may find tobacco use to be a respite during deployment but it does not believe that military leaders should abdicate their responsibility to encourage tobacco cessation even during deployment. The committee is concerned that although each of the services has stated goals of being tobacco-free (see Chapter 5), installation commanders have considerable autonomy with regard to implementation and enforcement of tobacco-control measures and that enforcement of tobacco-control policies is not a priority or a performance measure for installation commanders. Strong leadership and

enforcement of tobacco-control policies, with appropriate performance measures, is required to motivate military tobacco users to quit.

Military health-care providers, through health promotion, should provide a variety of tobacco-cessation interventions, including counteradvertising campaigns, telephone cessation programs, on-line intervention programs, brief interventions in primary-care settings, and intensive tobacco-cessation programs. Counteradvertising campaigns, possibly building on the DoD "Quit Tobacco. Make Everyone Proud" program, must be targeted to a military audience, particularly young men who have the highest tobacco use rates. Tailoring the messages to the missions, culture, and social norms of each service is also important. Those campaigns should also include smokeless tobacco use which is on the rise.

The lack of publicly available evaluations of the tobacco-cessation programs offered by the services makes it difficult for the committee to recommend specific programmatic changes. However, the committee endorses the use of the VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* (VA/DoD, 2004) and the Public Health Service's clinical-practice guideline *Treating Tobacco Use and Dependence: 2008 Update* (Fiore et al., 2008) by military health-care providers. Easy access to tobacco-cessation medications and counseling sessions are important to ensure that tobacco cessation treatment is as easy to access as are tobacco products on military installations. Given the peripatetic nature of military service, the committee recommends that DoD establish a dedicated quitline for military personnel that is accessible by all military personnel, retirees, and their families regardless of where they are stationed (with the possible exception of those deployed to war zones with limited telephone access) and how frequently they move. The counselors for the quitline should be trained to deal with issues that are peculiar to military personnel, such as deployment stress, frequent moves, and military culture. The committee recognizes that DoD has already made commendable strides in that direction with the initiation of the "Quit Tobacco. Make Everyone Proud" campaign. However, the effort would be enhanced by enabling users to call a trained counselor immediately and to receive free tobacco-cessation medications, particularly those sold over the counter in the civilian sector; and additionally by adding a followup to each call to evaluate the reach and effectiveness of the program and its modifications.

Many service members, retirees, and family members will have their tobacco-cessation needs met by the treatments outlined in the VA/DoD clinical-practice guideline, but some DoD populations, especially deployed personnel, may need special accommodations or treatments, as described in Chapter 5. The committee finds that the evidence supports providing deployed personnel with tobacco-cessation programs comparable with those available to nondeployed personnel. Indeed, given the nature of the current deployments, which present extreme stress and boredom, both of which are conducive to tobacco use, the committee argues that such programs are even more important. Personnel must be trained to offer programs, which should be conducted at times and places and in formats that make it easy for personnel to attend. Group sessions, which may provide needed support for some deployed service members, do not meet the needs of all members and may be perceived by some as encroaching unnecessarily on much-needed relaxation time. Programs tailored specifically to both deployed and nondeployed personnel are needed.

Given the command-and-control structure of DoD, it is not surprising that surveillance data on personnel health status are available. Some performance metrics have been developed by individual services to assess short-term tobacco-cessation rates and the number of personnel who attend counseling sessions or receive medications, but the impact of the metrics on improving tobacco-cessation rates and services is unclear and the information is not publicly available. Furthermore, more information should be gathered on the long-term success rates of tobacco-cessation programs so that human and financial resources and treatments can be adjusted to increase their effectiveness. For example, the committee was frustrated in its attempts to obtain a report that evaluated tobacco-cessation programs across the armed services, although a fact sheet on the evaluation was eventually published (DoD, 2008). This does not inspire confidence that the programs are meeting the needs of military personnel, and it prevents contributions by outside experts on how the programs might be improved.

TOWARD A TOBACCO-FREE VETERAN POPULATION

The tobacco-cessation programs used by VA are similar to those of DoD, but VA's organizational structure and population being served are considerably different. Unlike DoD, VA (with a few exceptions) provides health care only to veterans and does not provide health care to their families or dependents. VA is a health leader in many fields, such as electronic medical records and mental-health research, and its medical-research advances are widely recognized. VA has a long history of attempting to reduce tobacco use by veterans and has been responsible for numerous scientific advances regarding health effects of smoking. In addition, its organizational structure provides for considerable autonomy for medical facilities to address the needs of its patient populations. The committee finds that this autonomy has advantages in allowing the tobacco cessation lead clinician in each VA medical center to modify programs to meet specific patient needs. However, the lack of systematic information on tobacco-control programs offered in outpatient clinics, including community-based outpatient clinics, needs to be addressed. Evaluative data are spotty, and there is no information on whether clients at VA Veterans Centers have much interest in such programs.

Given the older patient population in the VA health-care system, the need for prevention of tobacco-use initiation is less than that in DoD; there is, however, a great need for prevention of tobacco-use relapse. The committee believes that the growing number of veterans returning from deployment with mental-health disorders, especially posttraumatic stress disorder (PTSD) and depression, may increase the demand for tobacco-relapse prevention services. People with mental-health disorders use tobacco at far higher rates than those without such disorders. The committee advocates the use of tobacco-cessation therapy in conjunction with therapy for mental-health disorders for patients interested in quitting tobacco use. The evidence indicates that treatment for tobacco use does not adversely affect treatment for mental-health disorders.

The VA patient population is not only older than that served by the DoD Military Health System but has a higher incidence of tobacco-related morbidity—such as cardiovascular disease, COPD, and lung cancer—than the DoD active-duty population. The prevalence of smoking in veterans is not substantially higher than the general population (22% vs 20%), so veterans must be quitting smoking after they leave the military or have died as a result of their tobacco use. VA, with its electronic medical records for all patients, should be able to track when patients stop smoking and whether they do so in response to treatment received through VA or from another source. That information will prove valuable in tailoring tobacco-cessation programs to veterans.

The committee concurs with the VA/DoD clinical-practice guideline that tobacco-cessation services should be offered to all patients, including hospitalized patients and those in primary-care clinics for other reasons. The committee believes that having a dedicated smoking and tobacco-use cessation lead clinician in each VA medical facility is a good start toward ensuring that VA staff are familiar with the most effective tobacco-cessation treatments, and also have a point of contact for more information.

