



National Center for Disaster Medicine and Public Health

Continuing Promise 2010:

Learning Assessment Report of Findings

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**In coordination
with the Uniformed
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Introduction

COMUSNAVSOUTH Surgeon invited the National Center for Disaster Medicine and Public Health (NCDMPH) of the Uniformed Services University of the Health Sciences (USU) to contribute to the education and training of the embarked joint medical group of Operation Continuing Promise 2010 (CP-10). This invitation overtly recognized a core mission of the NCDMPH: "...[to] serve DoD as its academic home to develop and propagate core competencies, training, research, and education related to disaster medicine..." (NCDMPH Charter, p. 2). The NCDMPH immediately responded with a quality improvement proposal to conduct a learning assessment of embarked medical staff officers during CP-10, seeking to provide quantitative and qualitative feedback to the component command for application in subsequent missions. This report summarizes the findings.

Background:

Continuing Promise is primarily conducted to train DoD personnel, the US Interagency (especially the US Public Health Service), select non-governmental organizations (NGO), and partner militaries in humanitarian assistance and disaster response (HADR). The experience of NCDMPH with prior Continuing Promise and analogous PACOM Pacific Partnership annual missions indicates learning and training naturally occur during the deployment of highly professional medical department participants, but there is little structured learning or mentoring built into the missions. Thus, what is "learned-by-doing" is relegated to chance. Consistent with national medical professional training, the provision of overall HADR learning objectives and competency goals can enhance the value of the missions and consistently develop a capable DoD disaster health workforce.

The value of national competencies and curricula in disaster health is at the heart of a Presidential Directive (Homeland Security Presidential Directive 21, "Public Health and Medical Preparedness" of 18 October 2007). HSPD-21 articulates the National Strategy for Public Health and Medical Preparedness. This directive specifically created the NCDMPH to develop an academic Joint Program for Disaster Medicine and Public Health which will "...lead Federal efforts to develop and propagate core curricula, training, and research..." in disaster health (Paragraph 38). The NCDMPH is the only Federal health education and training center specifically created to transcend Federal departments (primarily DoD, DHHS, DHS, DVA, DoT), levels of government (Federal, state, and local), academia, and professional associations to forge national competencies and standards in the knowledge, skills, and attitudes of high quality disaster preparedness and response. This charge to the NCDMPH is in direct response to national shortcomings identified in the "Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, "A Failure of Initiative", 2006. As stated in the Preface to this report:

*But the American people don't care about acronyms or organizational charts.
They want to know who was supposed to do what, when, and whether the job got*

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done. And if it didn't get done, they want to know how we are going to make sure it does the next time.

Both the Presidential Directive and the Charter of the NCDMPH explicitly recognize there is significant overlap in the knowledge, skills, and attitudes for domestic and for international disaster response. Thus, the work of the NCDMPH in support of COMUSNAVSOUTH not only enhances partner nation and regional preparedness and stability, but it also will translate directly into DoD medical department competency in domestic disaster response. This is an important value to state at the outset and directly supports the mission of the NCDMPH and the Presidential Directive—highest quality training and education in the Continuing Promise missions provides a 2-for-1 payback in workforce competency. Few other opportunities provide such a robust value.

DoD doctrine for Stability Operations (DoDI 3000.05, *Stability Operations*, 16 Sept 2009) and Medical Stability Operations (DoDI 6000.16, *Military Health Support for Stability Operations*, 17 May 2010) is new within the last two years. Although under development, no education and training requirements in Medical Stability Operations exist—it is important to note that by DoD definition, HADR is a subset of Medical Stability Operations. Thus, there is no force-wide DoD medical department professional education and development in HADR. DoD medical department staff, on their own initiative and sometimes at their own expense, may seek training in HADR from international relief agencies. There is also a small-scale course developed by the USU Department of Pediatrics over 15 years ago, called the Military Medical Humanitarian Assistance Course (MMHAC), which addresses some of the HADR competencies.

Compounding the lack of requirements, no studies have been done to assess the level of HADR knowledge in DoD medical department staff. The lack of professional education and development requirements, along with the lack of information on the baseline HADR knowledge of randomly assigned DoD medical staff to the Continuing Promise missions, creates the need for this baseline learning assessment. Without an estimate of baseline HADR knowledge, quality improvement cannot be measured.

