

# VANGUARD 2005

## Medical Research and Development Requirements Symposium



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### Final Report

Sponsored by  
Bureau of Medicine and Surgery  
(BUMED M5B3)

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## EXECUTIVE SUMMARY

### OVERVIEW

The VANGUARD Medical Research and Development Requirements Symposium concept was developed in 1996 to serve as a forum for identifying science and technology gaps that would drive future medical research and development efforts. The last such symposium/wargame was conducted in 2002 at the Army War College, Carlisle Barracks, PA. The 2005 VANGUARD symposium was held 7-10 November at the Naval War College (NWC), Newport, RI, sponsored by the Bureau of Medicine and Surgery (BUMEDM5B3). It brought together representatives of Navy and Marine Corps Senior Operational Leadership, in association with leaders from service headquarters, to prioritize the capabilities needed to support the pillars of the functional concept of Naval Force Health Protection for the 21<sup>st</sup> Century (NFHP-21) between 2008 and 2013 across the range of military operations.

For VANGUARD 2005, 85 invited participants were assigned to one of three working groups, each of which was given a classified scenario used for wargaming by the Center for Naval Warfare Studies (CNWS) at NWC. These 3 scenarios included Major Combat Operations (MCO), a Show of Force (SHOF) from the SEA BASE, and Foreign Humanitarian Assistance (FHA). These scenarios served as backdrops for examining the capabilities and associated capability gaps needed to support NFHP-21. The working groups were further divided into Functional Capabilities Cells (FCCs) that were tasked with examining the required capabilities needed to support focus areas within the three pillars of NFHP-21: Healthy and Fit Force (HAFF), Prevention and Protection (PAP), and Casualty Care and Management (CCM). Moderators from CNWS and facilitators from the Health Services Division of the Navy Warfare Development Command (NWDC) led the working groups through successive phases of military operations specific to their scenarios to identify the Force Health Protection (FHP) and Health Service Support (HSS) capabilities and projected capability gaps required to support each phase of the operation.

Deliberations within each working group were conducted over the course of three days. At the conclusion of the third day, each working group briefed their preliminary findings at a closing plenary session. Thirty-six participants were designated to participate in a master voting session on the fourth day of the Symposium to assess and rank order items identified by the Symposium attendees as potential capability gaps.

### FINDINGS AND OBSERVATIONS

Participants identified 257 potential FHP and HSS capability gaps during the course of the Symposium. A recurrent theme noted was the need for enhanced HSS contribution to the common operating picture in support of deployable forces. The master voting session assigned arithmetic weights to each of the 257 items identified, providing a mechanism for determining rank-ordered prioritization. These items were used to populate nine data spreadsheets corresponding to each of the three NFHP-21 pillars for each of the three working groups. Comments from the master voting session were also captured to provide additional material for consideration.

A Data Collection and Analysis Plan (DCAP) devised by staff analysts at NWDC guided study of the results of the master voting session report. From the 257 issues, 11 Principal Capability Gaps were identified that describe overarching areas of concern:

- Providing effective Command and Control (C2) across the continuum of care.
- Training and equipping sailors and marines to deliver first responder care/advanced first aid across the Fleet.
- Managing an integrated patient care movement and evacuation system that can rapidly move large numbers of casualties.
- Utilizing a common interoperable Medical Readiness Reporting Tool (individual & unit) that can identify, with high accuracy, people with deployment-limiting conditions.
- Integrating medical operations plans that fully incorporate Join, Coalition, and Non Governmental Organization (NGO) and Private Volunteer Organization (PVO) assets.
- Providing long range patient evacuation to and from the Sea Base.
- Providing enhanced forward and distributive resuscitative care.
- Fielding scalable, interoperable, and modular medical support systems.
- Effectively conducting HSS in FHA operations.
- Providing medical force surge capacity.
- Adequately supporting Fleet requirements for appropriate personal protective equipment (PPE).

Further analysis conducted at NWDC permitted the identification of capability gaps corresponding to Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) functional areas. Eighty-eight DOTMLPF capability gaps were identified from the 257 items assessed during the master voting session. These included 14 Doctrinal issues, 9 Organizational issues, 21 Training issues, 22 Materiel issues, 15 Leadership and Education issues, 5 Personnel issues, and 2 Facilities issues.

## **WAY AHEAD**

The intent of VANGUARD 2005 was not to provide solutions, but to identify areas that will require further research, analysis, and development. It is recommended that the 257 rank-ordered items, 11 Principal Capability Gaps, and 88 DOTMLPF issues, be considered by commands and agencies within Navy Medicine that can perform Functional Needs Analyses (FNA) and Functional Solutions Analyses (FSA) to determine the need for further development. The results may also be used as appropriate to effect solutions within those commands that have oversight of DOTMLPF areas. As the Symposium sponsor, BUMED M5B3 will track the status of items recommended for further action.

## GENERAL REPORT

### INTRODUCTION

The VANGUARD Medical Research and Development (R&D) Requirements Symposium series was developed to serve as a forum for identifying science and technology gaps that would drive future medical research and development investments.

The VANGUARD 2005 Medical Research and Development Requirements Symposium was sponsored by the Bureau of Medicine and Surgery (BUMEDM5B3) and held at the Naval War College (NWC), Newport, RI, from 7 to 10 November 2005. Like previous VANGUARD symposia, it brought together a wide array of representatives from Navy and Marine Corps commands, programs, and platform sponsors to help develop the R&D investment strategy for the next generation of research in Force Health Protection (FHP).

The primary focus for the 2005 Symposium was to generate a prioritized listing of line-driven capability gaps needed to support the Navy Surgeon General's transformation of Navy Medicine into a Defensive Weapon System. This will guide BUMED's \$200 million R&D investment strategy for Fiscal Years (FY) 2008-2013, better shape the relevance of Navy Medicine's research vectors to warfighter's needs, and improve the quality and performance of our medical R&D programs.

As Navy Medicine's sponsor, BUMED provided travel funding and other related costs. Assistance in planning and conducting the Symposium was provided by the staffs of NWC's Center for Naval Warfare Studies (CNWS) Wargaming Department, and the Health Services Division of the Navy Warfare Development Command (NWDC), both located in Newport, RI.

### Background

The 2005 VANGUARD Symposium was designed to align Navy Medicine R&D efforts more closely with the overarching mission of the Department of Defense (DOD). This mission is articulated for the Defense Health Program by the Assistant Secretary of Defense for Health Affairs (ASD/HA).

*To enhance DOD and our Nation's security by providing health support for the full range of military operations and sustaining the health of all those entrusted to our care.*

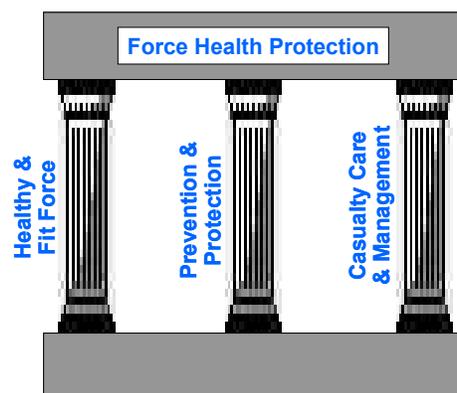
Supporting this mission is the Joint concept of Force Health Protection (FHP) providing strategic guidance for the Service's Medical Departments.

*FHP is a unified strategy that describes the integrated preventive and clinical programs designed to protect and sustain the Department of Defense's (DOD's) most important resource — the human weapon system. FHP, the medical component of Force Protection, is defined as all measures taken by commanders, leaders, individual Service members, and the Military Health System (MHS) to promote, improve, conserve or restore the mental and physical well-being of Service members across the range of military operations.*

The Navy and Marine Corps have articulated their vision for implementation of FHP in the functional concept paper “Naval Force Health Protection for the 21<sup>st</sup> Century” (NFHP-21), promulgated by NWDC and the Marine Corps Combat Development Command (MCCDC) in August 2004. NFHP-21 is comprised of three main pillars and supporting elements:

- **Healthy and Fit Force (HAFF)**
  - Health Promotion
  - Physical Fitness
  - Stress Management
  - Individual Medical Readiness
  - Risk Communication
  - Safe & Healthy Working Conditions
  
- **Prevention and Protection (PAP)**
  - Assess/Mitigate Hazards
  - Immunizations
  - Preventive Medicine initiatives
  - Personal Protective Equipment and countermeasures
  - Health & Environmental Surveillance
  - Pre/Post Deployment Health Assessment
  
- **Casualty Care and Management (CCM)**
  - First Responder
  - Forward Medical Care and Surgery
  - Theater Medical Care and Hospitalization
  - En route Care
  - Care Outside the Theater/Definitive Care

### **Pillars of Force Health Protection**



NFHP-21 is put into practice through the provision of Health Service Support (HSS) by medical departments and elements assigned to operational forces. The third pillar of NFHP-21, CCM, contains a taxonomy of care capabilities based upon those required by the Combatant Commanders

and Joint Force Commanders as essential to support the range of military operations. The figure below depicts this taxonomy of care capabilities.

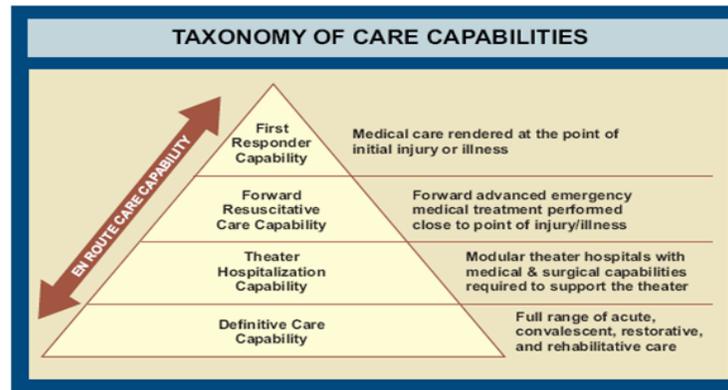


Figure I-2. Taxonomy of Care Capabilities

The VANGUARD series was implemented in 1996 to enhance the R&D contribution to FHP and HSS. VANGUARD symposia/wargames have been conducted in '96, '98, and '02. The overarching goals are to identify near-term and future biomedical requirements, revalidate existing requirements, and to track them where possible to enable expeditionary HSS Concept Development and Experimentation (CD&E). They have significantly demonstrated the importance of a Fleet- and Marine Corps-led biomedical requirements identification process for planning and implementing biomedical science and technology programs that will enhance medical support capabilities and operational war-fighting requirements of the Navy-Marine Corps team.

