NCDMPH
National Center for Disaster Medicine & Public Health

National Center for Disaster Medicine and Public Health

Annual Report #3

Covering the Period Between April 2011 and April 2012

April 17, 2012

In coordination with the Uniformed Services University

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Executive Summary

The National Center for Disaster Medicine and Public Health (NCDMPH or "the Center") was established by Homeland Security Presidential Directive – 21 (HSPD-21) at the Uniformed Services University of the Health Sciences (USU) in 2008 (Appendix A). Dr. Kenneth Schor remains the Acting Director and is supported by seven additional full-time staff.

A strategic plan by the Center's Interagency advisory board (the Federal Education and Training Interagency Group, FETIG) was approved in June 2010 (provided in Appendix B). Significant progress has been made in shaping the academic Joint Program as required by HSPD-21.

Core initiatives of the academic joint program completed in the third annual reporting period include:

- Release of the "Report on the Domestic Natural Disaster Health Workforce"
- Convening of a Federal Panel to develop a pediatric disaster health curriculum
- Findings from a structured educational program for the Continuing Promise 2011 training exercise
- Creation of a number of adult learning products for disaster health professionals
- Scholarly activity, including: peer-reviewed articles and abstracts

Dr. Smith and Dr. Schor have delivered regular reports on academic Joint Program initiatives to the FETIG. These updates provide feedback on the work of the academic joint program in relation to the NCDMPH's mission:

> "The NCDMPH leads Federal and coordinates national efforts to develop and propagate core curricula, education, training, and research in all-hazards disaster health."

By maintaining the pace of its approved strategic plan, the NCDMPH has positioned itself to fulfill its 3-year goals in the areas of improving disaster health education and training.

The following sections detail how the NCDMPH is implementing the five goals outlined in the strategic plan (Appendix B).

Workforce Landscape Analysis

In September 2010, the NCDMPH used funding from the Department of Health and Human Services (DHHS) to conduct a workforce analysis of the disaster health professionals who would respond to a catastrophic domestic natural disaster.

As stated in the NCDMPH's 2nd Annual report, the goals of the project were to produce a report that analyzed the core federal departments supporting Emergency Support Function #8 (ESF-8) of the National Response Framework at the federal, state and local levels. Based upon that information, three core occupational groups were to be selected for further description of their response expectations, including competencies, standards, credentialing, licensing, liability issues and training requirements.

On February 1, 2012, the NCDMPH released the "Report on the Domestic Natural Disaster Health Workforce," a 212-page landscape analysis of the core Federal ESF-8 departments and examination of emergency and critical care physicians, emergency and critical-care nurses, and paramedics at the national, state and local levels.

More specifically, the report accomplishes the following:

- Analyzes core Federal departments supporting ESF#8 - Public Health and Medical Services - of the National Response Framework
- Examines three key occupational sub-groups first at the National level, then the State (California), and lastly, at the local level (Los Angeles County): (1) emergency and critical care physicians; (2) emergency and critical care nurses; and (3) paramedics.
- Uses a pilot case study focusing on a theoretical major earthquake scenario in the southern California region to describe the anticipated local, State, and Federal ESF#8 workforce responding to the fictional earthquake with emphasis on the three core occupational subgroups.
- Incorporates feedback from a multi-stakeholder conference. This landscape analysis supports further development of necessary workforce disaster health competencies and the curricula helping to achieve those competencies. The understanding of the "who" of the workforce provides the skeleton for appending the "what" of competencies and standards and the "how" of curricula.

The report's contents accomplish the goals outlined in last year's report, in addition to issuing 14 recommendations (Appendix C) for improving the domestic natural disaster health workforce.

Development of Core Competencies and Pediatric Disaster Health Curriculum

The NCDMPH published an updated set of core competencies for disaster medicine and public health. The article, "Core Competencies for Disaster Medicine and Public Health," was published in the March 2012 issue of *Disaster Medicine and Public Health Preparedness*, and represents a successful collaboration among a broad and diverse set of leaders in the field and like-minded professionals. The article's content is meant to serve as a starting point establishing expected competency levels of all health professionals in disaster medicine and public health settings.

