



Navy Medicine Tobacco Cessation Metrics: Methods

Health Analysis Department

Introduction

Tobacco is one of the most widely abused substances in the United States. As the leading cause of preventable death, tobacco use is responsible for 5 million deaths annually.¹ As of 2007, it was estimated that 24.2% of the U.S. population were current cigarette smokers, 5.4% smoked cigars, 3.2% used smokeless tobacco, and 0.8 percent smoked pipes.² Overall, tobacco use is related to about 443,000 deaths per year in the U.S.; more than alcohol, illegal drug use, homicide, suicide, car accidents, and AIDS combined.^{1,2}

Smoking accounts for one third of all cancer deaths and can lead to severe lung diseases such as emphysema and chronic obstructive pulmonary disease (COPD). Furthermore, smokers are 2-4 times more likely to develop coronary heart disease than non-smokers, and also are at an increased risk for heart attack, stroke, vascular disease, and aneurisms.² Those who use tobacco demonstrate statistically higher accident rates, increased absenteeism, diminished motor and perceptual skill, and poor endurance when compared to non-tobacco users.^{3,4} Therefore, the effects of tobacco on military personnel's readiness, productivity, health, and quality of life remain a vital concern.

Data suggest that at least 70% of smokers see a physician annually, placing physicians on the front line to intervene with tobacco users. However, clinicians often fail to regularly and effectively evaluate and treat tobacco use.⁵ The 2008 DHHS Clinical Practice Guideline for Treating Tobacco Dependence recommends that all patients should be asked consistently if they use tobacco and have their tobacco-use status routinely documented. Furthermore, each tobacco user seen in a healthcare setting should be advised to quit smoking, regardless of his or her willingness to quit. These steps have been shown to significantly increase rates of successful clinician intervention, reinforcing the need for providers to acknowledge and document tobacco use as critical to population health management.⁵

Prior to Fiscal Year (FY) 2009, methodologies to quantify and monitor Military Treatment Facility (MTF) tobacco cessation efforts within the military population were neither standardized nor widely applied. As a result, application of these metrics aims to standardize the Navy Medicine tobacco use documentation and diagnosis process, ensuring patient smoking status will consistently be up-to-date in medical records. Equipped with this



information, clinicians will then be able to easily identify current tobacco users, determine patient motivation to quit, and proceed with the appropriate method of intervention. By providing a tool, the Population Health Navigator Dashboard (PHN dashboard), for monitoring compliance with the clinical practice guidelines, an increase in tobacco screening, diagnosing, and intervening among tobacco users is anticipated.

Metric Development:

Data Sources:

Three metrics were created with the purpose of standardizing the process for addressing tobacco users. Definitions and methods for each metric are described on pages 3-4. For Metrics #1 and #2, data were extracted from MHS Data Repository (MDR). MDR is the clinical reporting tool for the Armed Forces Health Longitudinal Technology Application (AHLTA) Composite Healthcare System (CHCS). AHLTA, the outpatient medical electronic record, equips Military Health System (MHS) analysts and clinicians with patient-centric data to help them identify and assess trends to optimize clinical performance. For Metric #3, data were extracted from MHS Management and Analysis Reporting Tool (M2), which receives data from the Medical Data Repository (MDR), fed by AHLTA and other data systems such as Composite Health Care System (CHCS). To calculate performance, unique numerators and denominators were defined and reported as a percentage (Table 1).

Table 1: Tobacco Cessation Metric Definitions

Navy Medicine Tobacco Cessation Metric Definitions	
Variables	Definition of Variables
Visits with Vitals:	The number of adult encounters in which the vitals module was used within the reporting period selected
Visits w/Tobacco Screening:	The number of adult encounters in which the vitals module was used and tobacco-use status was recorded as a yes or no within the reporting period selected.
Unique Tobacco Users:	The number of unique adults who had the "yes" box checked for the tobacco-use status screening within the reporting period, even if they had a "no" recorded within the same time period.
Unique Diagnosed Tobacco Users:	The number of unique adults who had a documented tobacco related ICD-9 diagnosis code.
Tobacco Cessation Intervention:	The number of unique adults who had a documented diagnosis with a tobacco related ICD-9 code and had documentation of receiving tobacco cessation interventions such as education, counseling, or pharmacotherapy within 12 months following the tobacco-use diagnosis month.
Metrics	Definition of Metric
#1: Tobacco Screening:	$\% = \frac{(\# \text{Visits w/Tobacco Screening})}{(\# \text{Visits with Vitals})} * 100$
#2: Tobacco Diagnosis:	$\% = \frac{(\# \text{Unique Diagnosed Tobacco Users})}{(\# \text{Unique Tobacco Users})} * 100$
#3: Tobacco Intervention:	$\% = \frac{(\# \text{Tobacco Cessation Intervention})}{(\# \text{Unique Diagnosed Tobacco Users})} * 100$



Benchmarking/Performance Tracking:

Data were extracted for Navy Medicine and benchmarks were calculated based on percentiles of performance. Fiscal Year 2012 is the baseline year; every year hereafter will be compared to the previous year. The metrics are posted on the NMCPHC Population Health Navigator Dashboard (<https://edq.med.navy.mil/PopHealthNav>) to allow MTFs to measure performance and process improvement in tobacco screening, documentation, and intervention compared to established performance benchmarks. If budgetary incentives were available these benchmarks would serve as a foundation for establishing relevant performance based budget award bands.