VANGUARD 2002, held at the Army War College, Carlisle Barracks, PA, produced a number of recommendations for R&D investment. Subsequent feedback after the wargame indicated that more active involvement by Fleet and Marine Corps operators would further enhance the value and validity of identified requirements. Leveraging the work that has been done before, and combining this with the capabilities delineated in the joint concept of FHP and the functional concept of NFHP-21, provided the underpinnings for the VANGUARD 2005 Symposium.

### VANGUARD Goals and Objectives

The goals and objectives of VANGUARD 2005 were articulated in a concept paper promulgated by BUMED M5B3 three months before the conduct of the Symposium. These goals and objectives were captured in the mission statement for VANGUARD 2005:

*To utilize the collective experience of operational medical users from across the Navy and Marine Corps to identify and prioritize the capabilities needed to support Force Health Protection (FHP) between the years 2008-2013.*

In contrast with prior VANGUARD symposia, attendees were instructed not to focus on technology capabilities, but to consider capabilities across the full spectrum of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) areas. This approach would ensure that technological programs would be considered in the context of other areas needed to fully support Navy Medicine transformation. Attendees were also instructed not to address HSS capabilities associated with Chemical, Biological, Radiation, Nuclear, or Explosives

(CBRNE) weapons or Infectious Diseases, as these areas have been addressed by the Joint Requirements Oversight Council (JROC) and the Army, respectively. The pillars of NFHP-21 were considered by participants across the life cycle of operational FHP as depicted in the figure below.

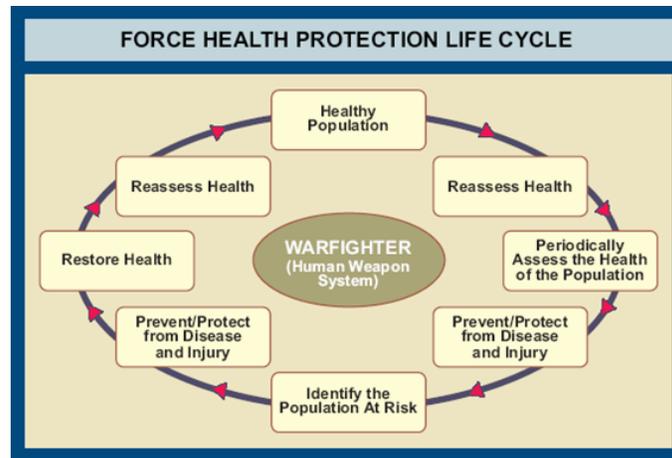


Figure I-1. Force Health Protection Life Cycle

In light of the above goals, VANGUARD 2005 had the following objectives:

- Review existing operational medicine requirements.
- Review recent medical symposia/wargame outcomes and recommendations.
- Consider current operational lessons learned.
- Identify capabilities needed to support operational health care delivery across six functional areas:
  - Medical command and control (MCC)
  - Medical logistics and infrastructure (MLI)
  - Patient casualty evacuation and movement (PCE)
  - Enhanced human performance (EHP)
  - Battle field medicine and surgery (BMS)
  - Preventive medicine, medical intelligence, and surveillance (PMMIS)
- Identify gaps and limitations in current operational health care to support operational scenarios.
- Prioritize needed capabilities.

## SYMPOSIUM PROCESS AND STRUCTURE

The VANGUARD 2005 Symposium was conducted using a three part process:

- Part 1: Planning and Preparation
- Part 2: Execution
- Part 3: Post-symposium Data Collection and Analysis Plan (DCAP)

## Part 1: Planning and Preparation

The initial part of the planning process involved drafting of the concept paper by BUMED M5B3 to outline the goals, objectives, structure, and initial process for the Symposium. This concept paper served as the foundation for further development of the VANGUARD 2005 process and structure in meetings subsequently held with NWDC and CNWS staff in September and October of 2005. During this phase, the precepts of the VANGUARD series in the original concept paper were broadened to include the pillars of NFHP-21 and extending the scope of the process to the full DOTMLPF spectrum.

To provide a backdrop for the consideration of the capabilities needed to support the pillars of NFHP-21, the 2005 Symposium incorporated classified operational scenarios used by the Office of Naval Intelligence (ONI) detachment of CNWS. As these scenarios are classified, a full discussion of their particulars cannot be included in the body of this report. (More detail may be obtained by contacting the staff of the CNWS via a secure communication pathway.) It should be stressed that the use of these scenarios was intended to facilitate the Symposium discovery process in order to highlight the capability gaps of operational HSS required within each scenario and not to conduct an actual wargame. Participants were instructed not to “fight the scenarios” and not to dwell at the tactical level of warfare, given the constraints in time. The three operational scenarios used by the working groups were:

**Major Combat Operations (MCO):** The process of carrying on combat, including movement, supply, attack, defense, and maneuvers needed to gain the objectives of any battle or campaign.

**Show of Force (SHOF):** An operation designed to demonstrate US resolve that involves increased visibility of US deployed forces in an attempt to defuse a specific situation that, if allowed to continue, may be detrimental to US interests or national objectives.

**Foreign Humanitarian Assistance (FHA):** Programs conducted to relieve or reduce the results of natural or manmade disasters or other endemic conditions such as human pain, disease, hunger, or privation that might present a serious threat to life or that can result in great damage to or loss of property. Foreign humanitarian assistance (FHA) provided by US forces is limited in scope and duration. The foreign assistance provided is designed to supplement or complement the efforts of the host nation civil authorities or agencies that may have the primary responsibility for providing FHA. FHA operations are those conducted outside the United States, its territories, and possessions.

### Working Group Mechanics

The 85 Symposium participants were assigned to one of three Working Groups (WGs) with 28 persons per group. Each WG would use one of the above operational scenarios to bring out different aspects of HSS required to support the pillars of NFHP-21. The three WGs were further subdivided into six Functional Capability Cells (FCCs) within each group comprised of 4-6 persons. Each FCC focused on different areas across the 3 pillars of NFHP-21:

- Medical Command and Control (MCC)
- Medical Logistics and Infrastructure (MLI)
- Patient Movement (PM)
- Enhanced Human Performance (EHP)
- Battlespace Medicine and Surgery (BMS)
- Preventive Medicine, Medical Intelligence, and Surveillance (PMMIS)

Each FCC addressed perceived capability gaps in present, near-term, and future HSS across the spectrum of DOTMLPF as facilitated by the operational scenarios.

After orientation, the WGs and FCCs were tasked to begin with an assessment of HSS capabilities needed and the associated capability gaps. Each day of the Symposium focused on different elements of HSS needed across the life cycle of an extended expeditionary campaign or operation with the following operational scenario phases:

- Pre-phase I: Routine military operational medicine
- Phase I: Planning and preparation for deployment
- Phase II: Deployment to the Area of Operations (AO), Joint Receipt Staging Onward Movement and Integration (JRSOI) aboard the SEA BASE
- Phase III: Decisive operations
- Phase IV: Transition and Stability Operations, Re-deployment, and re-entry into Pre-phase I

To provide a framework for identification and capture of sequential HSS capabilities and capability gaps, each FCC was directed to use a synchronization matrix as a tool to analyze the HSS elements required for the pillars of NFHP-21 in each sequential phase of their scenario. Identification of anticipated capability gaps was to be captured daily and entered into the matrices. The capability gaps captured in the synchronization matrices for each of the 18 FCCs was to provide the material for daily deliverables and to fulfill the Symposium objectives. From these data, military requirements will be identified for resource allocation as outlined by the symposium objectives. One such synchronization matrix is shown in Appendix A for the WG A (MCO) MCC FCC to capture items concerning the HAFF NFHP-21 pillar.

These matrices would also serve to provide the data needed for the WG overview closing plenary session briefs on day 3 and for the master voting session briefs on day 4.

### **Symposium attendees**

The list of potential attendees drafted by BUMED M5B3 was circulated and vetted by key stakeholders within Navy Medicine to attempt to gather the widest possible assembly of Subject Matter Experts (SMEs). Appendix B contains a list of the 2005 Symposium participants.

Dissemination of information regarding the Symposium and support in arranging for funding and travel orders was performed by BUMED M5B3. Symposium registration was accomplished using

a web-based approach supported by the CNWS staff. The website allowed participants to request assignment to a WG and FCC prior to arriving based on their background and experience.

## **Part 2: Symposium Execution**

### **Participant check in and opening plenary session briefs on day 1**

After arrival in the Newport area, participants checked in for day 1 at the CNWS facility on the campus of NWC. Appendix C contains the Schedule of Events for the four days of VANGUARD 2005. An opening plenary session led by the senior moderator of the Symposium provided background administrative and support information. This was followed by introductory overview briefings to provide the necessary background, purpose, and expected deliverables. These briefings contained a review of the Symposium objectives and mechanics, joint terminology to be used, and a working definition of Capability Gaps (CGs) for use in WG deliberations. After this orientation, participants were then divided into their three assigned WGs and directed to their respective seminar work spaces for further orientation in their respective scenarios by the WG moderators. This began the working sessions as participants then deliberated within their WG scenarios.

### **Symposium WG deliberations on days 1, 2, and 3**

Each WG received a classified scenario overview brief from staff of the CNWS ONI detachment. This entailed background information and “Red” and “Blue” Force “major muscle” movements. Following the scenario briefings, WG facilitators prompted the participants to assess HSS capabilities needed and associated CGs for each scenario phase with the following questions:

- Given the risks discussed within the current phase of your scenario, what HSS capabilities could be provided to our Sailors and Marines as they conduct operations in theater that are not being provided today to address those risks?
- Given the above, what HSS Capability Gaps do you feel can be identified?