The NCDMPH has also focused much of its competency work on pediatric disaster education and training. In June 2011, the NCDMPH released the "Pediatric Disaster Preparedness Curriculum Development Conference Report," a summary of the proceedings, outcomes and next steps toward establishing a role-specific, competency-based, pediatric disaster preparedness education and training program. The report was placed on over 12 websites and the report's front page received over 1,000 views on the NCDMPH website.

In October 2011, the NCDMPH presented a scientific poster at the 2011 APHA Annual Meeting. "Pediatric Disaster Preparedness Curriculum Development Conference: Results and Recommendations" broke down the background, objectives, methodology, outputs and next steps as the results of the conference.

The NCDMPH convened a Federal Panel of the following eight members on February 1, 2012 to prioritize three key topics from the March 2011 conference for development into pilot learning objects:

- Joan Cioffi , PhD, MS, Associate Director, OPHPR/Learning Office, CDC
- Andrew Garrett, MD, MPH, National Disaster Medical Services- HHS
- Marc Gautreau, MD, ASPR/ECCC Fellow
- Sandy Kimmer, MD, MPH, Assistant Professor-USUHS
- Graydon Lord, MS, Director, Emergency Care Coordination Center-HHS
- David Siegel, MD, FAAP, Senior Public Health Adviser, NIH NICHD-HHS
- CAPT Lynn Slepski, PhD, RN, Senior Public Health Adviser, DOT
- LCDR Chris Watson, MD, MPH, Acting Chief - Division of Pediatric Critical Care, WRNMM

The panel unanimously recommended the following three topics for initial development:

1) Tracking and Reunification of Pediatric Disaster Victims
2) Overview of Radiation Exposure in Children
3) Psychological Impacts on Children

Learning objects are defined as chunks of information that can be refined, are available for re-use and are packaged in modular components for distance, face-to-face and group learning

The NCDMPH hopes to roll out the learning objects in the Fall of 2012 as easy-to-use, downloadable HTML modules.

Supporting Continuing Promise

After the NCDMPH's well-received formal learning assessment of the knowledge, skill, and experience relative to humanitarian and disaster response (HADR) of the joint medical staff of Continuing Promise 2010, the NCDMPH was invited by the United States Southern Command to take on a larger role in supporting the delivery of relevant training during the 2011 mission. This was accomplished through Internal Review Board (IRB)-approved research.

By building on the findings of the 2010 assessment, the NCDMPH brought Colonel Cliff Yu aboard the USS Comfort to deliver the Military Medical Humanitarian Assistance Course (MMHAC) formal HADR curriculum for the 92 medical personnel onboard. Observation of this course, along with observations on the medical personnel's mission activities, doubled as field research for a continued assessment of knowledge, learning and areas for improvement in HADR education and training. Selected aspects of the education program included:

- Pre-program questionnaire to establish base-line knowledge
- Host nation health briefs to summarize the demographics, health systems, cultural beliefs and country-specific disease burdens of the countries visited (available to the public on the NCDMPH website)
- Participant observation at a medical site
- Focus groups about HADR education and training during Continuing Promise 2011
- Post-program questionnaire measuring knowledge learned

The educational program implemented during Continuing Promise 2011 is a prime example of the NCDMPH's role in improving the nation's all-hazards education and training. By identifying gaps in knowledge in 2010, the NCDMPH was able to support the mission's continuous improvement efforts in 2011 while simultaneously collecting additional data to drive future recommendations for building a body of knowledge on disaster response.

Findings from the program evaluation were presented in the following ways:

- "Needs-Based HADR Learning Intervention on Operation Continuing Promise 2011 – Emerging Outcomes" presentation at the 43rd Annual MACKLIN HADR Conference
- "Assessing the Effectiveness of Education and Training for Humanitarian Assistance and Disaster Response (HADR)" poster at the American Public Health Association 139th Annual Meeting and Exposition
- Draft and production schedule of an article on the missions' findings for journal submission
- Development of tip sheet and pocket card learning resources available to the disaster health community, as described in the following Adult Learning section

The Center's work with CP-11 has also led to the NCDMPH advising on education and training for Operation Continuing Promise 2013.