Like DoD, VA does not have a dedicated national quitline. The committee believes that such a quitline, available toll-free to all veterans and their dependents, would provide a valuable and cost-effective service for veterans. Veterans, like active-duty and retired military, have concerns about tobacco cessation that should be addressed by counselors who are trained to deal with these issues. Although veterans may move less frequently than military personnel, continuity of service would be enhanced by a nationwide quitline. The committee also recommends that quitline counselors be able to provide nicotine-replacement therapy (NRT) to veterans who are participating in telephone counseling and, with proper training, prescription tobacco-cessation medications as well. If the latter is not feasible, the committee recommends that counselors at least be able to refer patients to an appropriate health-care provider in their areas to provide prescriptions or payment vouchers for NRTs at local pharmacies. In essence, the committee believes that VA should act to make tobacco-cessation medications easily accessible for veterans whether or not they see a primary-care physician about quitting tobacco use or

attend a tobacco-cessation program. It should also put into place systems of continuing evaluation and oversight to measure the effectiveness of its tobacco-cessation programs.

VA does not provide health-care services to dependents of veterans, with a few exceptions. The evidence shows that smokers whose partners smoke are less likely to quit and more likely to relapse. Some VA medical facilities permit partners of smokers to attend counseling sessions but cannot cover the costs of their tobacco-cessation medications. Inclusion of partners is at the discretion of the clinicians conducting the sessions. The committee recommends that partners of smokers be allowed access to treatment. The committee also recommends that VA explore the additional costs that might be incurred by providing tobacco medications to partners, either free or at reduced cost.

VA has been in the forefront of the use of electronic medical records. The records might be used to enable primary-care providers and other appropriately trained health-care personnel to indicate that tobacco-cessation medications (especially NRTs) are to be mailed to interested patients without going to pharmacies, and without the need for health-care providers who lack prescription privileges to obtain them from providers who do. Each of those steps would make it more likely that a motivated patient will use the medications and thus increase the chances of quitting tobacco use.

Unlike DoD, VA does not have to respond to the sale of tobacco products, having discontinued such sales several years ago. However, it does have a congressional mandate to maintain smoking areas for patients. The committee finds that this congressional requirement is in conflict with current understanding of the harm caused by exposure to tobacco smoke. The committee also finds that maintaining such smoking areas is not in compliance with the Joint Commission (formerly the Joint Commission on Accreditation of Healthcare Organizations) tobacco-control standard that bans smoking in hospital buildings. In light of VA's leadership in numerous health-care fields, and its repeated attempts to make its facilities entirely tobacco-free, both indoor and outdoor, the committee finds it lamentable that Congress continues to require that VA maintain smoking shelters at its health-care facilities.

VA has been in the forefront of the development and implementation of performance measures to ensure that health-care providers ask patients about tobacco use, advise them to quit, and assist patients who are willing to quit in obtaining tobacco-cessation treatment. Although compliance with the performance measures is extremely high—almost 100% in some VA facilities—there is little documentation on whether such measures have translated into higher abstinence rates and on which programs have greater success. Without such information, one cannot know whether asking patients about tobacco use ensures that the treatment they receive is helpful and improves patient care and outcomes.

TOBACCO-CONTROL COMMONALITIES

In the sections above, the committee considered DoD and VA as separate entities in dealing with tobacco control. In spite of their differences, those organizations have many issues in common, and the committee believes that there are policies and programs that are applicable to both organizations. Because all veterans were at one time in the military, there is a continuum of health-care needs that may best be addressed by a comprehensive tobacco-control program that spans DoD and VA. An integrated approach will ensure that military personnel know what to expect regarding tobacco-cessation services as they move from the Military Health System to the VA health-care system.

DoD and VA have worked together on several other health-care goals. For example, they are exploring ways to ensure that DoD medical records can be used by VA health-care providers. Of particular relevance to the present study is the joint DoD and VA Management of Tobacco Use Working Group that produced the 2004 clinical-practice guideline. That gideline gives health-care providers in both organizations recommendations on how to assess, treat, and prevent tobacco use in military and veteran populations. It has sections on dealing with special

populations that may of greater use to DoD health-care providers and sections that may be of greater use to VA health-care providers. The committee commends the joint effort and believes that it can be expanded to other aspects of tobacco control.

Both VA and DoD permit civilian employees to attend tobacco-cessation counseling sessions as space permits, but neither organization provides tobacco-cessation medications for them. The committee believes this may pose a barrier to employees' quitting tobacco use. DoD and VA should conduct analyses to determine whether providing such medications would increase employee participation in tobacco-cessation programs, what the costs of such medications might be, and whether the costs might be recouped by the employees' health-insurance plans.

VA requires that each VA medical facility have a smoking and tobacco-use cessation lead clinician who serves as a tobacco-control advocate in the facility and as a point of contact for information. The committee endorses the designation of such persons and recommends that all VA medical clinics, not just medical centers, identify and train them. DoD should also require that each military installation designate such persons and give them appropriate training.

DoD and VA are both adept at outreach and public-education campaigns and have used their expertise in the past for alcohol abuse and weight management programs. The committee believes that such public-education expertise, along with counteradvertising campaign to change social norms around tobacco use, can be applied to tobacco cessation. Engaging such groups as veteran service organizations, the USO, VA Volunteer Services, and military family organizations can raise the profile of tobacco-control issues and stimulate support and services for military members and veterans who are trying to quit. Local military installations and VA outpatient clinics can establish relationships with local chapters of such groups as the American Cancer Society and the American Lung Associations. Such relationships can help health professionals access patient-education materials, provide advice to their patients on support groups, and keep abreast of new developments in tobacco-control research.

Both the VA/DoD guideline and the 2008 PHS guideline advocate the use of the 5 A's for each patient seen by a health-care provider. Although many of the health-care facilities in each organization follow the guidelines and virtually all patients are asked about tobacco use, advised to quit, and given assistance in the form of a referral to tobacco-cessation programs, many do not assess the likelihood that patients are willing to quit and do not arrange for followup with easily accessed treatment. The committee recommends that all health-care providers be trained in the 5 A's and in the use of the tobacco-cessation approaches in the guidelines. All of these efforts will help to reduce barriers to accessing tobacco-cessation services for military personnel, their families, and veterans.