Reference materials were made available to participants on the CNWS intranet for use in their deliberations. These included the NFHP-21 concept paper, Symposium briefs, Navy and Marine Corps task lists, and the report of the 2003 NWDC Medical Seabasing Symposium. Identification of anticipated CGs was captured daily from each FCC for each NFHP-21 pillar and entered into the matrices. Each scenario WG continued to engage with the staff moderators from CNWS and the medical facilitators from BUMED and NWDC over the course of the next two and one half days. Classified scenario updates were given for each WG by the CNWS moderators at incremental phases of the particular operation the scenario supported. At the conclusion of the updates, participants working within their FCCs were challenged to use the scenario backgrounds to identify those aspects of HSS both unique and common to their FCC to identify capabilities needed to support those phases of the operation, and more importantly, HSS CGs that were perceived to exist based on their background, training, and experience as HSS SMEs. This process continued from Monday afternoon to Wednesday afternoon and culminated in the closing plenary session briefs on day 3 of the Symposium.

### WG deliberations and closing plenary session briefs on day 3

At the conclusion of day 3, each WG briefed a synopsis of the major issues identified for their FCCs based on their scenario. The WGs also prepared their input of identified CGs for the “rack and stack” process to be held in the CNWS Decision Support Center (DSC) by the 36 Symposium participants identified by their WGs as participants in the master voting session on the last day of VANGUARD 2005. At the conclusion of the plenary session, participants not identified as involved with the master voting session on day 4 had completed their contribution to the Symposium and were released to return to their parent commands.

### Master voting session day 4

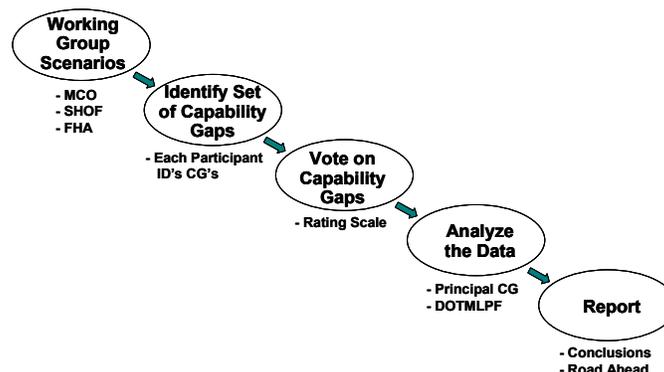
The master voting session was attended by the 36 participants selected from the three WGs and was held in the DSC of the CNWS. The session was moderated by CNWS support staff and used Automated Information Support (AIS) provided by “Web IQ” software. Each of the 257 CGs was presented by senior briefers from each scenario WG. After each briefing, each item was subjected to a vote using a 4-point rating scale:

- (1) Nice to have
- (2) Necessary
- (3) Essential
- (4) Mission Critical

Participants entered their responses electronically and were also able to add and view comments inserted into the report by other users. At the conclusion of the session, a master voting report was generated by the CNWS staff for all items. The report contained statistical computations (arithmetic mean, standard deviation, minimum and maximum rating, and number of voters) as well as a comments section at the end of the report.

### Part 3: Data Collection and Analysis Plan (DCAP) for VANGUARD 2005

The DCAP for VANGUARD 2005 was devised by staff analysts from NWDC in the Operations and Doctrine Departments. The DCAP utilized the data that was captured in the Master Voting Report provided by the CNWS staff from the voting session on the last day of the Symposium. An overview of the process schematic for analysis of the data is below:



Rating-scale statistics were calculated based on the votes of the participants, on a scale of 1 to 4, for each identified Capability Gap (CG). These data were then used to conduct an analysis of the CG list to determine the “Top 20” CGs based on their numerical weightings and commonalities. From this “Top 20” list, further review would be conducted using the Joint definition of a CG.

*The inability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks. The gap may be the result of no existing capability or lack of proficiency or sufficiency in existing capability.*

Analysis using the above would derive the Principal Capability Gaps from the identified “Top 20” Potential CGs.

### **DOTMLPF Analysis**

The NWDC DCAP would then analyze all of the materials to identify, from the data provided, CGs that corresponded to DOTMLPF areas. To ensure a common understanding, the DCAP WG adopted the following definitions of the DOTMLPF areas taken from a Joint Forces Command primer:

**Doctrine** products include doctrine publications, Tactics, Techniques and Procedures (TTP), operating procedures, regulations, checklists, or policy which governs or guides the way the military conducts business.

**Organization** products and services include actual organizations needed to conduct an operation or business, the visual representation of those organizations, organizational characteristics, and opportunities and challenges in utilizing them to perform an operation or conduct business.

**Training** products and services encompass training content and all methods of delivering that content to its intended audience which enables performance and support of the mission.

**Materiel** products are traditionally what have been associated with the defense acquisition process. Weapons, platforms, communication equipment, medical equipment, transportation, training software, etc. Just remember even though materiel may be used to directly perform a mission, it may also support another DOTMLPF component that supports the mission – especially facilities and training.

From a requirements perspective, **Leadership and Education** deals with management and implementation of change across the DOTMLPF spectrum.

The **Personnel** component of DOTMLPF is primarily to ensure that qualified personnel are there to support a capability. This includes identification of the knowledge, skills, abilities, and competencies needed to perform a position, job, or task. It may involve creation of new occupational specialties to support new missions, threats, and technologies and revision of those specialties over time.

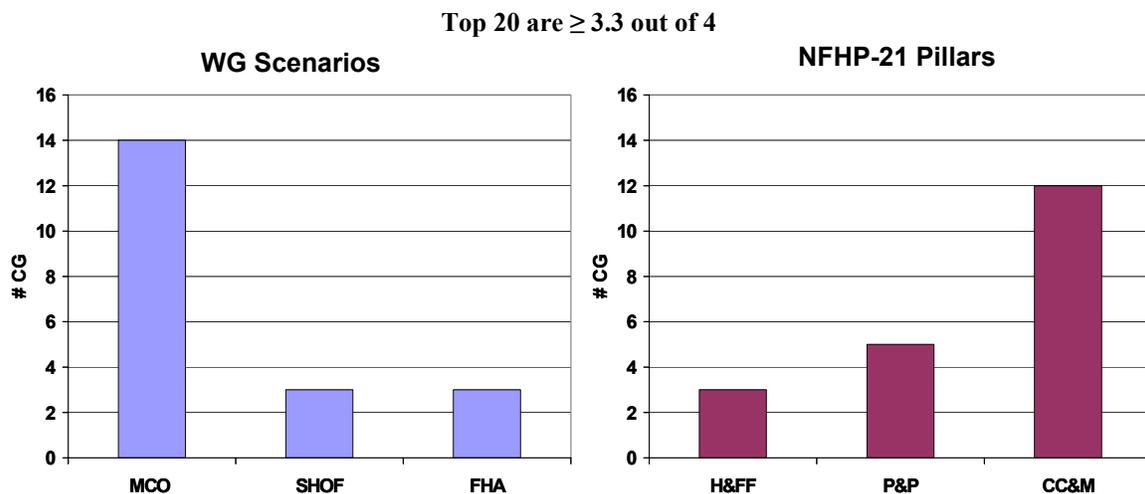
**Facilities** products and services include supplies, engineering support, and much of what is currently associated with logistics. Think...buildings, roads, runways, and infrastructure and the activities it takes to build and maintain them to support performance of operations or systems.

All Principal CGs and other associated items were grouped under the above headings using a consensus multi-voting process. In order to be assigned, an item had to receive three votes from the six DCAP WG members. It was then subjected to discussion within serial DCAP WG sessions to ascertain the validity of its assignment. After acceptance, rejection, or modification, like items were combined whenever possible and reworded to capture the intent of the original statements within the limits of the editorial process.

## RESULTS

### Master Voting Report

To permit widest dissemination of the VANGUARD results, any references to classified materials in the Master Voting Report were removed. There were 257 potential CGs identified and these were rank-ordered and grouped within each NFHP-21 pillar for the three WGs. Using this approach, it was found that, predictably, the MCO scenario and CCM pillar of NFHP-21 dominated the CGs identified by Symposium attendees:



The rating-scale mean (measure of central tendency) and standard deviation (measure of dispersion/spread) were calculated for each of the 257 CGs. The standard deviations were not used in our analysis, but are reported later for potential use as an indicator of the participant agreement or disagreement on the importance of each CG. The data from the Master Voting Report were captured in nine spreadsheets corresponding to the three NFHP-21 pillars for each of the three WGs and can be viewed in Appendices D, E, and F. Amplifying comments by participants during the briefing portions of the master voting session were captured electronically and are included as Appendix G.

The CGs were rank ordered by mean score and a threshold was used to segregate the “Top 20.” The threshold turned out to be  $\geq 3.3$  on a scale of 1 to 4. Redundancy in wording reduced the “Top 20” to 11 and these were designated as Principal CGs.

### **Principal Capability Gaps**

The overarching theme articulated during the Symposium was the need to enhance the HSS contribution to the Common Operating Picture across the board for Navy Medicine as a corporate entity. To further define workable issues that could be submitted for more rigorous analysis, the DCAP WG then met over several sessions to delineate those concerns. The 11 Principal CGs were derived after robust discussion and debate among the six members. Accepted joint terminology was used whenever possible. These 11 CGs were identified using a common lead-in sentence:

*A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...*

- Providing effective Command and Control (C2) across the continuum of care.
- Training and equipping sailors and marines to deliver first responder care/advanced first aid across the Fleet.
- Managing an integrated patient care movement and evacuation system that can rapidly move large numbers of casualties.
- Utilizing a common interoperable Medical Readiness Reporting Tool (individual & unit) that can identify, with high accuracy, people with deployment-limiting conditions.
- Integrating medical operational plans that fully incorporate Joint, Coalition, and NGO/PVO assets.
- Providing long range patient evacuation to and from the Sea Base.
- Providing enhanced forward and distributive resuscitative care.
- Fielding scalable, interoperable, and modular medical support systems.
- Effectively conduct HSS in FHA operations.
- Providing medical force surge capacity.
- Adequately supporting Fleet requirements for appropriate personal protective equipment (PPE).

It should be understood that some element of subjectivity was inherent in the above process based on the background and experience of the DCAP WG members. However, the WG strove to capture the intent of the statements made by Symposium participants in their considerations.

### **DOTMLPF Analysis**

Further analysis conducted by the NWDC DCAP WG using the definitions and process outlined above permitted the identification of CGs corresponding to the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) areas. Eighty-eight DOTMLPF CGs were identified and included 14 Doctrinal issues, 9 Organizational issues, 21 Training issues, 22 Materiel issues, 15 Leadership and Education issues, 5 Personnel issues, and 2 Facilities issues. The full results of the NWDC DOTMLPF CG analysis are contained in Appendix H.