Adult Learning

In May of 2011, the NCDMPH released the first iteration of its Compendium of Disaster Health Courses, a collection of disaster health courses available online, from trusted sources, at no cost. The compendium was put together at the request of Dr. David Marcozzi, Director of All-Hazards Medical Preparedness Policy for the White House National Security Staff, and has been used to offer disaster courses to soldiers in the field. This first edition of the compendium has been adopted and further enhanced by the National Library of Medicine as their Resource Guide for Disaster Medicine and Public Health.

After adding an Education Coordinator to the staff in April 2011, the NCDMPH was able to produce significant products, scholarly articles and training tools in the area of adult learning.

By combining the academic backbone of adult learning theories and principles with some of the observed practices and HADR services of Continuing Promise 2011, the NCDMPH produced the following adult learning tools for disaster response, all of which are available for easy download on the website:

- Conducting a Subject-Matter Expert Exchange (Tip Sheet)
- Enhancing Learning: Beyond Traditional Training (Tip Sheet)
- Working with an Interpreter in a Disaster Setting (Pocket Card)
- Effective Team Formation in a Disaster Setting: The First 15 Minutes (Pocket Card)

Adult learning models were the focus of an NCDMPH presentation at the 2012 Public Health Preparedness Summit titled "Leveraging adult learning models for education and training in a resource constrained, competency focused environment."

The NCDMPH also drew on adult learning concepts in developing an academic journal article titled *Proposals for Aligning Disaster Competency Models*, which is currently under review at the Disaster Medicine and Public Health Preparedness Journal.

Workshops

In 2011, the Center fulfilled a task from US NORTHCOM to collaborate with Yale New Haven Health Center for Emergency Preparedness and Disaster Response (YNH-CEPDR). As outlined in the 2nd Annual Report, the workshops were intended to:

1. Clarify the federal disaster medicine and public health education and training products currently in existence
2. Identify needs and explore strategies to fill education and training gaps
3. Synthesize long-term expectations of competencies

The final two workshops were held in June and August 2011. In November 2011, the final report, titled "Study to Determine the Current State of Disaster Medicine and Public Health Education and Training and Determine Long-term Expectations of Competencies," was released.

All six workshop After Action Reports, in addition to the final report, are available as sub-menus at http://ncdmph.usuhs.edu/Site_n/KnowledgeLearning/KL_Workshops.htm

Outreach

The NCDMPH continues to have a robust outreach effort, including newsletters and frequent online updates. As an example of the impact of this outreach, Dr. Schor was interviewed for an article titled "Disaster health workforce could be strengthened through cooperation" in the April issue of *The Nation's Health*.

Additional outreach included:

2011 Integrated Medical, Public Health, Preparedness and Response Training Summit (May 1-5, 2011): Presented the NCDMPH Brief

National Level Exercise 2011 (May 16, 2011): Observed in all phases of the exercise operations

National Emergency Management Summit (September 12-15, 2011): Exhibited materials

Humanitarian Assistance Conference (September 15-16, 2011): Presented the NCDMPH Brief; exhibited materials

NCDMPH's Natural Disaster Health Workforce National Conference (September 19-20, 2011): Briefed participants and solicited feedback via working groups for the disaster health workforce report

American Public Health Association Annual Meeting (October 29-November 2, 2012): Presented the "Pediatric Disaster Preparedness Curriculum Development Conference: Results and Recommendations" and "Assessing the Effectiveness of Education and Training for Humanitarian Assistance and Disaster Response" scientific posters; exhibited materials

Public Health Preparedness Summit (February 21-24, 2012): Hosted the "Interactive Session: Leveraging Adult Learning Models for Education and Training in a Resource Constrained, Competency Focused Environment"