The committee is aware that surveillance of tobacco use and cessation is time-consuming and that VA and DoD may not have enough personnel to accomplish this task. The committee recommends that VA and DoD evaluate their personnel needs for tobacco surveillance, prevention, and cessation and make appropriate requests for additional staff through regular channels.

In reviewing the comprehensive tobacco-control programs used by states and other organizations, the committee was struck by one component that served as a driver for developing and implementing each program: strong, committed, and dynamic leadership. VA and DoD are top-down organizations, and leadership initiatives are most likely to result in organizational change. That has been seen in the reorganization of the Veterans Health Administration from an inpatient-based system to an outpatient-based system under the auspices of the under secretary for health in the middle 1990s. Similarly, the potential influence of military leadership on programs, plans, and policies is enormous. The committee believes that without the enthusiastic support of involved leaders, tobacco control will not have a high priority in either DoD or VA. Considering the staggering toll of tobacco use on military readiness, lost productivity, adverse health effects, exposure to secondhand smoke, cost of tobacco products, and health-care expenditures, DoD and VA should develop, implement, and evaluate outcomes of continuing broad and systematic tobacco-control programs as major components of their health-care systems. Preventing tobacco use and reducing the number of tobacco users will result in great

benefits to both organizations and improve the quality of life of military personnel, veterans, and their families for years to come.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

In Table 7-1, the committee lists its major findings and recommendations. Findings and recommendations that refer specifically to DoD and VA are in Chapters 5 and 6, respectively.

TABLE 7-1 Findings and Recommendations for the VA and DoD

Findings	Recommendations
Tobacco use in the US military and veteran populations exceeds that in the general population. Tobacco use: • Impairs military operational readiness. • Is a cause of increased morbidity and mortality in active-duty military personnel, retirees, veterans, and family members. • Results in increased health-care costs for tobacco users and their families, DoD, VA, and the general public. • Creates a patient pipeline from DoD to VA.	
DoD and the armed services have stated goals of being tobacco-free but have not achieved those goals.	The goal of a tobacco-free military service may be achieved incrementally. DoD and the armed services can use several mechanisms to intensify their efforts to reach the goal: • Set a specific date by which the military will be tobacco-free and make compliance in all the armed services mandatory. Require each service to develop and enforce a timeline for achieving tobacco-free status. • The military academies, officer-candidate training programs, and university-based ROTC programs should become tobacco-free first; followed by new enlisted accessions, and then all other active-duty personnel.
Tobacco control does not have a high priority in DoD or VA. Neither department has instituted a comprehensive tobacco-control program. Existing programs are not comprehensive, standardized, or consistently enforced.	DoD, the armed services, and VA should raise the priority given to tobacco control throughout their organizations. DoD, the armed services, and VA should develop comprehensive, integrated tobacco-control programs with timelines for benchmarks and strategies for achieving them. The departmentwide plans should encompass tobacco-use restrictions, sales restrictions (in DoD only), communication interventions, treatment interventions (including those for special populations), treatment-delivery vehicles (such as quitlines), surveillance mechanisms, and periodic program evaluations.
Tobacco use by military personnel and veterans is not denormalized.	DOD and VA should take the following actions to denormalize tobacco use: • Eliminate tobacco use on military installations and in VA medical facilities using evidence-based practices and for the DoD, a phased-in approach. • Eliminate the sale of tobacco products on all military installations. At the

	very least, prohibit the sale of tobacco products in Army and Air Force commissaries. (Navy and Marine Corps commissaries do not sell tobacco products.) • Should tobacco products be sold at military installations (exchanges and package stores), they should be priced at least on par with local civilian retail prices and preferably higher than the average prices in the community. Funds generated by the differential pricing should be used for tobacco-control activities. • Enforce equal work breaks for all employees.
DoD and VA have many components of a comprehensive tobacco-control program in place, but they lack: • Effective, committed, and supportive leadership at the highest levels of the departments. • A chain of accountability for program execution. • Engaged and properly trained staff in all health-care and health-promotion facilities. • Adequate resources, including infrastructure and funding of all facilities. • Sufficient performance metrics to drive program improvement.	As part of a comprehensive tobacco-control program, DoD and VA should: • Place authority for developing tobacco-control policies and strategies in a single high-level entity in DoD. In VA, the secretary and the under secretary for health should actively promote tobacco cessation. • Ensure that the surgeon general of each armed service and individual installation commanders are accountable for DoD program implementation and enforcement and that VISN directors are accountable for VA program implementation and enforcement. • Educate all DoD and VA health-care and health-promotion staff in tobacco-control practices and train health-care providers in the 5 A's. • Provide all DoD and VA staff and patients with barrier-free access to tobacco-cessation services if they use tobacco. • Ensure that there are adequate resources, including infrastructure and funding, at all facilities. • Inventory tobacco-cessation programs at each military installation and DoD and VA medical facility, and ensure that a trained tobacco-cessation counselor is available in each facility. • All DoD and VA health-care providers, including counselors, should be able to provide brief counseling and nicotine-replacement therapy to patients. • Report publicly and regularly on the performance of their tobacco-control programs, adherence to clinical-practice guidelines, and tobacco-cessation rates.
DoD and VA have established many best practices in tobacco cessation. Widespread adoption of the practices is essential for predictable and consistent tobacco-cessation services in DoD and VA.	The VA/DoD *Clinical Practice Guideline for the Management of Tobacco Use* should be updated and harmonized with the Public Health Service clinical-practice guideline on tobacco management. DoD and VA should develop and implement standards for the content and evaluation of tobacco-cessation counseling.
There is a strong association between tobacco addiction and mental-health problems, including anxiety disorders (such as PTSD), mood disorders (such as depression and bipolar disorder), schizophrenia, and substance abuse (for example, of alcohol and illicit drugs).	DoD and VA should follow the VA/DoD and Public Health Service guidelines for treating tobacco use in patients who have mental-health disorders. Mental-health professionals should receive training in tobacco-cessation treatment and provide assistance to any patients who are willing to try to quit.
Legislative support is essential for a comprehensive tobacco-control program in DoD and VA.	Congress should: • Repeal the Veterans Health Care Act of 1992 (PL 102-585, §526) to allow VA health-care facilities to become completely tobacco-free. • Expand the 2009 National Defense Authorization Act Section 713, "Smoking Cessation Program Under TRICARE", to include smokeless-tobacco cessation treatment.