## **DISCUSSION**

### **Participant feedback**

Participant surveys from VANGUARD 2005 indicated attendees felt the Symposium was innovative, flexible and supported the game objective well. There were recommendations for process improvement in a number of areas, ranging from pre-Symposium information dissemination, web-based registration, food and beverage service, wargaming facilities, security clearances, internet access during the Symposium, CNWS staff support, briefings for the scenarios (especially the red and blue cells), and modifications to the schedule of events. These recommendations have all been captured by CNWS and NWDC and can serve to improve the planning for future VANGUARD events.

### **Review of capability gaps**

The participants clearly felt that Navy Medicine is doing an outstanding job in supporting current ongoing military operations. The rapid evolution of technology, the need to adapt our tactics, techniques and procedures to meet emerging threats and missions, the impetus for transformation within DOD and Navy Medicine, and the realities of resource constraints, all contribute to the challenges faced by stakeholders attempting to recapitalize our HSS capabilities to maintain the excellent level of support provided.

The proposed CGs within this report were developed in the spirit of commitment to affirmative process improvement. Chief among these concerns was the need to keep pace with the demand signals for timely and pertinent information to support the HSS portion of the Common Operational Picture. A number of CGs and associated areas of concern as captured above and in the accompanying Appendices suggest areas for further study.

### **Recommendations**

The intent of VANGUARD 2005 was not to provide solutions, but to identify areas that will require further research, analysis, and development. It is recommended that the 257 rank-ordered items, principal CGs, and DOTMLPF CGs, be considered by commands and agencies within Navy Medicine that can perform Functional Needs Analyses (FNAs) and Functional Solutions Analyses (FSAs) to determine the need for further development. Following the analysis process, identified potential solutions to the CGs will be coordinated with BUMED M5B3 so that appropriate R&D solutions can be fully developed. The results may also be used as appropriate to effect solutions within those commands that have oversight of DOTMLPF areas. As the Symposium sponsor, BUMED M5B3 will track the status of items recommended for further action. A future VANGUARD Symposium should be held to review the status of action items and reconsider the capabilities needed to support NFHP-21.

### **Way Ahead**

A review of the process and methodology utilized for VANGUARD 2005 will be undertaken with the goal of improving the collaborative planning process for any future endeavors. While the

results may contribute to process improvement, there also exists the potential for institutional inertia to marginalize the results and recommendations contained within this report. One Symposium participant summed up this concern with the following comment.

*“I fear that the output of this war game will end up as just another list of good ideas. The real work is yet to come: the DOTMLPF analysis of the capability gaps we identified, i.e. the combat development process.”*

In the final analysis, the true test of the value of VANGUARD 2005 will be if it can contribute to real and meaningful enhanced HSS to our deployed service members in the joint warfighting environments in which they operate.

**Appendix A**  
**Example of the Synchronization Matrix**  
**WG A (MCO)**  
**MCC FCC**  
**HAFF NFHP-21 Pillar**

	Pre-Phase I Military OP MED	Phase I Prep for deployment	Phase II Deployment JRSOI	Phase III Decisive Ops CCC, Evac	Phase IV Transition, STAB OPS, re-deployment
Health Promotion					
Physical Fitness					
Stress Management					
Risk Communication					
Safe & Healthy Working Conditions					
IMR					

**Appendix B**  
**VANGUARD 2005 Participant Roster**

<b>Last</b>	<b>First</b>	<b>Rank</b>
Ahlers	Stephen	CAPT
Anzalone	Fanancy	CAPT
Baxter	Charles	CAPT
Blankenship	Charles	CAPT
Blanzola	Cheryl	CDR
Bleau	Timothy	CDR
Blivin	Steven	LCDR
Bohman	Harold	CAPT
Boyce	Roderick	LCDR
Brandon	Scott	LCDR
Buckley	Robert	CAPT
Burnette	Kenneth	HMCM
Cherry	William	HMCM
Chretien	Jean-Paul	LT
Clark	Mark	LCDR
Clayton	Robert	Mr.
Coleman	Joseph	LCDR
Compeggie	Michael	CDR
Cox	Gerard	CAPT
Desimone	Paul	CAPT
Downs	Lynn	LCDR
Edwards	Mark	CAPT
Elster	Eric	LCDR
Enriquez	Michael	LT
Erickson	Jay	CDR
Flury	Troy	HMCM
Fowler	James	CDR
Gibson	Dave	CDR
Giebner	Stephen	Dr.
Grace, Jr	Joseph	CAPT
Gray	David	CDR
Hall	Robert	HMCM
Hancock	William	Mr.
Hansen	Christian	CAPT
Heil	John	CAPT
Henderson	William	CAPT
Henry	Kurt	CDR
Herden	Mary	CAPT
Herzig	Thomas	LCDR
Hyams	Adam	MAJ
Jankosky	Christopher	CDR
Jeffries	Richard	RDML
Kirby	John	CAPT
Kirshner	Shari	CAPT
Koffman	Robert	CAPT

Lamb	Jerry	Dr.
Latson	Gary	CDR
Laverty	Bruce	CAPT
Leblanc	Randal	CDR
Lindo	Rupert	CDR
Lippert	Thomas	Mr.
Liston	William	CAPT
Luke	Thomas	LCDR
Lyles	Mark	CDR
Malakooti	Mark	CDR
Marron	James	CAPT
McCarthy	Michael	CAPT
McDonald	Brian	CAPT
McGivern	Steven	CDR
Moeller	Michael	CAPT
Morgan	Vernon	CAPT
Morrison	John	CAPT
Moser	Sharon	LCDR
Myhre	Elizabeth	CDR
Nash	William	CAPT
Neri	David	CAPT
Nickle	C. John	CAPT
Niemantsverdrietmcdonald	Karen	CDR
Perry	Loring	CAPT
Puckett	Corley	CAPT
Quill	Patrick	HMCM
Reed	Sandra	CAPT
Reeg	Edward	CAPT
Royse	Christopher	Mr.
Rumanes	Kimon	CAPT
Schor	Kenneth	CAPT
Schult	Margaret	LCDR
Snyder	Martin	CAPT
Sorensen	Al	CAPT
Spencer	Andrew	CDR
Street	David	CDR
Taylor	Darryl	CAPT
Thompson	Jacqueline	LTJG
Thompson	Kerry	CAPT
Van Orden	Karl	CDR
Webb	Schuyler	CAPT
Weiner	Michael	CDR
Welling	Lynn	CAPT
Wimmer	Kenneth	Mr.
Wise	Jamie	CDR
Woods	Edward	CAPT
Yoshihashi	Ann	CAPT
Zarkowsky	John	Mr.

## Appendix C

### VANGUARD 2005 Schedule of Events

#### Monday, 7 November

- **0800-0900** Check-In and Continental Breakfast
- **0900-0945** Welcome and Background Briefs
- **0945-1000** Break
- **1000-1130** Group Discussion – Pre-Phase I/Phase I
- **1130-1230** Lunch
- **1230-1430** Group Discussion – Pre-Phase I/Phase I
- **1430-1445** Break
- **1445-1630** Group Discussion – Phase II

#### Tuesday, 8 November

- **0730-0800** Continental Breakfast
- **0800-1015** Group Discussion – Phase II
- **1015-1030** Break
- **1030-1130** Group Discussion – Phase III
- **1130-1230** Lunch
- **1230-1600** Group Discussion – Phase III

#### Wednesday, 9 November

- **0730-0800** Continental Breakfast
- **0800-1130** Group Discussion – Phase IV
- **1130-1230** Lunch
- **1230-1330** Group Discussion – Phase IV
- **1330-1415** Interim WG Synopsis Preparation
- **1415-1430** Break
- **1430-1515** Plenary Session – WG Synopsis
- **1530-1700** Final WG Brief Preparation Time

#### Thursday, 10 November

- **0730-0900** Group C Brief Out/Prioritization
- **0090-1030** Group A Brief Out/Prioritization
- **1030-1200** Group B Brief Out/Prioritization

## Appendix D

### WG A (MCO) Potential CGs from the VANGUARD Master Voting Report Healthy and Fit Force (HAFF) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	Identify, with high accuracy, people with deployment- limiting conditions before deployment	3.3	36	0.8
2	Provide medical force surge capacity	3.3	36	0.9
3	Provide medical personnel mission-specific team processes, equipment, and training	3.2	36	0.9
4	Identify personnel to be assigned & trained for the patient movement mission	3.0	36	1.0
5	Provide warfighters with adequate shelters, clothing and equipment	3.0	32	1.1
6	Provide pre-deployment physical and psychological screening	2.9	36	0.9
7	Ensure adequate combat stress preparation by dedicated mental health teams for deployed and deploying forces (i.e.OSCAR model)	2.8	36	0.8
8	Enhance physical & mental conditioning appropriate to AOR (cold, altitude)	2.8	36	1.0
9	Improved product location tools for in transit-visibility	2.8	35	0.9
10	Ensure personnel are trained to use patient evacuation equipment in a global MAP environment	2.8	35	1.0
11	Provide screening/preparation for attrition & combat replacements equivalent to initial deployers	2.7	36	1.0
12	Ensure risk communication guided by ongoing health surveillance data	2.6	36	0.8
13	Comprehensively track and deliver needed healthcare not available in theater and subsequent longitudinal care delivery	2.6	36	0.9
14	Define draw-down capabilities needed: US Forces	2.6	34	0.9
15	Improved product identification tools (RFID)	2.5	34	1.0
16	Develop integrated culture of wellness and health promotion	2.4	36	0.8
17	Provide accurate accountability of military personnel (leave, TAD, etc.) and family members	2.3	33	1.0
18	Define draw-down HSS capabilities needed of HN forces	2.2	33	0.7
19	Provide adequate physical fitness opportunities	2.1	36	0.9
20	Deliver proactive mental health support to family members	2.1	36	1.0
21	Assess health of opposing forces	2.0	32	0.7