Objectives

The National Center for Disaster Medicine & Public Health (NCDMPH) conducted a formal learning assessment aboard the USS Iwo Jima during Operation Continuing Promise 2010 (CP-10) to achieve the following objectives:

- Describe the CP-10 workforce and associated knowledge, skill, and experience relative to humanitarian and disaster response (HADR) missions
- Identify self-reported knowledge and perceived preparedness for HADR of the CP-10 workforce

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- Review the educational and training received by CP-10 embarked medical personnel (formal and informal)
- Identify gaps in education and training as perceived by CP-10 embarked medical personnel
- Assess free-text comments by participating medical staff to identify how some aspects of mission execution might affect the training value of the mission
- Formulate recommendations for improving future missions requiring HADR competencies

These objectives were designed to provide NAVSOUTH SG with a targeted assessment of the education and training needs identified on CP 10 for application to future humanitarian and disaster response missions. While it should be noted the use of the “gray hull” USS Iwo Jima presented additional challenges to education and training not typically encountered during a hospital ship (T-AH) mission, the NCDMPH evaluators identified findings which transcend the environment and are related to multiple HADR response environments. Lessons learned from this assessment include those that directly relate to education and training, as well as those that indirectly impact the training value of the mission.

Methodology

A mixed methods approach was used to address the objectives as they related to the education and training needs of embarked medical personnel. A non-experimental one-group pre-test/post-test design was used to collect both quantitative and qualitative data prior to the initial port of call and delivery of medical services and at a second point approximately three-quarters of the way into the mission. This design was used to determine if informal education and training provided during the mission, along with embarked medical staff experience gained through experiential learning in the execution of the mission and the delivery of patient care in six of the eight host nations (Haiti, Colombia, Panama, Costa Rica, Nicaragua, Guatemala), resulted in perceived changes in knowledge, skills and attitudes among embarked military medical personnel.

The assessment instrument was adapted from a tool developed by LTC Michael Stanley, MC, USA, to longitudinally assess knowledge acquisition by students attending the Military Medical Humanitarian Assistance Course (MMHAC). This tool was produced in partial fulfillment of the MPH degree at USU with mentorship by Alisha Creel, PhD, and MAJ(P) Patrick Hickey, MC, USA. The original instrument was found to be both reliable and valid, thus providing a good starting point for a CP-10 learning assessment.

It is important to note the assessment tool relies on self-reported HADR knowledge. Validation of the self-reported knowledge through various means of testing would provide a more authentic estimate of participant abilities. This validation testing was not possible due to the short-notice of this tasking, but should be considered in the future.

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Following modification for use on CP-10, the pre-test survey tool consisted of 20 questions designed to collect descriptive data about the CP-10 workforce as well as perceptions of competencies related to the following:

- recognizing major health impacts of an HADR mission
- recognizing differences in medical standards of care between the US and a local population affected by an HADR mission
- ethics of decision making in a resource-constrained, developing country setting
- ability to collaborate and integrate with non-governmental organizations
- ability to recognize and treat common nutritional deficiencies in a population impacted by an HADR mission
- ability to recognize and treat common infections associated with mortality in an HADR mission
- ability to work with the host nation and local providers
- perceived adequacy of training to perform the work required on CP-10.

Pre-test participant responses were collected prior to conducting the first mission assignment in Port de Paix, Haiti, using an anonymous, paper-based assessment consisting of Likert scale, yes/no, and a few free text questions. A convenience sample of 54 embarked military medical staff officers completed the first assessment.

Post-test participant responses were also collected using an anonymous, paper-based assessment tool administered after the sixth mission port—thus many responding medical personnel had significant exposure to HADR settings providing a reasonable estimate of the change in learning occurring during the mission. Changes to the assessment in the post-test phase included the addition of questions designed to assess the following:

- value and effectiveness of training provided during CP-10
- training methods perceived as most effective
- likelihood to recruit colleagues or to personally volunteer for similar missions
- perceived impact of the HADR mission on retention of active duty medical personnel
- perceived impact of the PDSS (pre-deployment site survey) and ACE (advanced coordination element) on participant knowledge and performance
- perceived cultural competence

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- perceived impact of the mission on professional fulfillment
- emotional impact of the mission.

An un-matched convenience sample was used based upon availability of personnel to complete the survey within the established timeframe. A total of 50 embarked military medical staff officers completed the final survey (the post-test).