	• Direct DoD to sell tobacco products at prices at least equal to and preferably greater than local civilian retail prices.
DoD and VA research contributes to identifying effective tobacco-control programs, particularly for special populations, such as those with mental-health and substance-abuse problems.	DOD and VA should develop and fund a joint comprehensive research plan on tobacco control in military and veteran populations.

RESEARCH AGENDA

Much research has been done on tobacco control by public entities and by DoD and VA. For example, VA has supported considerable research on tobacco use in veterans who have mental-health disorders, on new tobacco-cessation medications, and on the role of health-care providers in delivering tobacco-cessation services. DoD has funded studies of initiation of tobacco use by new recruits and of relapse of tobacco use after basic training. But the committee was struck by several gaps in knowledge that should be filled through research. There is a dearth of information in both organizations about the success of their tobacco-cessation programs, particularly long-term abstinence rates. Some of that information should be generated by the program evaluation necessary for efficient operation, which needs to be enhanced. Beyond operational data, there is a need for research on changing demographics, behavioral and cultural inducers, and improved or innovative program design. Without such information, it is difficult to assess what programs are working for military personnel, retirees, their families, and veterans. It is possible that some programs work better for one population than for another. Data on long-term abstinence rates in people who leave military service might be more difficult for DoD to capture, but such followup is important for careerists and those who remain in the military for several years. VA acknowledges that most veterans who enter its health-care system stay in it for life. Therefore, obtaining long-term followup data on these veterans would probably not be difficult. For example, given that a smaller proportion of veterans use tobacco than do active-duty military personnel, veterans who no longer use tobacco could be evaluated to determine when and how they quit.

The issue of tobacco use in select populations should be of continuing concern for DoD and VA. DoD has a higher rate of tobacco initiation than the general population, and further research should be conducted to identify why that is the case and what may be done to change it. In addition, the DoD should conduct research on whether policies to ban tobacco use during technical and advanced training are effective in preventing relapse after such training. Deployed personnel also use tobacco more than nondeployed personnel, and research should focus on identifying healthy substitutes for tobacco as a stress and boredom reliever during deployment. Deployed personnel also use more smokeless tobacco; DoD should fund research on the long-term health effects of smokeless tobacco and effective cessation interventions.

Given the number of veterans and military retirees who have comorbid medical and psychiatric conditions, the committee recommends that DoD and VA consider jointly funding research on the effects of tobacco use on these conditions and on effective tobacco-cessation interventions for these populations. Tobacco use in people with comorbid mental-health disorders should be monitored, and research should be conducted to develop more effective tobacco-cessation programs for such VA populations as those with alcohol abuse or PTSD. VA has conducted considerable research in that field, but further work needs to be done, particularly with regard to the timing of interventions and the use and possible interactions of tobacco-cessation medications and psychiatric medications. It may also want to consider jointly funding such efforts with DoD, given the large population of military personnel returning from the conflicts in Iraq and Afghanistan with mental-health disorders.

DoD and VA may consider research to assess the use and effectiveness of tobacco-cessation treatments provided in various medical-care facilities in both organizations. Can military personnel who are stationed at smaller installations and veterans who receive care at community-based outpatient clinics access the same level of care as military personnel and veterans at large medical facilities? Stemming from the issue of access to care is the need to assess the role of quitlines in providing assistance to military and veteran populations. Demonstration projects could be funded to determine the use and effectiveness of national quitlines for both DoD and VA with counselors trained to deal with issues peculiar to military and veteran life.

Evidence has shown that having a partner who smokes makes it more difficult for a person to quit smoking. VA does not provide tobacco-cessation medications for partners of veterans who use tobacco, although many VA tobacco-cessation counseling programs allow partners to attend the sessions. VA might explore the costs and long-term benefits that might accrue if partners were provided with cost-free or discounted tobacco-cessation medications.

Finally, there is the issue of resources to pay for services and to address the committee's recommendations. The committee acknowledges that the DoD morale, welfare, and recreation programs receives a substantial portion of its budget from the sales of tobacco. DoD should undertake a study of finding alternative funding streams. It should examine what effect raising the prices of tobacco products would have on consumption and revenue.

The committee concludes that although DoD and VA have demonstrated a continuing commitment to the health of military personnel and veterans, respectively, particularly with respect to tobacco-use cessation, much remains to be done. Given the effect of tobacco use on military readiness and on the health of military personnel, retirees, families, and veterans, the time has come for DoD and VA to assign high priority to tobacco control.

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A

EFFECTIVE TOBACCO-CONTROL PROGRAMS

Numerous organizations have summarized how the organizational-capacity issues mentioned in Chapter 4 are realized through effective tobacco-control programs. Those organizations include the federal government, through the National Cancer Institute (NCI) and the Centers for Disease Control and Prevention (CDC); various state governments, such as those of California and Massachusetts; nongovernment organizations, such as the Robert Wood Johnson Foundation and the Institute of Medicine (IOM); and international organizations, such as the World Health Organization (WHO). This appendix provides an overview of some successful tobacco-control programs and highlights the components that contribute to their success.

The United States has several decades of experience in implementing comprehensive tobacco-control programs, particularly at the state level, many funded through tobacco-tax initiatives. The programs have resulted in declines in tobacco consumption that greatly exceed the national average decline. In 2000, IOM and the President's Cancer Panel issued landmark reports that concluded that there is overwhelming evidence that comprehensive state tobacco-control programs substantially reduce tobacco use; they recommended that every state fund such programs at certain specified per capita levels (IOM, 2000; US Surgeon General, 2000). CDC (2007) recommends that each state fund a tobacco-control program with a target expenditure of $15–20 per capita, depending on the state's population, demography, and prevalence of tobacco use (CDC, 2007). The Department of Defense and the Department of Veterans Affairs could assess the applicability of the CDC formulas for tobacco-control expenditures for states to their own populations and adjust them accordingly to determine a reasonable tobacco-control budget for each department.