22	Optimize performance through environmentally appropriate nutrition	1.9	36	1.0
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### Prevention and Protection (PAP) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	Train and equip warfighters to deliver first responder care/advanced first aid	3.4	36	0.8
2	Deliver environmentally appropriate personal protective equipment	3.3	35	0.9
3	Develop an integrated medical operational plan incorporating Service, Joint, Coalition, and NGO/PVO assets	3.3	35	1.0
4	Identify area-specific hazards and preventive medical countermeasure	3.2	36	0.7
5	Provide rapid health surveillance and analysis capability relevant to commanders	3.2	36	0.8
6	Provide capability to consistent joint lines of communication and transportation for supply/re-supply	3.0	34	1.0
7	Provide a seamless support continuum throughout deployment cycle	2.9	36	0.8
8	Ensure visibility of all Joint patient movement assets across the AOR	2.9	35	1.0
9	Communicate with civilian and other governmental health responders (e.g., NGOs, IOs, USG agencies)	2.8	36	0.8
10	Deliver a scientifically valid and reliable method to correlate health conditions with deployment-related exposures and stress	2.8	35	0.9
11	Early communication of changes in requirements to provide appropriate logistics support	2.7	35	0.9
12	12.Provide capability to meet individual unit supply and demand accommodation	2.7	35	0.9
13	13.Obtain global visibility of forward staging and status of preventive medicine capability	2.6	36	1.0
14	14.Develop doctrine for use of drugs for fatigue management, or impact design of transport systems to deliver a fully capable war fighter	2.5	36	1.1
15	15.Provide sea-based clinical confirmatory laboratory testing	2.4	36	0.9
16	16.Provide trained health professionals capable of fulfilling SASO health sector objectives (Military Medical LNOs)	2.4	35	0.9
17	17.Minimize preventable operational and family stress	2.3	36	0.9
18	18.Provide immunizations in-theater	2.3	35	0.9
19	18.Early communication of timeframes for movement	2.3	35	0.9
20	20.Coordinate with NGO/PVO's to train and assist local nationals to reestablish healthcare system	2.1	36	1.0

21	21. Assist deployment of civilian disease surveillance systems compatible with WHO standards	1.9	35	0.9
22	22. Provide near-real time physiologic monitoring capability	1.8	34	1.0
23	23. Integrate health surveillance with social and morale services (MCCS, MWR)	1.5	35	0.7

### Casualty Care and Management (CCM) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	Provide ability to provide personnel and equipment at the right place at the right time	3.5	35	0.8
2	Manage an integrated patient movement/ evacuation system	3.4	36	0.9
3	Provide total visibility of casualties throughout evacuation chain	3.3	36	0.7
4	Rapidly move large numbers of casualties	3.3	36	0.8
5	Provide interoperability of disparate communications networks and devices	3.3	36	0.9
6	Provide enhanced forward surgical care	3.3	36	1.0
7	Provide operator training and tools for self and buddy care	3.3	35	0.9
8	Clear the Sea Base and provide long range patient evacuation	3.3	35	0.9
9	Sustain life over extended time and distance	3.3	34	0.8
10	Provide far forward advanced triage and diagnostic care	3.2	36	0.8
11	Provide capability for robust supply and re-supply	3.2	36	0.9
12	Provide adequate medical care in extreme environments	3.2	35	0.9
13	Provide definitive sea/land-based casualty care for anticipated casualty volume	3.1	33	1.1
14	Prevent hypothermia during transport of combat casualties	3.0	36	0.8
15	Identify dedicated Patient Evacuation assets (equipment, personnel, waterborne/airframe).	3.0	35	1.0
15	Provide medical "Quick Reaction Force" surge capacity	3.0	35	1.0
17	Provide mission-ready augmentees for the optimum period with supported unit	2.9	36	1.0
18	Establish Single Integrated Medical Logistics Manager (SIMLM) and Theater Lead Agent Medical Materiel (TLAMM) capabilities	2.9	34	1.1
19	Provide a medical "quick reaction force" 48 hour augment capability to MTF~1s and ships in AO	2.8	36	1.0

20	Capability to obtain adequate and timely transportation to move Class VIII	2.8	35	0.9
21	Capability to provide the right providers and materiel (patient movement items) in support of security and stabilization operations.	2.8	34	0.9
22	Rapidly communicate changes to established plans across all affected organizations	2.8	34	1.1
23	Deliver core capable UTCs assigned and inserted into operational units	2.8	32	0.9
24	Recognize and manage elevated intracranial pressure	2.7	35	0.8
25	Communicate with indigenous population	2.7	35	1.0
26	Manage in-country distribution and transportation for Class VIIIA and Class VIIIB	2.7	35	1.0
27	Incorporate logistics into global secure lines of communications specifically for location and movement of assets	2.7	34	0.9
28	Permit selective offload of MPS equipment	2.7	33	0.9
29	Deliver a mission-ready T-AH platform to the Western Pacific AO within 10 days	2.7	33	1.1
30	Provide effective redeployment and re-integration services	2.6	35	0.8
31	Support preventive medicine mission in theater during redeployment phase	2.6	34	0.8
32	Exercise, utilize, troubleshoot medical COP throughout taxonomy of care	2.6	33	1.1
33	Clear definition of Army Healthcare and Logistics Infrastructure	2.5	31	0.9
34	Recognize the gaps in host nation medical response and their ability to respond to a rapidly changing medical environment	2.4	36	0.8
35	Ensure all medical documentation enters the longitudinal electronic medical record	2.4	35	0.9
36	Provide definitive medical/surgical care of coalition forces	2.4	34	1.0
37	Leverage civil military operations to facilitate transition of DoD HSS responsibilities	2.4	34	1.1
38	Rapidly establish, disestablish, and relocate large treatment facilities	2.4	33	0.9
39	Deliver an ability to collect, correlate, analyze, and disseminate outcomes-based healthcare data	2.3	35	1.1
40	Provide necessary humanitarian medical logistic support	2.3	33	0.8
41	Implement outcomes-based medical policy	2.2	33	1.0
42	Track recipients of non-FDA licensed blood products	2.2	32	1.1
43	Track accountability and care delivery non-US patients (military, civilian, contractor, TCN, EPW, IDP)	2.0	35	1.0
44	Safe and Healthy Working Conditions: AMAL to support industrial accidents	1.8	33	0.8

## Appendix E

### WG B (SHOF) Potential CGs from the VANGUARD Master Voting Report

#### Healthy and Fit Force (HAFF) Pillar

	<b>Potential Capability Gap</b>	<b>Avg</b>	<b>Voters</b>	<b>SD</b>
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...s</i>			
<b>1</b>	Need a Common Interoperable Medical Readiness Reporting Tool (Individual & Unit)	<b>3.4</b>	<b>36</b>	<b>0.8</b>
<b>2</b>	Lack CONOPS for Sea Based HSS (e.g., C2 of Patient Movement, CATF Surgeon)	<b>3.2</b>	<b>33</b>	<b>0.9</b>
<b>3</b>	Lack the Capability to Rapidly Assess, Communicate and Disseminate Health & Environmental Risks in Theater	<b>3.1</b>	<b>36</b>	<b>0.8</b>
<b>4</b>	Lack of Integrated Logistics Management Tool	<b>3.1</b>	<b>34</b>	<b>0.9</b>
<b>5</b>	Gaps in deployable and sustainable readiness of Medical Units	<b>3.0</b>	<b>36</b>	<b>0.8</b>
<b>6</b>	Gaps in management of medical supply on the Sea Base through all phases	<b>3.0</b>	<b>35</b>	<b>1.0</b>
<b>7</b>	Need Improved Capability to Resolve Force Structure Med Planning Issues (e.g., Number and Distribution of SAR HMs, Flight Nurses, Med Regulators; Flight Planning)	<b>2.9</b>	<b>35</b>	<b>0.9</b>
<b>8</b>	Lack Capability to Provide for Sustained Performance Under Operational Conditions	<b>2.8</b>	<b>36</b>	<b>0.9</b>
<b>9</b>	Need for Enhanced Capability to Provide Stress Management	<b>2.8</b>	<b>36</b>	<b>1.0</b>
<b>10</b>	Absence of Humanitarian Assistance AMALS; no clear doctrine for handing off mission to NGOs	<b>2.8</b>	<b>35</b>	<b>1.0</b>
<b>11</b>	Lack of integrated electronic means (standardized) to capture deployment health surveillance info	<b>2.7</b>	<b>36</b>	<b>0.9</b>
<b>12</b>	Need to Prevent Combat Operational Stress (ID Predisposition / Risk Factors)	<b>2.7</b>	<b>35</b>	<b>1.0</b>
<b>13</b>	Inadequate ability to validate actual exposure vs. perceived exposure	<b>2.7</b>	<b>34</b>	<b>0.9</b>
<b>14</b>	Lack Capability to Provide for Acclimatization of En Route Care (ERC) Personnel (e.g., to Heat, Altitude, Sea Sickness)	<b>2.6</b>	<b>35</b>	<b>1.0</b>
<b>15</b>	Lack of understanding of basic physiological mechanisms behind Combat Operational Stress	<b>2.5</b>	<b>35</b>	<b>0.9</b>
<b>16</b>	The Navy/Marine Corps do not currently have or employ a comprehensive force-wide psycho-social decompression program for assimilation back to a CONUS environment.	<b>2.5</b>	<b>35</b>	<b>1.0</b>
<b>17</b>	Insufficient medical and family support services for returnees	<b>2.5</b>	<b>34</b>	<b>0.8</b>
<b>18</b>	Inability to track Medical Supply Usage Rate	<b>2.5</b>	<b>34</b>	<b>1.0</b>
<b>19</b>	Inadequate on-going surveillance and on-site analytical capability (*)	<b>2.4</b>	<b>34</b>	<b>1.1</b>

20	Inability to maintain interconnected lines of contact / communication with returnees / IAs	2.4	32	0.8
21	Lack capability to maintain critical skills during sustained operations	2.4	32	1.0
22	Lack capability to establish Navy Med Materiel Handling Unit Ashore	2.3	33	0.9
23	Need for Training on AOR Medical Cultural Awareness	2.2	36	0.9
24	Lack the capability to provide remote physiological monitoring	2.2	35	1.0
25	Lack the capability (personnel / materiel) to provide HSS to civilian population ashore	2.2	35	1.1
26	Lack capability to manage EPWs / Detainees on the Sea Base	2.2	32	1.0