Radiological Nuclear Incident Response Course (February 25-26, 2012): Participated in the introduction course on radiological nuclear incident response

NCA Research Summit (March 19, 2012): Presented a brief on the NCDMPH; exhibited materials

2012 Joint Commission Annual Emergency Preparedness Conference (April 11-12, 2012): Presented a poster titled "Los Angeles County Natural Disaster Health Workforce Network"

Website

The NCDMPH's website analytics give a glimpse of the Center's increasing stature in the disaster health response world. Since the 2nd annual report, the NCDMPH website has continued to show significant improvement in a number of areas:

- 66% increase in overall visits (11,200 from April 2011-April 2012, compared to 6,747 during the previous year)
- 72% increase in unique visitors (5,800 from April 2011-April 2012, compared to 3,374 during the previous year)
- 48% increase in pageviews (29,500 from April 2011-April 2012, compared to 20,000 during the previous year)
- 5% increase in average time on site (2:48 from April 2011-April 2012, compared to 2:40 during the previous year)

As the NCDMPH continues to make great strides in the volume of its work, the website has undergone a dramatic makeover to better reflect the Center's growing needs. In

August, a complete layout and design overhaul was unveiled in order to represent the categories in which the NCDMPH operates while, at the same time, improving the overall intuitiveness and navigational organization of the website.

In August 2011, the NCDMPH also entered the social media world by debuting its Facebook (www.facebook.com/NCDMPH) and Twitter (www.twitter.com/NCDMPH) accounts in accordance with USU policies and regulations. These new accounts drive additional traffic to the website and its materials and allow the NCDMPH to engage in two-way conversation with its constituents.

Purposeful focus on making the NCDMPH website a hub for disaster health news, materials and tools has been the main reason for the website's continued growth.

Future Plans

The NCDMPH will continue developing its capabilities and expanding its resources to become a national resource and center of excellence in disaster health education and training.

Per its progress made in the period between April 2011 and April 2012, the Center will maintain its pace of production in terms of fulfilling the goals of its 3-year strategic plan while also beginning the planning stages for the next installment of work.

Upcoming activities include, but are not limited to:

- Conducting a 2nd Case Study (Disaster Recovery from Hurricane Irene and Tropical Storm Lee)
- Developing of 3 Pilot Learning Objects for pediatric disaster health curriculum
- Developing continuing education workshop on disaster health learning
- Advising education and training for Continuing Promise 2013
- Joining IOM Forum on Medical and Public Health Preparedness for Catastrophic Events
- Publishing of scholarly articles in academic journals (peer-reviewed and technical)

Our accomplishments will remain contingent on the ongoing leadership of the Uniformed Services University of the Health Sciences and the support of the Federal Education and Training Interagency Group (see Appendix D for funding snapshot).

Respectfully submitted,

Kenneth W. Schor, DO, MPH
Acting Director

APPENDIX A

Additional Historical Background

Homeland Security Presidential Directive 21 was released on October 17, 2007. HSPD-21 established a new national vision to focus the U.S. on all-hazards medical and public health preparedness, community engagement, integrated medical and public health response, and coordination vertically, horizontally, within, and across a very wide range of federal and non-federal entities. HSPD-21 specifically called for the establishment of an academic Joint Program for Disaster Medicine and Public Health at a National Center for Disaster Medicine and Public Health (NCDMPH) housed at the Uniformed Services University (USU). HSPD-21, paragraph 38 directed, "[NCDMPH] will lead Federal efforts to develop and disseminate core curricula, training and research related to medicine and public health in disasters."

DoD and USU responded with a charter that reads in part, "the National Center [for Disaster Medicine and Public Health] shall promote standardized education and training in public health and medical disaster preparedness and response based upon collaboratively developed and accepted core competencies, procedures, and terms of reference. The National Center will share findings with Federal, State, local and tribal governments; academia and the private sector."