To strengthen the quality of the learning assessment, participant observation was used to collect qualitative data relative to the education and training aspects of the CP-10 mission. Participant observation allowed the NCDMPH evaluators to become familiar with and accepted by the CP-10 workforce in an effort to gain more meaningful information and understanding of the mission, its challenges, and the possible gaps which could be addressed through education and training. The NCDMPH selected three participant observers to embark on CP-10. Two evaluators participated as the USS Iwo Jima departed the United States through completion of the first host nation visit in Port de Paix, Haiti. The third evaluator embarked after the sixth mission port and remained aboard through the seventh mission port. Each participant observer has current or prior military medicine experience as well as disaster response and humanitarian assistance expertise.

Upon embarking CP-10, mission leadership was asked to use the NCDMPH observers as they would use embarked military medical personnel who were assigned to the mission. As such, each observer would be assigned tasks and duties in accordance with their professional license (one nurse and two physicians). It was requested that no special treatment be provided to the participant observers so their experiences would support findings and assist in clarifying results obtained from the learning assessment process.

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Results

Quantitative Results

Table 1 provides a comparison of the health profession demographics of the participants.

These demographics demonstrate that a broad sample of medical department officers participated in the assessment, and their professional distribution was representative of the joint medical group.

Profession	% Pre-Test	% Post-Test
Physician	35	28
Nurse	37	46
Nurse Practitioner	3.5	4
Pharmacist	1.85	4
Veterinarian	3.7	4
Dentist	7.4	10
Preventive Medicine	5.6	2
Other	5.6	2

Table 2 summarizes general HADR knowledge.

Perceived Experience/ Ability	% Pre-Test	% Post-Test	Trend
No prior HADR experience/ training	76	74	Level
Recognize major health impacts of events leading to an HADR mission	50	77	Up
Recognize differences in stan- dards of care between US and host nation	76	90	Up
Understand ethical rationale	78	84	Up

Three fourths of respondents had no prior HADR experience or training—they were “rookies” to the CP-10 mission environment. The next three rows indicate that some learning occurred during the mission—an increase of 27% felt they could recognize major health impacts leading to an HADR mission, an increase of 14% felt they could recognize differences in standards of medical

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care, and just a slight 6% felt they had an improved ability to understand ethical considerations in the HADR setting. So, as expected, some learning is occurring during the mission.

Table 3 addresses issues of coordination of care with NGO's, with host nation providers, and specifically addresses the issue of "handing off" a patient seen during the mission to other providers located in the host nation.

Perceived Ability to/ Awareness of...	% Pre-Test	% Post-Test	Trend
Provide care with NGOs	80	94	Up
Integrate with NGOs	40	67	Up
Patient handoff plans	61	63	Level
to work with local providers	61	65	Level

Respondents identified the greatest gains in their ability to work with NGO's. However, their ability and desire to work with host nation providers and properly "hand-off" a patient for ongoing care of an acute or chronic problem showed essentially no improvement.

Table 4 samples the participant's knowledge in selected clinical areas.

Perceived Ability to...	% Pre-Test	% Post-Test	Trend
Recommend appropriate nutritional ration strategies	26	37	Up
Identify common nutritional deficiencies	41	63	Up
Recognize common HADR infections	38	70	Up
Treat common HADR infections	43	55	Up
Manage the most common causes of morbidity & mortality in a vulnerable population	54	51	Level

Learning increased in the general categories of nutritional and infectious disease issues associated with an HADR deployment. This may be due to such factors as focused, ad hoc lectures by embarked specialists and the experience of seeing patients and having immediate peer consultation. Unfortunately, there was no evident learning about the key causes of death and disease in developing country populations. Such knowledge can play a significant role in mission planning and in individual patient treatment decisions.

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Table 5 summarizes the Likert scale results of a single question related to the adequacy of training.

Received...	% Pre-Test	% Post-Test
No training	20	34
Inadequate training	13	18
Slightly adequate training	17	22
Somewhat adequate training	28	20
Completely adequate training	13	6

The trends within this question are instructive. More respondents on the post-test felt they had no or inadequate training (33% Pre- vs. 52% Post-), indicating an emerging negative perception of the core function of the mission. This is mirrored by a decrease in the combined categories of somewhat and completely adequate training (41% Pre- vs. 26% Post-). These trends deserve greater investigation, they may be a proxy for staff fatigue, but they at least indicate a level of frustration with training provided. Perhaps the respondents were able to more clearly recognize their personal need for more training in HADR as the mission progressed? In other words, their personal gaps in knowledge may have become more self-evident and their motivation to overcome these gaps increased.