### Prevention and Protection (PAP) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	COP (Current Med Intel Relevant to Operational Commander; Enhance Input Feeds into Common Operating Picture)	3.3	35	0.8
2	Inadequate Patient Protection (e.g., Floatation Devices w/ Location Devices, Patient Warming / Cooling)	3.1	34	0.9
3	Personal Protective Equipment (Management & Funding)	3.1	34	1.0
4	Lack of Scenario-Based Personal Protective Equipment	3.1	33	0.9
5	Lack of approved blood substitutes	3.0	36	0.9
6	Inadequate En Route Care Personnel Protection	2.9	35	1
7	Limited Isolation Capability Across Platforms (Transport & Fixed Location)	2.9	33	0.9
8	Lack of adequate / long-shelf-life blood products on the Sea Base	2.8	35	1.0
8	Lack of adequate / long-shelf-life blood products on the Sea Base	2.8	35	1.0
10	Lack of adequate capability to alter the physiological response to trauma (e.g., pretreatment approaches for hemorrhagic shock)	2.8	34	0.9
11	CJOA Specific Requirements to Mitigate Threat (Joint Approach; Naval SMEs Providing Input)	2.8	33	0.9
12	No linkage between HSS detection of risks and use as Intel or Intel detection and use by HSS for prevention / protection	2.8	30	0.8
13	No viable chemical, biological or radiological stand-off detection system on Sea Base	2.8	29	0.9
14	Lack of capability to provide autologous replacement of blood products	2.7	35	1.0
15	Lack of capability to rapidly screen EPW and TCN's for communicable diseases	2.7	34	0.9

16	Need Pre-Planned Scaleable Supply System	2.7	34	1.0
17	Require dedicated Med Comm Net for CASEVAC	2.7	33	1.0
18	Require an isolation capability during patient movement	2.6	36	1.0
19	Require an enhanced capability for medical personnel ashore, afloat, and during patient movement to collect and disseminate medical intelligence.	2.6	34	0.9
20	Establish "FDPMU"-like capability as a program of record	2.6	29	1.0
21	No / limited communication links and integration into HN, IOs, NGOs (lead follow EA roles)	2.5	33	0.9
22	Need for Enhanced Diagnostic & Min Invasive Surgery	2.4	36	0.9
23	Lack of field capability to capture and analyze population-wide (deployed force) health indicators and outcomes	2.4	36	1.0
24	Lack remote physiological monitoring capability in ICU and during patient transport	2.4	34	1.1
25	Need capability to provide non-sedative motion sickness treatment modalities	2.4	34	1.2
26	Lack of "Sailor Usable" ICE's suitable to environment	2.4	27	0.9
27	Need Capability to Deliver Improved Training to / at the Sea Base	2.3	33	0.9
28	Need Dental Health Requirement, Have Dental Readiness Measures	2.1	32	1.0

### Casualty Care and Management (CCM) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	Lack an adequate MEDEVAC capability within the Sea Base and from Sea Base to advance base ashore	3.3	34	1.0
2	Inability to maintain "Cold Chain"	3.2	35	0.7
3	Lack of scalable plug & play capability for medical care in Sea Based platform	3.2	34	0.9
4	Lack Capability to Control Internal Hemorrhage & Resuscitation	3.1	35	0.8
4	Lack of Operationally Experienced Health Care Professionals (Pipeline, Promotion, Recognition)	3.1	35	0.8
6	Lack of medical management skills and line coordination training for theater level operations (enhanced team dynamics / career development) - Training - 5-Vector Model for JFMCC Surgeon Staff & Other Key Operational Med Personnel	3.1	35	0.9

7	Equipment Standardization & Interoperability - Need O2 Generation; Power Sources; Patient Monitoring; Resupply & Maintenance	3.1	34	0.9
8	Bandwidth Limitations for Medical Apps	3.1	33	0.8
9	First Responders - Better Access to Training / Experience (Trauma Exposure Training)	3.0	35	1.0
10	Require the capability to "clear the Sea Base" of stabilized US patients requiring strategic evacuation to definitive care outside the JOA	3.0	34	0.9
11	Inability to rapidly expand HSS capabilities. Optimize Mobilization vs. Augmentation.	2.9	34	0.9
12	No surface high-speed transport for patient movement SPOD	2.9	34	1.0
12	Electronic Medical Records - CHCS II (Funding - SHIPMAN Certification, Hardware for CHCSII; Software Bridge to Other Systems - SAMS, MRRS, CHCS I, CHCS II)	2.9	34	1.0
14	Can't Meet Surge Requirements for ICU Care - Critical Care Nursing; eICU Monitoring	2.9	33	1.0
15	Need In-Transit Visibility (Bio-Metrics or RFID; Web-Based Visibility: In Theater; En Route; CONUS)	2.8	36	1.0
16	Lack of Adequate Blood Substitutes; HBOC, HBOC + Cloning; FVIIa, Perflourocarbon	2.8	35	1.0
17	Don't have capability to move resuscitative surgery capability to smaller platform as major assets redeploy; lack ability to stop intra-thoracic / abdominal / cranial hemorrhage	2.8	33	1.0
18	Lack of adequate model for allocation of critical low density high capability personnel in Sea Based platform	2.8	32	1.0
19	Limited air evac capability to APODs	2.8	31	0.9
20	Need for Standing Medical C2 cells	2.7	34	1.0
21	Loss / Limitations of "Bandwidth"	2.7	33	1.0
22	Lack of patient movement items and required supplies	2.7	32	1.0
23	Lack capability to screen "Walking Blood Bank"	2.6	36	0.8

24	Advanced Responders - More Effective Virtual Training (Mission Focused, Field Available, Just-In-Time, Dedicated Training Time)	2.6	35	0.9
24	Monitoring for Transport and En Route Care - Streamline Monitors (Wireless, Bluetooth); Need for Personnel (eICU Monitor)	2.6	35	0.9
26	Lack of capability to establish MTF on non-CRTS ship; scaleable capability in the Sea Base (ward care on non-CRTS)	2.6	34	1.1
27	Lack of means for coordination with NGO's and local MTF's	2.5	36	1.0
28	Lack enhanced capability to identify, integrate with and transition HSS mission to NGO's and civilian MTF's	2.5	35	1.0
29	Lack of ability to task organize existing HSS assets to meet emerging missions leads to disruption of HSS capabilities during transition through stabilization and redeployment operations	2.5	33	1.2
30	Require capability to provide clinical flight planning as an integral part of medical regulating on the Sea Base	2.5	34	1.0
31	Lack of Army / Air Force LNOs on JFMCC HSS staff	2.5	33	0.9
32	Sea Based level II medical/surgical/dental assets (i.e., FST) not designed to transition to HA-DR	2.5	33	1.1
33	Lack of capability to accelerate recovery time/RTD	2.4	33	0.9
34	Lack capability to meet surge requirements for mortuary affairs for the Sea Base	2.4	32	1.0
35	Loss of warfighters with critical skills from injuries which decreases unit effectiveness	2.4	29	1.0
36	Inadequate Capability to Provide Adequate Advanced Lab Support Across All Platforms	2.3	36	0.9
37	Lack of Capability for Non-Surgical Treatment of Orthopedic Injuries	2.3	35	1.0
38	Lack ability to provide medical care to maintain skilled injured warfighters and return them to duty on the Sea Base in lieu of MEDEVAC (possibly via tissue regeneration in theater)	2.3	33	1.0
39	Lack of HA-DR support in theater (OB/GYN, pediatrics)	2.3	33	1.0
40	Cross Trained Radiology Tech – Ultrasound, Fluoroscopy, etc.	2.1	34	1.0

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<b>41</b>	Authorized Medical Allowance List (AMALs) - Define Deployment AMAL vs. Garrison AMAL	<b>2.1</b>	<b>33</b>	<b>0.9</b>
<b>42</b>	Inability to capture operational "costs" in providing HSS in the CJOA.	<b>2.0</b>	<b>32</b>	<b>0.8</b>

## Appendix F

### WG C (FHA) Potential CGs from the VANGUARD Master Voting Report

#### Healthy and Fit Force (HAFF) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
<b>1</b>	Use an automated, interoperable, standardized, unified medical readiness system (IMR, PHA, PDHA, PDHRA) that identifies and tracks the actual health of the force and when combined with AARs and lessons learned, are immediately applied to follow-on missions and provides for relevant metrics	<b>3.2</b>	<b>35</b>	<b>0.8</b>
<b>2</b>	Establish DOTMLPF for FHA operations, including CASEVAC	<b>3.1</b>	<b>35</b>	<b>1.0</b>
<b>3</b>	Access and input to (bi-directional) a translated, databased, internet-accessible medical information/intelligence system	<b>3.0</b>	<b>35</b>	<b>0.9</b>
<b>4</b>	Improve Communication (risks and AARs)	<b>2.9</b>	<b>35</b>	<b>0.9</b>
<b>5</b>	Provide inclusive, interoperable medical database	<b>2.9</b>	<b>35</b>	<b>1.0</b>
<b>6</b>	Conduct mission analysis driven by requirements, based on desired capabilities for follow-on operation(s)	<b>2.9</b>	<b>34</b>	<b>0.9</b>
<b>6</b>	Better prepare and mitigate psychological stress in Sailors, Marines and families (and manage expectations) associated with current era Navy OPTEMPO, mission creep, and unexpected prolongation of deployment	<b>2.9</b>	<b>34</b>	<b>0.9</b>
<b>8</b>	Rapidly source personnel with specific skill sets, knowledge and availability to include reserves	<b>2.8</b>	<b>36</b>	<b>0.9</b>
<b>8</b>	Perform responsive crisis action planning	<b>2.8</b>	<b>36</b>	<b>0.9</b>
<b>10</b>	Train specifically and provide preventive measures for FHA Ops	<b>2.8</b>	<b>36</b>	<b>1.0</b>

<b>11</b>	Provide improved individual screening and equipment /consumables readiness capabilities to determine mission assignment, optimize performance in extreme environments	<b>2.8</b>	<b>35</b>	<b>1.0</b>
<b>12</b>	Improve training on the particulars of FHA Operations (medical, civ/mil relations, cultural awareness, desensitization)	<b>2.6</b>	<b>36</b>	<b>1.0</b>
<b>13</b>	Provide mission-focused, entry-level, baseline, sustained, and end of deployment physical fitness and mental health preventive measures	<b>2.4</b>	<b>34</b>	<b>0.9</b>
<b>14</b>	Use Risk Management planning tools	<b>2.2</b>	<b>34</b>	<b>0.8</b>