The 2007 Best Practice for Comprehensive Tobacco Control Programs, published by CDC, summarizes the status of state programs and supports a multidimensional approach to further public-health goals along the entire tobacco-use continuum from prevention to cessation. It includes a combination of educational, clinical, and social strategies that support the broad goal of denormalization of tobacco use (CDC, 2007). The recommended strategies fall into five categories: policies; health promotion and education, including communication interventions (for example, mass-media–based antitobacco advertising campaigns and innovative approaches, such as text messaging); cessation interventions (for example, cessation counseling based on the health-care system, FDA-approved tobacco-cessation medications, and population-based services, such as toll-free quitlines that are able to provide nicotine-replacement therapy); surveillance and evaluation; and capacity-building, including administration and management procedures. Direct interventions on an individual level, including health promotion and cessation, are important, but the other strategies—including implementation of evidence-based policies, such as price increases, reduced access to tobacco products, tobacco-free environments, advertising bans, decreases in out-of-pocket costs of treatment, and countermarketing campaigns to change social norms around tobacco use—all encourage cessation. Therefore, cessation policies and programs should be considered as essential for creating the supportive environment necessary for quitting (WHO, 2007).

STATE TOBACCO-CONTROL PROGRAMS

States with the longest history of such programs have served as models, particularly California and Massachusetts. The first such program in California was funded by the 1988 California Tobacco Tax and Health Promotion Act. Its passage led to a $0.25/pack increase in the tax on cigarettes; 20% of the revenues was earmarked for a health-education campaign (Hu et al., 1994a, 1994b). That included pioneering an antismoking multimedia campaign and prevention and cessation initiatives (Hu et al., 1994a, 1994b). Specific messages targeted minority populations, and free tobacco quitlines featured services in multiple languages. Studies documented a reduction in cigarette sales by 232 million packs from the end of 1990 to the 1992 (Hu et al., 1994a, 1994b) and a 6% decline in lung-cancer incidence, equating to 11,000 fewer cases (Barnoya and Glantz, 2004). Smoking rates in California adults declined from 22.7% in 1988, when the tobacco control program was implemented, to 14.0% in 2005 (California Department of Health Services, 2006).

Massachusetts, the second state to initiate such a program after a successful tobacco-tax ballot initiative in 1992, launched a coordinated effort to denormalize tobacco use. The Massachusetts Tobacco Control Program (MTCP) featured a number of key dimensions with the goals of prevention of smoking by young people, increased cessation opportunities for adult smokers, and establishment of smoke-free public places. A high-profile mass-media advertising campaign with the tagline "It's time we made smoking history" not only served as the statewide umbrella initiative but kept the tobacco-control issue paramount in the minds of the public and policy-makers alike (Koh et al., 2005). Furthermore, the campaign promoted a free statewide quitline that linked callers to bolstered cessation services at the local level.

In November 2008, the Massachusetts Department of Public Health and the Massachusetts Department of Veterans Services jointly launched a free 8-month program to encourage veterans to quit smoking. Veterans and their families are asked to call the state 1-800-Try-to-Quit line. After a simple medical screening over the telephone, those eligible will receive tailored counseling by telephone, a free 4-week supply of nicotine patches, and a Quit Kit with tips on quitting and informational resources. The goal is to combine nicotine-patch therapy with counseling and support by trained specialists to maximize the chances of quitting in this high-risk population. Because the program is new, outcomes are not yet known.

Despite tremendous challenges in maintaining and sustaining funding for the MTCP, the state witnessed a drop in cigarette consumption (statewide number of packs sold) by nearly half from 1992 to 2004 (Koh et al., 2005). However, a cautionary lesson comes from Massachusetts. Despite the considerable success achieved in tobacco control, funding for the MTCP was cut by 95%—from a high of about $54 million per year in 2000 to just $2.5 million in FY 2004—although funding for the program has since increased somewhat. The drastic reductions in the state's investment to prevent and reduce tobacco use may translate directly into higher smoking rates (especially in children) and more smoking-related disease, death, and ultimately, costs.

CDC's *Best Practices for Comprehensive Tobacco Control Programs—2007* describes capacity-building under administrative and management functions for comprehensive tobacco control by states. The literature uses different terms to discuss capacity-building, but the message is the same. CDC highlights the need for states to build capacity and the associated administrative and management activities; it suggests that at least 5% of total annual program funds be used to support program capacity and infrastructure components (see Table A-1).

Increased funding of state tobacco-control programs has a favorable effect on reducing tobacco use by both youth and adults (Farrelly et al., 2003). An evaluation of state-level tobacco-program expenditures on youth smoking, as part of the Monitoring for the Future project, found that if states had spent on tobacco control the minimum amount recommended by CDC, the prevalence of smoking among 8th-, 9th-, and 12th-graders would have been 3.3% lower than the rates observed from 1991 to 2000 (Tauras et al., 2005). An assessment of the impact of state expenditures in 1985–2003 on tobacco-control programs on adult smoking rates found that increased expenditures reduced smoking more among older adults (at least 25 years old) than

among young adults (18–24 years old). Young adults were more likely to decrease smoking in response to increased cigarette prices. It was estimated that if the states had met the minimum CDC expenditure recommendation for tobacco control, there would have been more than 2 million fewer smokers by 2003 (Farrelly et al., 2008).

TABLE A-2 Components of a Comprehensive Tobacco-Control Program

Program Components	Program Specifics
State and community interventions	Support tobacco-control coalition development Establish strategic plan with partners Implement evidence-based policy interventions Collect community-specific data, implement culturally appropriate interventions Sponsor training, conferences, technical assistance for all levels Monitor protobacco influences Support demonstration, research projects Provide funding to community-based organizations to build capacity, including funding grants, local public-health infrastructure Ensure that disparity issues are part of all strategic plans Ensure that quitline services are culturally competent and have adequate reach, intensity
Health-communication interventions	Sustain media campaigns of tobacco countermarketing Conduct market research Conduct countermarketing surveillance Conduct grassroots promotions, local media advocacy, event sponsorships Target specific audiences Use innovative technologies, such as text messaging, blogs Re-evaluate processes and outcomes Use messages that elicit strong emotional response or that confront tobacco-industry marketing tactics Promote available services
Cessation interventions	Sustain, expand, promote counseling, treatment programs Eliminate cost, other barriers for underserved populations Make health-care system changes recommended by Public Health Service guidelines Provide telephone-based cessation counseling Reduce out-of-pocket expenses for patients Implement health-care provider reminder system Combine counseling with medication for optimal effectiveness Increase prices of tobacco products Use targeted promotion of cessation programs
Surveillance	Monitor reduction in tobacco-use initiation among youth, young adults Monitor quit rate among adults, youth Monitor reduction in exposure to secondhand smoke Monitor reduction in tobacco-related disparities Participate in national surveillance systems, such as Youth Risk Behavior Surveillance System, modify as appropriate for specific states Collect evaluation data
Evaluation	Use flexible survey instruments with core, state-specific components Make process and outcome evaluation continuous Measure such indicators as policy changes, changes in social norms, exposure of individuals and communities to state, local program efforts Collect baseline data