Qualitative Results

The qualitative data obtained from both the survey, as well as from participant observation, was categorized and coded in order to allow for thematic analysis. Findings reflected opportunities for improvement in the following areas:

- Embarked medical personnel can benefit from an awareness of the planning strategy for logistics, supplies, and formulary selections. With improved knowledge of the strategy and rationale, providers can support the overall plan and will be knowledgeable about how this plan impacts their clinical decision-making and intervention.
- Communication of lessons learned from prior missions and the resulting changes to the planning process would: (1) provide embarked medical personnel with a better understanding of how execution of this training exercise can contribute to a larger body of knowledge relative to HADR, and (2) promote more precise planning and potentially cost-efficient mission execution.
- Formalized curriculum to address the major health issues impacting host countries, as well the strategies that are appropriate to the environment, was identified as a critical need. With a focus on this early in the mission, embarked personnel would be in a better position to utilize resources efficiently during patient encounters while in a resource-

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austere host nation. A focus in this area was felt to be important in order to deliver more effective care to patients, as well as provide embarked personnel with information to support their own safety and health.

- Embarked medical personnel would benefit from a greater understanding of the PDSS and ACE team roles and responsibilities. With improved knowledge in this area, personnel could incorporate findings from these groups in order to manage expectations, establish additional training priorities while underway, and coordinate care in advance of entry into the host nation.
- Team-based competencies and team-building activities were addressed as the mission evolved, but not in the earlier stages of the mission. Observations of embarked personnel indicate these skills are considered critical and should be addressed early in the mission in order to enhance the training value that comes from exercising team-based competencies. Disaster response is inherently a team activity demanding high team fidelity for acceptable performance.

Discussion

The CP-10 joint medical group is composed of ship's company, other deployed service members, partner nations and civilian non-governmental organizations. Recommended competencies for this workforce were not defined in advance of the mission. The medical providers assigned to this mission had diverse skills and backgrounds, but there was no evidence these skills were mapped to a particular need, with the exception of specialty skills such as surgery, optometry and dentistry. A wide array of military and professional experience was found among participants from the very junior officer to more senior staff. However, most notable in our findings was the lack of prior HADR experience and the absence of HADR training and education for all participants prior to and during this mission.

This assessment identified key gaps that will likely impact the potential effectiveness of the mission as a preparatory training exercise for future HADR response. This exercise demonstrated that embarked medical personnel generally lack knowledge in health-related HADR, and these missions generally do not provide structured HADR training before or during deployment. Neither learning outcomes nor training plans for embarked Continuing Promise medical staff have been developed. Thus, measuring HADR knowledge of embarked joint medical group staff prior to the first mission port (Port de Paix, Haiti) and at about 75% through the mission provides a baseline assessment of HADR knowledge and an informal cohort assessment after repeated missions.

The quantitative survey results indicate perceived HADR knowledge addressed in the survey generally increased as the mission progressed. However, the quantitative and qualitative survey data showed opportunity for improving the training value of the mission through formal education and training that is planned in advance and formally evaluated.

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Conclusion

Quality improvement in education and training is an iterative process. The NCDMPH is very pleased to have already been invited to participate in CP-11 as a DoD partner, shaping and enhancing the HADR learning outcomes of medical department staff. With Navy component support, the HADR education and training outcomes for the participants of future missions should show measurable and significant improvement. With a small amount of support, the NCDMPH can foster this medical staff learning and contribute to enhanced medical department HADR readiness.

Recognizing its education and training role within the Federal government, the NCDMPH offers to lead the development, implementation, and assessment of the following recommendations for CP-11:

1. Plan and implement a formal curriculum for CP-11 which includes the following:

- Cultural awareness of host nation health values and beliefs along with key health policies and sectoral programs
- Health systems information for mission ports including local diseases, other health conditions, and features of the local health delivery system
- Baseline humanitarian and disaster response education
- Team roles and responsibilities during HADR
- Disaster specific education, i.e. floods, earthquakes, hurricanes
- Safety and risk assessment / management for embarked personnel

2. Develop an evaluation strategy to measure the impact of evidence-based education and training initiatives employed on CP-11.

This plan will include formative and summative evaluation strategies to address the impact of this training plan on participant knowledge, skills and attitudes. In addition, the impact of the plan on resource utilization would be included in an effort to provide COMUSNAVSOUTH with metrics supporting cost savings that could be realized from implementation of a formal education and training plan.

3. Evaluate methods to provide HADR educational curriculum using distance learning, table-top exercises, formal classroom experiences, and simulation.

The NCDMPH would provide comparative data on the relative effectiveness of these adult learning methods and the ability to transfer these methods to the Continuing Promise missions.

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