HSPD-21 also specified in paragraph 37 the creation of an interagency body, separately constituted as the Federal Education and Training Interagency Group for Public Health and Medical Disaster Preparedness and Response (FETIG), to serve as a coordinating mechanism for education and training in disaster medicine and public health. The FETIG thus became an advisory body to the NCDMPH as codified through a separate five-department (DoD, DHHS, DVA, DHS, DoT) charter. This charter directed the FETIG to meet regularly and make recommendations for the establishment and maintenance of the academic Joint Program, housed at the NCDMPH.

APPENDIX B

NCDMPH Strategic Plan

Approved on June 23, 2010 by the FETIG.

Vision and Mission:

Vision: A nation of resilient communities with a competent disaster health workforce prepared to respond to and mitigate all-hazards disasters.

Mission: The NCDMPH shall lead federal and coordinate national efforts to develop and propagate core curricula, education, training and research in all-hazards disaster health.

Building upon HSPD-21 and the Pandemic and All-Hazards Preparedness Act (PAHPA), the National Health Security Strategy and guidance from the Federal Education and Training Interagency Group, the NCDMPH will pursue a set of goals and objectives consistent with this vision and mission.

Goals:

Initial operating capability for the NCDMPH was resourced by the Department of Defense and reached, per a memo to Dr. David Marcozzi, on July 19, 2010. The Department of Health and Human Services supplied FY10 year-end funds to support an initial effort to characterize the disaster health workforce, in support of goal 1. Multi-agency funding will be required going forward to fully support the capabilities required to meet the ambitious goals envisioned. These goals are as follows:

1. Lead the characterization of the disaster health workforce
2. Lead the identification, integration and promotion of national core competencies in disaster health across multiple disciplines and professions
3. Provide leadership in the efforts to identify and/or design, develop, propagate and evaluate core curricula for disaster health education and training
4. Contribute to the development and implementation of an evidence-based continuous improvement framework supporting evolving best practice competencies, training methodologies and disaster health lifelong learning
5. Become a trusted national resource for disaster health education and training.

A phased approach towards the fulfillment of goal-specific objectives began in fiscal year 2010 (FY10) and will continue to develop over the next 2 fiscal years.

Short Term Objectives (through FY12):

- Characterize the disaster health workforce as a basis for the identification, integration and promotion of national core competencies in disaster health across multiple disciplines and professions
- Identify evidence-based evaluation strategies to assess operational outcomes of competencies
- Identify and integrate federal disaster health core competencies
- Identify and integrate national disaster health core competencies
- Identify gaps between learning outcomes and both individual and team performance
- Identify core disaster health curricula, education and training standards
- Inform the federal disaster health education and training process
- Collaboratively advance the development of national standards for education and training in disaster health
- Develop an analysis framework to identify gaps between core competencies, curricula and response requirements
- Utilize after-action reports and lessons learned in a continuous improvement framework
- Communicate information about the Joint Program within federal, state, local, tribal and territorial communities
- Support Federally-sponsored disaster health task forces
- Contribute to research in the related specialties of domestic medical preparedness and response, international health, international disaster and humanitarian medical assistance and military medicine (per USU/ASD(HA) Charter)

Long Term Objectives (FY13 and beyond):

- Establish a multi-disciplinary Disaster Health Fellowship designed to expand scholarly research, education, and training in the discipline of disaster health
- Develop multi-disciplinary certification in Disaster Health
- Continue to implement evolving evidence-based best practice competencies, curricula, and education and training standards in disaster health lifelong learning

Appendix C

Report on the Domestic Natural Disaster Health Workforce Recommendations

Recommendation #1: Further study of the actual versus the perceived impact of double counting of responders, to include any differentiation between paid commitment and unpaid.

Recommendation #2: Conduct research on how double counting affects, if at all, workforce preparedness and response.

Recommendation #3: Investigation of whether there is benefit to developing a more formal mechanism, beyond self-reporting, for identifying multiple affiliations of responders, and, if so, should the information collected include data fields such as specialization and paid / unpaid status?

To address concerns about volunteer failure to respond:

Recommendation #4: Processes and procedures to provide care for the volunteer's families while deployed during a domestic disaster response.