### Prevention and Protection (PAP) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
<b>1</b>	Provide Rules of Medical Engagement (ROME) for FHA operations	<b>3.3</b>	<b>36</b>	<b>1.0</b>
<b>2</b>	Deploy standardized integrated/data-centric/open communications systems	<b>3.1</b>	<b>36</b>	<b>0.9</b>
<b>3</b>	Acquire and share quality Medical Intelligence	<b>3.1</b>	<b>35</b>	<b>0.8</b>
<b>4</b>	Provide improved CONOPS	<b>3.1</b>	<b>35</b>	<b>0.9</b>
<b>5</b>	Ensure use, availability and continued development of Personal Protective Materiel and Equipment	<b>3.0</b>	<b>35</b>	<b>0.9</b>
<b>6</b>	Conduct FHA AO surveillance (endemic and TICs/TIMs)	<b>2.9</b>	<b>36</b>	<b>0.7</b>
<b>7</b>	Conduct surveillance and adequately mitigate Infectious Disease (endemic, STDs, HIV)	<b>2.9</b>	<b>35</b>	<b>0.8</b>
<b>8</b>	Provide effective medical liaison and external communication strategy	<b>2.9</b>	<b>35</b>	<b>0.9</b>
<b>9</b>	Ensure security	<b>2.9</b>	<b>33</b>	<b>1.1</b>
<b>10</b>	Conduct surveillance and adequately mitigate mental and physical (temperature, geography, altitude) stress	<b>2.8</b>	<b>36</b>	<b>1.0</b>
<b>11</b>	Access and use relevant medical threat intelligence including medical geology	<b>2.8</b>	<b>33</b>	<b>0.9</b>
<b>12</b>	Meet the Deployment Occupational and Environmental Health Surveillance (DOEHS) standards with a PM/AMAL upgrade	<b>2.7</b>	<b>36</b>	<b>1.0</b>
<b>12</b>	Coordinate the preventive medicine actions between the US, HN and NGOs	<b>2.7</b>	<b>36</b>	<b>1.0</b>
<b>12</b>	Better mitigate (evidence-based) health risks (mental stress, fatigue, disease)	<b>2.7</b>	<b>36</b>	<b>1.0</b>

15	More rapidly create prophylaxis and therapeutic products	2.7	35	0.9
16	Improve readiness to perform FHA Operations	2.6	36	0.9
16	Rapidly project personnel and materiel required to prosecute an FHA, mixed population, mission	2.6	36	0.9
18	Provide just-in-time training	2.6	35	0.9
18	Mitigate mental health problems associated with FHA ops	2.6	35	0.9
20	Improve Stress Relief/Management-Physical (HUD, PT, etc.), mental	2.6	34	0.8
21	Improve monitoring of Drug/Alcohol use; TICs/TIMs, Stress, Disease (deployable clinical laboratory)	2.5	35	0.9
22	Conduct reconstitution (PPE, etc.)	2.5	33	0.9
23	Improve cultural sensitivity	2.4	35	1.0
24	Disestablish medical sites ashore	2.3	29	1.0

#### Casualty Care and Management (CCM) Pillar

	Potential Capability Gaps	Avg	Voters	SD
	<i>A capability gap exists in that Navy Medicine cannot fully achieve the desired effect of...</i>			
1	Provide effective casualty management across the continuum of care	3.4	36	0.8
2	Provide improved agile, scalable, interoperable, modular medical support systems	3.3	36	0.8
3	Manage patient movement (C2) to include an effective tracking system	3.2	36	0.8
4	Seamlessly track patients through casualty care process	3.1	36	0.8
5	Improve skills of first responders (non-medical personnel)	3.1	36	0.9
6	Perform HSS C4I in FHA operations	3.1	35	0.7
7	Receive language/translation support	3.0	36	0.9
8	Monitor and communicate patient health status during movement	3.0	36	0.9

<b>9</b>	Improve medical supply chain management for FHA operations	<b>3.0</b>	<b>35</b>	<b>0.8</b>
<b>10</b>	Design correct type of medical force for FHA Operations (medical specialty, logistics, equipment, etc.) and define what capabilities they will bring ashore and leave behind	<b>3.0</b>	<b>35</b>	<b>0.9</b>
<b>11</b>	Improve identification of what organization will provide majority of care (Host Nation, NGO, etc.)	<b>2.9</b>	<b>35</b>	<b>1.2</b>
<b>12</b>	Re-supply, sustain and maintain patient transportation equipment	<b>2.8</b>	<b>36</b>	<b>0.9</b>
<b>13</b>	Provide FHA operations specific training	<b>2.8</b>	<b>36</b>	<b>1.0</b>
<b>14</b>	Improve mission analysis and crisis action planning	<b>2.8</b>	<b>35</b>	<b>0.9</b>
<b>15</b>	Provide enhanced CASEVAC health care training	<b>2.8</b>	<b>35</b>	<b>1.0</b>
<b>15</b>	Plan for integrating military medical operations with NGOs	<b>2.8</b>	<b>35</b>	<b>1.0</b>
<b>15</b>	Refine medical CONOPS for FHA Operations to include NGO coordination, global container standards (ISO), IT (autonomous delivery of healthcare, telemedicine, etc.)	<b>2.8</b>	<b>35</b>	<b>1.0</b>
<b>18</b>	Manage patient movement items	<b>2.7</b>	<b>36</b>	<b>1.0</b>
<b>19</b>	Improve blood supply chain for FHA operations	<b>2.7</b>	<b>35</b>	<b>0.8</b>
<b>20</b>	Improve blood substitutes R&D for FHA operations	<b>2.7</b>	<b>35</b>	<b>1.0</b>
<b>21</b>	Provide specialized expertise to remote areas	<b>2.7</b>	<b>34</b>	<b>1.0</b>
<b>22</b>	Provide continuous HN capabilities assessment	<b>2.6</b>	<b>35</b>	<b>0.8</b>
<b>23</b>	Provide Deployment package planning	<b>2.6</b>	<b>34</b>	<b>0.9</b>
<b>24</b>	Tele-consult voice and data en route, Record and transmit medical documentation	<b>2.5</b>	<b>36</b>	<b>1.1</b>
<b>25</b>	Ability to provide demand-driven, autonomic patient movement equipment	<b>2.5</b>	<b>35</b>	<b>0.8</b>

<b>25</b>	Archive mission data for subsequent analysis and reporting	<b>2.5</b>	<b>35</b>	<b>0.8</b>
<b>27</b>	Improve identification of offices/organizations that require need to know medical information from the FHA AOR	<b>2.5</b>	<b>35</b>	<b>0.9</b>
<b>28</b>	Leverage link with logistic movement systems	<b>2.5</b>	<b>35</b>	<b>0.9</b>
<b>29</b>	Establish protocols for treatment (MEDEVAC, Visas for transfer to US, etc.) for Foreign Nationals	<b>2.5</b>	<b>34</b>	<b>0.9</b>
<b>30</b>	Provide a Medical Expeditionary Deployable Integrated Capability System (MEDICS)	<b>2.5</b>	<b>27</b>	<b>1.2</b>
<b>31</b>	Re-supply treatment items for mixed-populations	<b>2.5</b>	<b>25</b>	<b>1.0</b>
<b>32</b>	Improve Media Plan (PAO) for medical information coming out of FHA AOR	<b>2.4</b>	<b>34</b>	<b>0.9</b>
<b>33</b>	Communicate in and be culturally oriented to the NEO AO to include supporting organizations	<b>2.4</b>	<b>34</b>	<b>1.0</b>
<b>34</b>	Reconstitute CASEVAC resources, including meds for US standard-of-care for US Nationals	<b>2.3</b>	<b>34</b>	<b>0.9</b>

## Appendix G

### Participant Comments from the VANGUARD Master Voting Report

#### Scenario A, B, and C Comments Combined (52 Listed)

**1** Annual health assessments do not capture sufficient timely information about crisis incidents or operational/deployment

**2** Mental conditioning is an important and nearly entirely unmet need--R&D is necessary to develop evidence-based mental conditioning for resiliency

**3** Need mission specific physical readiness.

**4** Psychological screening is an area in which little actionable research has been done- need R&D

**5** Need proactive mental health support to family members: extremely important with not only a pre-screening mechanism

**6** Need a validated, metric based mental health survey to identify depression, PTSD, and suicidal awareness

**7** Without a written REQUIREMENT (in SECNAV and MCO directives), we cannot justify even the R&D to find best ways to accomplish this

**8** Need to integrate family centered care concept into family mental health stability

**9** Doctrine for CASEVAC/MEDEVAC needs to be defined for both maneuver warfare and for warfare in a mature theater

**10** Recommend we design MAP Surge teams by capabilities

**11** Need a fully capable automated system for collecting and analyzing IMR data

**12** Need epidemiological research to learn to identify Combat/operational stress injuries

**13** Self care and buddy care needs to be more of a focus in Naval training

**14** The medical COP vital to integrate HSS into ForceNet concept

**15** Need a far forward surgical capability that is integrated into its own vehicle and shelter system

**16** Need to develop Unit Task Codes (modular manpower skill sets) that can be task organized to support varying missions

**17** Need a theatre-wide command and control capability.

**18** Need to prepare of forces wrt psychological/mental fitness.

**19** Need risk communication training.

**20** For the MCO plan in phase 4 there is a well worked plan for EPWs and civilians to provide for the health needs. Also the HN army has the lead, not the navy. We would have very limited taskings for support.

**21** For the MCO plan there is a well established plan for medical intel which is in alignment with the intel community. In the OPLAN the NEPMU is a key and essential unit that is already implanted.