Program Components	Program Specifics
Administration and management	Engage in strategic planning Recruit qualified staff Award and monitor program contracts and grants, coordinate across program areas, assess grantee performance Develop, maintain fiscal-management systems Increase local capacity by training, technical assistance Create effective communication systems internally and with local partners Educate public and policy-makers on health effects of tobacco and evidence-based cessation programs and policy interventions

SOURCE: CDC (2007).

FEDERAL TOBACCO-CONTROL PROGRAMS

American Stop Smoking Intervention Study

The American Stop Smoking Intervention Study (ASSIST) was not a randomized trial but a large-scale, natural experiment to change the behavior of entire states (that is, the entire population and environment). The goal was to change social, cultural, economic, and environmental factors in the state that promote smoking behavior. That goal was accomplished primarily through interventions of four kinds: promoting smoke-free environments, countering tobacco advertising and promotion, limiting youths' tobacco access and availability, and increasing tobacco prices by raising excise taxes.

An important component was building the capacity for tobacco control by recruiting and training a qualified workforce, and developing and implementing strategic plans of action. The statewide tobacco-control plans were carried out in the 17 ASSIST states by a network of state and local coalitions. The ASSIST evaluation was one of the largest evaluation efforts conducted by NCI and compared changes in tobacco-control policies, state per capita cigarette consumption, and adult smoking prevalence in the 17 ASSIST states with those in the 33 non-ASSIST states and the District of Columbia. The authors also analyzed the effect of program components and tobacco-control policies on smoking prevalence and per capita cigarette consumption and determined the cost effectiveness of ASSIST (Stillman et al., 1999, 2000, 2001, 2003).

ASSIST states had a greater decrease in adult smoking prevalence than non-ASSIST states. States that experienced greater improvement in tobacco-control policies had larger decreases in per capita cigarette consumption. States (not including the District of Columbia) with higher policy scores also had lower smoking prevalence. The authors found that states with greater "capacity" (ability to implement tobacco-control activities)—such as states with tobacco-control infrastructure in the health department, staff experience, and strong interagency and statewide relationships—had lower per capita cigarette consumption. Finally, there was evidence that policy interventions may be more effective in reducing women's smoking than other types of interventions.

The ASSIST results showed that investing in tobacco-control programs that focus on strong tobacco regulations and policies is an effective strategy for reducing tobacco use. The small but statistically significant differences in the reduction of adult smoking prevalence in ASSIST states, when applied on a population basis, could be expected to have a large effect on the public. If all 50 states and the District of Columbia had implemented ASSIST, there would be about 1,213,000 fewer smokers in the country (NCI, 1991, 2005, 2006).

The finding that states with a greater change in tobacco-control policies during ASSIST had larger decreases in per capita cigarette consumption shows that interventions that result in policy change can have a strong and sustained effect on the amount of cigarette-smoking. That

conclusion adds to the body of similar research and expert reports that document the importance of a comprehensive approach to tobacco control. Although policy efforts take time, they can bring about major changes in social norms, including smoking behavior.

The finding that states with stronger infrastructure or capacity (ability to implement tobacco-control activities) had lower per capita cigarette consumption is additional evidence that when tobacco-control programs are strong and well supported, a decrease in the amount of smoking can be achieved. ASSIST was the first study to provide a method for measuring states' capacity to implement tobacco-control programs.

A 2006 study published in the *American Journal of Health Promotion* provided further evidence of the effectiveness of comprehensive tobacco-control programs and policies (Hyland et al., 2006). The study's findings suggest that well-funded tobacco-control programs combined with strong tobacco-control policies increase cessation rates. Quit rates in communities that experienced both policy and programmatic interventions were higher than quit rates in communities that had experienced only policy interventions (excise-tax increases or secondhand-smoke regulations). The finding supports the claim that comprehensive tobacco-control programs can increase adult cessation rates in the population and have an effect beyond that predicted by tobacco-control policies alone.

Other Tobacco-Control Programs

The Agency for Healthcare Research and Quality published *Tobacco Use: Prevention, Cessation, and Control* in June 2006. The document, prepared by RTI International, involved a systematic literature review of human studies conducted in developed countries. The included studies were limited to those with participants at least 13 years old, with a duration of at least 6 months, and with sample sizes of at least 30 for randomized controlled studies and 100 for experimental or observational studies (HHS, 2006).

The literature was synthesized around five research questions concerning the effectiveness of interventions, strategies to increase consumer demand for cessation treatments and implementation of proven cessation strategies, and effects of smokeless-tobacco marketing. The results supported the effectiveness of population-based interventions targeted to adolescents and young adults that increased the unit price of tobacco, and the effectiveness of mass-media campaigns run concurrently with other interventions. Strong evidence was also found to support the effectiveness of telephone cessation support to increase tobacco cessation in adults and of strategies based on the health-care system that used provider reminders, provider education, and multicomponent interventions that include client telephone support (HHS, 2006).

Analysis suggests that persons who have comorbidities should use the tobacco-cessation treatments recommended for the general population, and that cessation treatment for persons who have chemical and nicotine dependence should also include counseling and pharmacotherapy. There are still critical gaps in the evidence base, and improvement in research methods are necessary to fill data gaps.

Fiore (2003) reviews evidence-based populationwide strategies for a National Action Plan for Tobacco Cessation. The plan would include cessation interventions such as quitlines, supported by a Smokers' Health Fund created through a proposed $2/pack increase in the federal excise tax on cigarettes. Such new resources could fund a national quitline, a multifaceted counteradvertising media campaign, insurance coverage for tobacco-dependence treatment for 100 million covered people (including all those on Medicare and Medicaid), and a new tobacco research and training infrastructure. The Interagency Committee on Smoking and Health, under the auspices of the US Department of Health and Human Services, hoped that such a dramatic new endeavor would also foster strong public–private partnerships involving health insurers, employers, health systems, national quality assurance and accreditation organizations, clinicians, and communities (Fiore, 2003).