Recommendation #5: Training, team building, and communications to keep volunteers connected to their volunteer organizations over time.

The impact of an aging medical workforce along with the increasing demand for services from an aging general population will impact the available capabilities of the medical and public health systems to meet and respond to the needs of populations impacted by natural disasters.

Recommendation #6: Response plans should assume fewer numbers of available clinical specialists, especially highly trained, sub-specialty clinicians, and consider processes to provide the right knowledge, to the right person, at the point of need, but all within the chaotic context of a disaster response.

Recommendation #7: Consider options to compensate for a diminished health workforce, to include increased responsibilities and diversification among other elements and levels of the workforce through enhancements to existing training and education programs, including cross-training.

Recommendation #8: Identify competencies currently performed by physicians that can be performed by other elements of the health workforce, such as, but not limited to, physician assistants, nurses, or emergency medical services personnel, as well as

those performed by nurses, certified nursing aides, and other workforce personnel (e.g., respiratory therapists, etc.)

The lack of an intentional human capital development program across the disaster health workforce was noted both vertically (i.e., Federal, State, and local government as well as the private sector) and horizontally (i.e., among Federal agencies). Such an effort should be considered as co-equal to effective national planning. Currently, each major agency and component conducts its own training and education programs and, while there frequently are interagency / multi-level components to exercises and other training events, these exercises are "process" focused on exercise plans and operational procedures. The workforce competency related training aspects of these events are usually unstated, undocumented, and not evaluated.

Recommendation #9: Establish an integrated workforce training and education baseline addressing validated competencies and standards from all levels of the disaster health community. This should support and be synergistic with all planning efforts.

In the production of this report, no central requirement, capability, or effort was identified that focused on how to track the availability and readiness of the disaster health workforce below the team or unit level. Such tracking could facilitate decisions regarding unit employment in response to a disaster.

Recommendation #10: As the ESF#8 Coordinator, recommend the Department of Health and Human Services (HHS) should consider establishing a process among the various components of the disaster health workforce, to include the private sector, to provide real-time information sharing of personnel asset visibility (e.g., available number, specialty, and location). This information could be used in conjunction with other data to identify possible or actual personnel shortages, enable by-specialty reallocation / reassignment of available personnel, and identify workforce personnel who might require on-site training.

Recommendation #11: Recommend HHS consider establishing a periodic reporting requirement for designated specialties, in order to provide an updated national snapshot of the available ESF#8 disaster health workforce that could be used to assist with workforce development and education initiatives. (This would require the participation of State and local governments, private sector healthcare providers, and the appropriate certifying organizations.)

No consistent methodology for capturing and specifying organizational readiness was observed across ESF#8 outside of HHS' Emergency Response Tiers for U.S. Public Health Service officers and DoD readiness categories. Visibility of organizational readiness for deployment / employment is largely ad hoc, which may not be sustainable

in a resource constrained environment, and may also impose a psychological burden on personnel, which could decrease effectiveness.

Recommendation #12: Establish a longitudinal cycle of readiness levels across ESF#8 (e.g., "immediately available," "ready in 48 hours," "ready in 96 hours," etc.). Although somewhat outside the scope of this report, we observed that capabilities are provided to requesting entities (usually Federal to local) in whole-unit blocks, even when the local responders only need a subset of that block.