- 22 Prevention of operational stress should be the primary mission of OSCAR
- 23 Need prevention of operational stress
- 24 O2 generation for a Sea Based operation is a must, especially for production to support massive medevac ops.
- 25 NWDC has failed to provide a CONOPS Sea Based HSS. This has repeatedly been identified as a requirement over the last 3-5 years.
- 26 Getting PM assets into theater as early as possible is still a gap
- 27 Need remote physiological monitoring, son of M3 (Mobile Medical Monitor). Yet another of the "still need" capabilities
- 28 Need 21st century information technology for collecting, analyzing, and communicating medical surveillance data
- 29 Need the concept of an environmental hazard exposure badge similar to the radiation dosimetry badge
- 30 Need preventive mental health support.
- 31 Who in the Navy is going to provide mortuary affairs on the Sea Base? It won't be the USMC.
- 32 A greater percentage of our survivors with maxillofacial injuries and/or amputations. Why haven't we shifted our R&D efforts to these areas both from a wound healing, remodeling, treatment point but also from a long term reconstruction/ prosthetic approach.
- 33 Need to work on providing near real time wound pattern data with the development of PPE.
- 34 Need an effective capability to rapidly "clear the Sea Base" of stabilized patients
- 35 Need remote physiological monitoring of patients
- 36 Need clinical flight planning
- 37 Need to ensure the right medical personnel and equipment are included in the evacuation mission, and the patient is regulated to the most appropriate deployed MTF.
- 38 Need capability to induce SUSTAINED HOMEOSTASIS in severely injured casualties.
- 39 Need to provide collective protection for deployed MTFs
- 40 Need a better medical Common Operating Picture (medical COP)
- 41 We have training for JTF and CATF Surgeons, but inadequately apply it as a prerequisite for the position
- 42 Need evidence-based operational stress management training
- 43 Need tactics in support of an FHA mission
- 44 Need to rapidly augment medical platforms on the Sea Base with specialists required to support FHA
- 45 "Medical Rules of Engagement" and exit strategy must be spelled out before the mission begins, or mission creep attacks.

**46** All Navy POMI officers and senior leaders should be required to attend the CHART course

**47** Need more medical LNOs.

**48** Need to conduct surveillance and adequately mitigate mental and physical stress.

**49** Need clarification of the desired end product.

**50** Need to identify capability gaps from an operational perspective such that the resource sponsors could ultimately apply scarce dollars to R&D that would address the identified gaps.

**51** I fear that the output of this war game will end up as just another list of good ideas. The real work is yet to come: the DOTMLPF analysis of the capability gaps we identified, i.e. the combat development process.

**52** Need to convince NWDC, CFFC, and MCCDC to take on the large task of conducting this analysis.

## Appendix H

### VANGUARD 2005 DOTMLPF Capability Gaps

**Doctrinal Capability Shortfalls Identified During VANGUARD 05:** Currently, Navy Medicine does not have the **Doctrinal** capability to fully manage, implement, or validate:

- Theatre-wide command and control capability or a common operating picture throughout the taxonomy of care to include patient movement or medical readiness systems.
- Enhanced forward resuscitative care, advanced triage and diagnostic care.
- CASEVAC/MEDEVAC/ENROUTE CARE for each phase of an operation, to include the Sea Base.
- Medical force surge capacity and "Quick Reaction Force" surge capacity.
- CONOPS for T-AH employment.
- Transition of USN HSS responsibilities to NGO, IGO, HN, and other government organizations.
- HSS of detainees on the Sea Base.
- Expeditionary, scalable, interoperable, modular medical support systems.
- HSS for FHA and stability operations
- Scalable plug & play capability for medical care in Sea Based platform.

Non-doctrinal policy items included:

- Develop policy for use of drugs for fatigue management, or impact design of transport systems to deliver a fully capable war fighter.
- Develop integrated culture of wellness, health promotion & physical fitness.
- Implement outcomes-based medical policy.
- Provide accurate accountability of personnel (leave, TAD, etc.) and family members. (Leadership and Education)

The consensus of the DCAP WG was that commands responsible for doctrinal development (NWDC, MCCDC) should be encouraged to conduct a review of existing joint, Allied, and USN doctrine to ensure the preceding precepts and guidance are clearly promulgated. If required, submit appropriate change recommendation per the respective doctrine development process.

**Organizational Capability Shortfalls Identified During VANGUARD 05:** Currently, Navy Medicine does not have the **Organizational** capability to fully manage, implement, or validate:

- Provide medical force surge capacity to support the Sea Base and ships in AO with specialists required to support FHA, surge requirements for ICU Care (Critical Care Nursing; eICU Monitoring).
- Develop a task organized unit, rapidly sourced with personnel of specific skill sets, knowledge and availability (include reserves) to provide specialized expertise.
- Provide medical "Quick Reaction Force, within 48 hours.
- Manage an integrated patient movement/evacuation system able to clear the sea base.

- Develop a NAVFOR/JFMCC command and control capability.
- Resolve Navy Medicine Force Structure issues.
- Manage or jointly integrate in-country distribution and transportation for Class VIIIA and Class VIIIB.
- Source and align the ability to identify and track the health of the force.
- Provide operationally trained and experienced health care professionals.

**Training Capability Shortfalls Identified During VANGUARD 05:** Currently, Navy Medicine does not have the Training capability to fully manage, implement, or validate:

- Operational medicine positions and career pathways for a wider cadre of operationally experienced HSS professionals.
- Technological training deficiencies include using HSS technology to support timely decision making, maintaining visibility of patient movement assets, interoperability of disparate communications.
- Identify and treat operational psychological conditions of the service member and their families.
- Train members to develop and maintain the HSS portion of the COP.
- Surveillance, analysis, and mitigation using evidence-based methodologies, which correlate health conditions with deployment related exposures and stress.
- Force Protection for deployed HSS personnel and units.
- Logistical support, including providing a seamless support continuum throughout the phases of the operation to include service and joint logistics capabilities.
- Operational forces to deliver First Responder Care.
- Patient movement items.
- SAMS, MRRS, AHLTA.
- Identification of deployment-limiting conditions.
- AOR medical cultural awareness and communication.
- Joint, coalition, and interagency coordination and collaboration.
- HSS for detainees.
- Planning and functioning at the OPERATIONAL level of warfare.
- Standardized En Route Care, from CASEVAC throughout the continuum of care.
- Cross training of Radiology Technicians in other imaging modalities.
- Adapting MTF skill sets to the operational environment across the continuum of care.
- Maintain critical skills during sustained operations.
- Blood banking capabilities, including tracking recipients of non-FDA licensed blood products.
- Mission specific training in support of medical individual "Quick Reaction Force" surge capacity.

**Materiel Capability Shortfalls Identified During VANGUARD 05:** Currently, Navy Medicine does not have the Materiel capability to fully manage, implement, and validate:

- Materiel solutions for the management of intra-thoracic, abdominal, and intra-cranial hemorrhage; orthopedic conditions; elevated intra-cranial pressure; hypothermia; and tissue regeneration across the continuum of care.
- Sustain and accelerate recovery time by using prophylaxis and therapeutic products in extreme environments.
- A forward surgical capability that is integrated into its own vehicle and shelter system.
- A portable, limited, isolation capability that can be established ashore or on the Sea Base.
- Tools/resources for self/buddy care training.
- Capability to relocate resuscitative surgery capabilities from platform to platform based on the composition of the Sea Base.
- Advanced, portable, and scalable, diagnostic, triage and forward surgical care equipment.
- Procure materials to support Single Integrated Medical Logistics Manager (SIMLM), and Theater Lead Agent Medical Materiel (TLAMM).
- Standardized, portable, power sources and oxygen generation systems that have a plug and play compatibility with the various platforms constituting the Sea Base.
- In-transit and in-theater distribution tracking of medical/HSS supplies, to include blood/plasma supplies.
- AOR and mission specific authorized medical allowance lists.
- Support the "Walking Blood Bank."
- Deployable, ashore or afloat, telemedicine capability for austere environments with global reach.
- Mitigate the consequences of environmental extremes (temperature, geography and altitude).
- A Sea Based confirmatory testing laboratory.
- Reliable methodology to correlate health conditions with deployment related exposure and stress.
- Rapid screening and testing for communicable diseases.
- A portable, ashore and afloat, plug and play physiological monitoring capability with global connectivity.
- Mission specific development of personal protective equipment (PPE).
- An automated, standardized, interoperable and deployable medical support and readiness system, that identifies, analyze and tracks the actual health of the force and provides relevant metrics, and disseminate outcomes-based healthcare data.
- A common, interoperable medical readiness reporting tool (individual and unit).
- A rapid, waterborne, capability to MEDEVAC patients to and from the Sea Base.

**Leadership and Education Capability Shortfalls Identified During VANGUARD 05:** Currently Navy Medicine does not have the **Leadership and Education** capability to fully manage, implement, and validate:

- Task organization of existing HSS assets to meet emerging missions or the transition through stabilization and redeployment operations.
- Positioning and appropriate allocation of the T-AH platforms.
- HSS "quick reaction force."
- HSS Surge capability.

- Standing Medical C2 cells.
- Enhanced forward resuscitative care, advanced triage and diagnostic care.
- Rules of care in FHA and stability operations.
- Scalable, interoperable, modular medical support systems, afloat and ashore.
- Patient evacuation to and from the Sea Base.
- The utilization and continued development of fleet lead initiatives for Personal Protective Materiel and Equipment.
- Operational Risk Management.
- Effective deployment health surveillance.
- Develop a functional health based concept for HSS.
- Rapidly communicate changes to established plans across all affected organizations.
- Develop a medical concept of operations, which includes coordinated and when appropriate integrated actions/efforts with OGA, IGO, and NGO, for support to FHA, DR, and stability operations.

**Personnel Capability Shortfalls Identified During VANGUARD 05:** Currently Navy Medicine does not have the Personnel capability to fully manage, implement, and validate:

- An ability to surge specific skill sets for a medical quick reaction force, ashore or afloat, required to support operations across the range of military operations.
- An ability to surge specific skill sets (personnel) to provide required services, ashore or afloat, in crisis situations.
- JFMCC/NAVFOR HSS component.
- Sufficient, trained, personnel to support the medical/HSS liaison requirements .
- HSS and medical providers trained to conduct operational planning and interagency coordination.

**Facilities Capability Shortfalls Identified During VANGUARD 05:** Currently Navy Medicine does not have the Facilities capability to fully manage, implement, and validate:

- Scaleable, deployable, clinical facilities with the ability to be established on any designated USN platform.
- Scaleable, deployable, isolation capability to support HSS/MEDEVAC operations aboard USN platforms.

Some VANGUARD participants felt there was a need to conduct a review of CONUS and OCONUS facility infrastructure, to include those facilities where the Navy has MOAs / MOUs with other Service/Agency facilities, to determine if they can support the number of long term, definitive care requirements in support of developed OPLAN scenarios. Additionally, such a review should ascertain whether there are sufficient designated facilities to support drug, alcohol, psychological, and family support clinics based on the authorized Navy end strength. It was suggested that the results of such a survey could be published in a pamphlet and made available to HSS providers and clients alike.