WHO published *Building Blocks for Tobacco Control: A Handbook in 2004* as part of its Tobacco Free Initiative (WHO, 2004). The WHO Framework Convention on Tobacco Control

(FCTC) provided global action, but guidance on the development of national capacity for tobacco control was lacking. The handbook was conceived to address that need. It describes the need to build national capacity for tobacco control. It lists practical tobacco control approaches for countries, including defining objectives, developing strategies, drawing up action plans, developing and implementing appropriate policies, developing regulatory and legal frameworks, building and managing partnerships, fostering an enabling environment for civil society, and implementing action plans. The two major parts of the book describe risk factors associated with tobacco use, tobacco-industry strategies, the scientific basis of interventions, and the FCTC. Interventions that reduce demand (including price and other measures) and that reduce supply are also described. Most of the handbook describes the process of developing a national plan of action, including establishing effective infrastructure; training and education; communication and media relations; programming selective activities; legislative, regulatory, and economic measures; countering the tobacco industry; effective partnerships; monitoring, surveillance, evaluation, and reporting; and research and exchange of information (WHO, 2004).

CDC's *Guide to Community Preventive Services* is a series of systematic reviews and evidence-based recommendations developed by the nonfederal Task Force on Community Preventive Services; members are appointed by the director of CDC to provide information relative to "effectiveness, economic efficiency, and feasibility of interventions to promote community health and prevent disease" (CDC, 2009). The task force reviews evidence to provide recommendations about public-health interventions, including tobacco control. The summary of findings on tobacco-use prevention and control (CDC, 2002) provides recommendations for interventions of three kinds: strategies to reduce exposure to environmental tobacco smoke; strategies to reduce tobacco-use initiation by children, adolescents, and young adults; and strategies to increase tobacco cessation. Strong evidence was found to support the use of smoking bans and restrictions to reduce exposure to secondhand smoke. Recommended strategies to reduce tobacco-use initiation include tobacco-free policies, increases in the unit prices of tobacco products, and mass-media campaigns combined with other interventions. Those strategies are also recommended to increase tobacco cessation in addition to a number of interventions appropriate for health-care systems, including provider-reminder systems and provider-education programs. Reducing patients' out-of-pocket costs for effective treatments for tobacco use and dependence and patient telephone support are also recommended (CDC, 2002).

The SmokeLess States Program was developed by the Robert Wood Johnson Foundation to provide support to statewide efforts to reduce tobacco use. The program was initiated in 1993 and provided grants to statewide coalitions through 2004. It was intended to complement government programs (such as ASSIST) by awarding grants to nongovernment organizations with the goal of educating the pubic and policy-makers. The grants initially supported comprehensive tobacco-control programs that included education, treatment, and policy initiatives, but it moved to a policy-only focus in 2000, requiring each grantee to devote matching funds to lobbying activities. More than $99 million dollars was dedicated to the program in the course of its 10-year duration. Key results attributed to the program include increased excise taxes in 35 states, clean-indoor-air legislation in 10 states, and ordinances to restrict youth access to tobacco in 13 states.

Ending the Tobacco Problem: A Blueprint for the Nation is a report from the IOM Committee on Reducing Tobacco Use: Strategies, Barriers, and Consequences (IOM, 2007). Published in 2007, the report aims to set the nation on a course toward "reducing smoking so substantially that it is no longer a significant public health problem". The report begins with a description of the history and nature of the tobacco problem and eventually provides a blueprint for reducing tobacco use by setting forth a policy framework, describing measures for strengthening traditional tobacco-control measures, and providing strategies for changing the regulatory landscape.

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B

DEPARTMENT OF DEFENSE TOBACCO USE PREVENTION STRATEGIC PLAN, 1999

Goals/Tasks	Metrics/Objectives	Requirements (Policy, Programs, Practices, Resources)	Time-Line
A.1. Reduce smoking rates by 5% per year and reduce smokeless tobacco use rate by 15% by the year 2001, for the total force (i.e., include Guard, Reserve, civilian employees and all healthcare beneficiaries).	A.1. The 1998 Department of Defense Survey of Health Related Behaviors Among Military Personnel will serve as the initial baseline for current rates of tobacco use (smokeless and smoking) for active duty personnel.	A.1. Establish an Alcohol Abuse/Tobacco Use Reduction Committee (AATURC) that coordinates and monitors progress of this prevention plan with oversight by the Prevention Safety and Health Promotion Council (PSHPC). This effort requires funding and administrative support from USD/PandR. POM money needs to be requested over the long term to ensure standardization for human resourcing (e.g., staffing guidelines).	
	A.2. Annual progress report from the PSHPC to USD/PandR.	A.2. Explore conducting a smaller DoD survey annually with selected subjects (tobacco and alcohol). Develop a survey mechanism to be able to measure alcohol abuse and tobacco use rates for the following prioritized groups: Active Duty Guard and Reserve DoD Civilians TRICARE Prime Enrollees	
		A.2.1 Identify high-risk groups for initiation of tobacco use, like young military personnel and teen family members.	
B.1. Promote a tobacco-free lifestyle and culture through education and leadership.	B.1. Annual report on percentage of military training and education programs that include instruction on risks of tobacco use and benefits of not smoking	B.1. Assess the content of all basic, technical and professional military training programs for targeted education programs. These programs will include the Services' goal to being smoke free, address risks and harmful effects of tobacco use, the impact of tobacco use on mission readiness (e.g., decreased night vision, decreased cold tolerance, and increased injury rates, etc…) and the benefits of being a nonsmoker. Draft proposed education programs where necessary.	