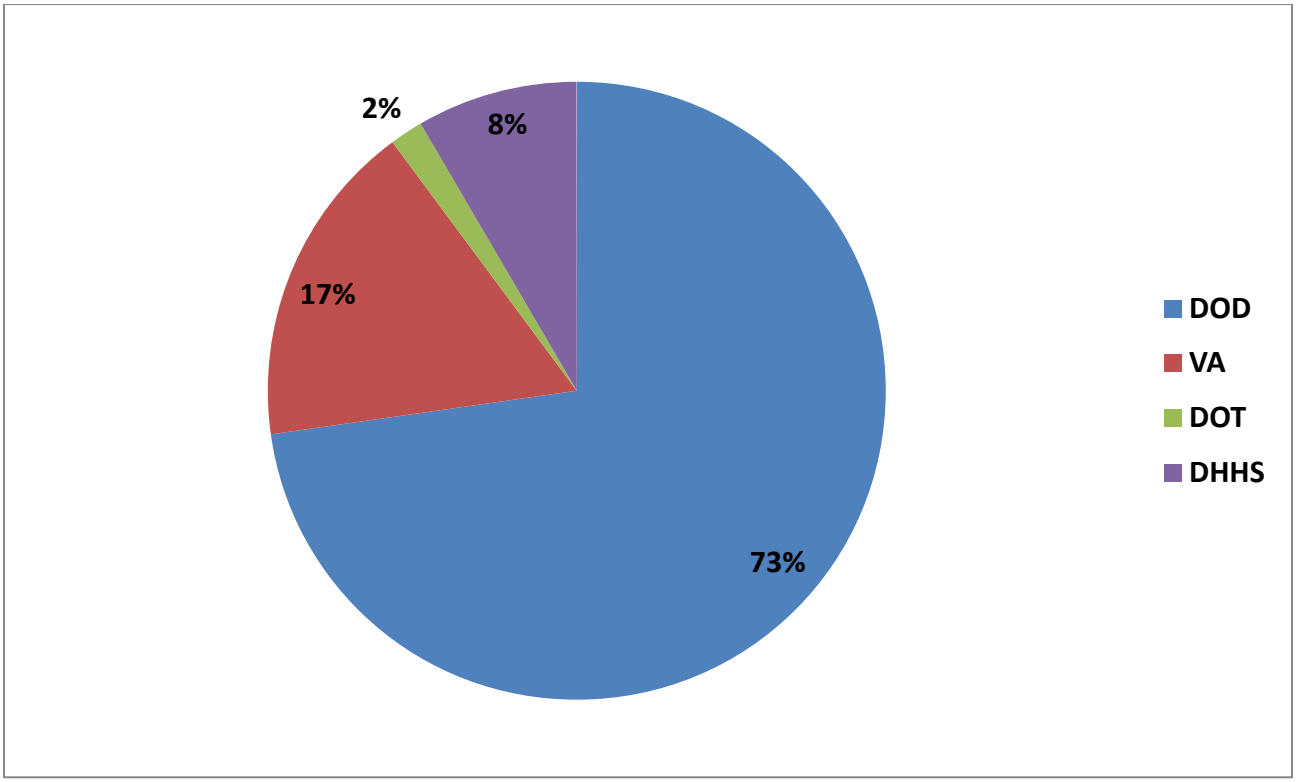
Recommendation #13: In addition to forming and training for response as an entire unit, recommend medical response teams examine the various potential sub-units they would be able to organize and deploy in order to meet requirements from supported local authorities for capabilities contained within, but less than 100% of their structure.

For updating and expanding the Disaster Health Workforce Report:

Recommendation #14: The ESF#8 Coordinator (HHS), in consultation with the National Security Staff, Federal Interagency, State, and local stakeholders should recommend an appropriate cycle for updating this report in its entirety or in part. This updating could consider different disaster types (such as a CBRN disaster), conducting additional case studies in different locales, and could focus on different national strategies and plans, such as the human capital implications of the recently released National Disaster Recovery Framework. Consistent with input at the national conference, the NCDMPH recommends a three-year periodicity for updating the entire report. As supported by the Federal Education and Training Interagency Group in October 2011, the NCDMPH will conduct 1-2 additional Case Studies in different locales during FY12.

Appendix D

Cumulative Funding by Source – FY08-FY12 to Date



Agency	Budget
DOD	4,129,147
VA	970,000
DOT	98,500
DHHS	477,714
Total Program	**$5,675,361**

Amounts reflect subtraction of 3% “Federal Compliance Charge” by USUHS

Current resources, when broken down by purpose of expenditure, demonstrate 66% of the resources were expended for personnel costs. This is consistent with a human resource-intense activity like the Center.