Metric #1: Screening

Definition:

Metric #1 measures the percentage of adult encounters in which the vitals module was used and tobacco-use status was recorded. The goal of this metric is to increase screening and recording of tobacco use status among all patient encounters at each Navy MTF.

Methods:

Using MDR, one month intervals were queried for all Navy facility visits in which the vitals module in AHLTA was opened for those 18 years and older. Only closed visits from B MEPRS codes clinic type were included. Physical Therapy and Occupational Therapy clinics were excluded from this data because practicing clinicians cannot diagnose patients and therefore cannot validly contribute to the sequence of the metrics. Tobacco use performance for each facility was calculated for one month intervals by dividing the number of medical encounters where tobacco use status was documented within the vitals module by the number of medical encounters where the vitals module was used (Table 1).

Each MTF's screening performance was calculated as a percentage. The monthly performances were sorted in ascending sequence and each MTF's performance was weighted by the number of visits with vitals to calculate performance benchmarks. The fiscal year 2012 (FY12) 50th, 75th, and 90th percentiles were determined to be 83.7%, 90.3%, and 91.4%, respectively. The average Navy Medicine performance was 84.4% during this time period. This metric can be graded at both the Parent and Child MTF level.



Metric #2: Diagnosis

Definition:

Metric #2 measures the percentage of unique adults who had the “YES” box checked in the vitals section of AHLTA for the tobacco-use status at their most recent visit and had a documented tobacco related ICD-9 diagnosis code within a year of that point. The goal of this metric is to increase diagnosis of tobacco users with a tobacco related ICD-9 code at least once a year in each Navy MTF.

Methods:

Data was extracted using MDR for all beneficiaries 18 years of age or older who were documented as being a tobacco user at a Navy MTF. Like Metric #1, only closed visits from B MEPRS codes clinic type were included, and Physical Therapy and Occupational Therapy clinics were excluded. Performance was calculated by dividing the number of unique individuals diagnosed with a Tobacco Use Disorder (305.1, 649.00-649.04) in any diagnosis field by the number of unique individuals with a tobacco use status of “YES” documented within the vitals module at least once at an outpatient visit (Table 1).

Each MTF’s average diagnosis rate was calculated and subsequently sorted in ascending sequence and weighted by number of individuals with a tobacco use status as “Yes”. The 50th, 75th and 90th performance percentiles were determined and selected as benchmarks for FY12; 26.9%, 32.1%, and 52.1% respectively. The average Navy Medicine performance was 30.1% during this time period. Facilities are graded monthly on their most recent 12 month performance. This metric can be graded at both the Parent and Child MTF level.

Metric #3: Intervention

Definitions:

Metric #3 measures the percentage of unique diagnosed tobacco users presenting in an outpatient clinic in one month and received a tobacco cessation intervention within twelve months after being diagnosed. The goal of this metric is to increase tobacco cessation interventions in Navy Military Treatment Facilities (MTFs).



Methods:

Data were extracted from M2’s pharmacy and ambulatory records for all patients 18 years of age or older who were diagnosed as a tobacco user at a Navy MTF. Tobacco cessation intervention performance for each MTF was calculated by dividing the number of unique individuals who were diagnosed with Tobacco Use Disorder and received a tobacco cessation intervention within a 12 month period after being diagnosed (Table 2). Individuals with a tobacco cessation intervention but no tobacco diagnosis were excluded from the metric.

Each MTF’s average intervention rate was calculated and subsequently sorted in ascending sequence and weighted by number of diagnosed tobacco users. The 50th, 75th and 90th performance percentiles were determined and selected as benchmarks for FY12; 42.1%, 47.6%, and 58.8% respectively. The average Navy Medicine performance was 42.3% during this time period. Facilities are graded monthly on their most recent 12 month performance. This metric can be graded at the Parent MTF only to ensure due credit is given for diagnosis and treatment that may not occur at the same MTF.

Table 2: Metric #3 Case Definitions

PBB Tobacco Cessation Metric #3: Case Definition		
Tobacco Cessation Intervention		
ICD-9 Code	V65.49 4	Tobacco Cessation Education
CPT	99406	Smoking/Tobacco Cessation Counseling provided to an individual by privileged / non-priv provider, 3-10 mins
	99407	Smoking/Tobacco Cessation Counseling provided to an individual by privileged / non-priv provider, 10+ mins
	99411-99412	Tobacco Cessation Counseling/ risk factor reduction interventions provided to a group by privileged provider
CPT II	4000F	Tobacco Use Cessation Intervention, counseling (COPD, CAP, CAD, DM, PV)
	4001F	Tobacco Use Cessation Intervention, pharmacologic therapy (COPD, CAP, CAD, DM, PV)
HCPCS	S9453	Smoking Cessation Classes, non-physician provider, per session
Pharmacotherapy Order	Nicotine Replacement Therapy (NRT) [Nicotine Gum, Nicotine Lozenge, Nicotine Patch, Nicotine Polacrilex, Thrive Nicotine, Nicoderm CO, Nicorelief, Nicorette, Nicorol, Nictrol NS, Habitrol, Commit], Chantix, Varenicline, Zyban, Bupropion HCL, Bupropion Hydrochloride	
Tobacco Diagnosis		
ICD-9 Code	305.1	Tobacco use disorder
	649.0-649.04	Tobacco use disorder complicating pregnancy



References

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4. Swanson MA, Burroughs CC, Long MA, Lee RW. Controlled Trial for Smoking Cessation in Navy Shipboard Population Using Nicotine Patch, Sustained-Release Bupropion, or Both. *Military Medicine*. 2003; 168:830-834.
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