Goals/Tasks	Metrics/Objectives	Requirements (Policy, Programs, Practices, Resources)	Time-Line
	B.1.1. Report percentage of policy changes implemented at one year.	B.1.1. Assess and evaluate the current consistency of tobacco use policies across the Services for basic and initial skills training. B.1.2. Assess Service policies on tobacco use for students and instructors, during the duty day, for all formal military training schools, (e.g., Basic and Officer Training School, technical schools, professional military education schools). B.1.3 Prepare draft policy that extends prohibition of tobacco use for students during all formal military training and schools during the duty day, (e.g., Basic and Officer Training School, technical schools, professional military education schools. (Note: If new policy is implemented then new accessions will be informed of these requirements before entering the military.) B.1.4. Assess and draft policy, if necessary, that requires all personnel selected for training to be informed of the Services smoke free goal.	
B.2. Educate commanders at all levels on how best to encourage healthy lifestyles as well as the benefits of being tobacco free.		B.2. Assess and evaluate existing educational programs for commanders that include education on how to encourage healthy lifestyles and information regarding the benefits of being a nonsmoker. B.2.1 If necessary, develop educational materials for commanders that address how to encourage healthy lifestyles and address the benefits of being a nonsmoker. B.2.2. Develop a draft uniform policy, for instructors in formal school instructor positions, which address the need for instructors to serve as "role models." B.2.3. Develop a draft uniform policy that addresses instructors' use of tobacco products in the school environment. B.2.4 Assess current availability of promotional materials and programs to include information and programs like	

Goals/Tasks	Metrics/Objectives	Requirements (Policy, Programs, Practices, Resources)	Time-Line
		unit awards for tobacco free lifestyles (e.g., 72-hour pass liberty, etc…). This assessment as well as new promotional programs will need to be sensitive to the need of Base commanders to work with local unions and develop similar promotional programs for civilian employees.	
B.3. Promote the benefits of being a nonsmoker and provide tobacco counteradvertising using Public Affairs and other military media.	B.3. Report the percentage of Public Affairs offices providing tobacco counteradvertising	B.3. Assess the existence and extent of Public Affairs offices' efforts to conduct counteradvertising for tobacco use. (For example, articles and campaigns that include benefits of being tobacco free, the availability of smoking cessation programs, and the harmful effects of tobacco use.)	
		B.3.1. Assess current policy and compliance on Services' commercial solicitation as it relates to tobacco products, (For example advertising, promotion, and donations.).	
C.1 Decrease accessibility and availability of tobacco products through pricing and smoking area and tobacco use restrictions.	C.1. Report the percentage of policy changes implemented at 1 year.	C.1. Assess the Service policies and compliance with State/local laws restricting tobacco use where those community standards are more restrictive than DoD policy.	
		C.1.1. Review Service policies and practices on prohibiting tobacco use in all common areas used by non-tobacco users.	
		C.1. 2 Assess the implementation of Executive Order 13058-Protecting Federal Employees and the Public From Exposure to Tobacco Smoke in the Federal Workplace.	
		C.1.3. Support pricing tobacco products at no more than 5% below the local competitive price.	
		C.1.4. Assess Service practice of and compliance with implementing the prohibition of tobacco sales to individuals under the age of 18.	
		C.1.5. Develop draft policy that prohibits single serve (e.g. single can, single pack) tobacco products to be sold by self-serve at the checkout register.	
		C.1.6. Develop draft policy that indicates resale activities (Commissaries and Exchanges) will	

Goals/Tasks	Metrics/Objectives	Requirements (Policy, Programs, Practices, Resources)	Time-Line
		endeavor to display tobacco cessation products in areas that provide visibility and opportunity to customers who desire to change their tobacco habits.	
		C.1.7. Support pricing of smoking cessation products below the local competitive price.	
D.1 Military health system actively identifies tobacco users and provides targeted interventions	D.1. Report on the percentage of medical records noting tobacco use status on DD2766 or AF 1480A (Currently in development.)	D.1. Develop and monitor a centralized, Tri-Service reporting and surveillance system to track tobacco use.	
		D.1.1. Develop a draft policy for ASD(HA) requiring the Military Health System to utilize all avenues to identify and document tobacco users, their readiness to quit and offer appropriate "stage of change" intervention, as delineated below:	
		D.1.2. Develop targeted interventions to selected groups (e.g., pregnant women).	
		D.1.3. Develop a plan to annually conduct a health risk appraisal that includes the assessment of tobacco use habits and mandates participation for active duty personnel.	
		D.1.4. Develop a draft policy that requires tobacco use to be documented as "5th vital sign" at all medical and dental appointments.	
		D.1.5. Assess Service policies, and draft policy if necessary, to require routine screening of all beneficiaries as part of "Put Prevention Into Practice" program, with providers using guidelines from the Agency for Health Care Policy and Research (AHCPR).	
D.2. Military Health System provides effective tobacco cessation programs.	D.2. Report the percentage of tobacco users enrolled to a primary care manager who are offered tobacco cessation.	D.2. Assess and develop draft policy that requires tobacco cessation programs to include behavioral modification, Nicotine Replacement Therapy (NRT)/other approved pharmacological interventions as a TRICARE Prime preventive services benefit.	
	D.2.1. Report the percentage of individuals enrolled in tobacco cessation programs	D.2.1 Develop an evaluation of the effectiveness of newly-developed tobacco cessation programs.	

Goals/Tasks	Metrics/Objectives	Requirements (Policy, Programs, Practices, Resources)	Time-Line
	(specify type) who successfully quit at 6 and 12 months post-intervention.		
	D.2.2. Report the percentage of Military Treatment Facility pharmacies providing NRT and other approved pharmacological therapy to TRICARE Prime beneficiaries.	D.2.2. Draft policy to fund Military Treatment Facilities pharmacies to specifically stock a variety of NRT and other approved pharmacological interventions that have substantial empirical support for their use, (e.g. buproprion) to accommodate individualized therapy. (Note: This will be an unfunded requirement provided by ASD (HA) until incorporated into O and M baseline POM).	
		D.2.3 Support partnership with TRICARE managed care support contractors to identify interventions that work and to facilitate tobacco use avoidance education.	
		D.2.4. Assess installation tobacco cessation programs for flexibility to accommodate individual needs, to include: individual or group contact, recognition of problems encountered in quitting (skills training), at least 4 encounters and encouragement to use Nicotine Replacement Therapy appropriately. Prepare policy recommendations as necessary.	
E. Continually assess best practices in the area of Tobacco prevention.	E.1. AATURC reviews and recommends best practices to the PSHPC.	E1. Develop plans to assess prevention and early intervention strategies.	
		E.2. Develop and evaluate best prevention practices pilot programs.	