

Executive Summary of Innovation:

The Community Health and Service Missions (CHASM) program is designed to bridge the chasm of health disparities, protect the health of all Americans and provide essential human services for those who are least able to help themselves. Additionally, the program increases the skills of the country's public health work force better enabling them to execute an effective response to disasters and emergencies. This program helps underserved and vulnerable populations in the United States, by fostering relationships with and within local, state, and federal governments, tribal communities, the U.S. Public Health Service (USPHS) and nongovernmental organizations (NGOs). These partnerships focus on furthering three areas of competency: public health assessment, analysis, and implementation of interventions, which support building and strengthening local health infrastructure. Initiatives aim to increase the capacity of local organizations; CHASM works with communities, rather than doing things for communities. Program objectives are met through field training. A surge of USPHS subject matter experts (SMEs) mobilize, from across the inter and intra-agencies of the Federal government, to vulnerable communities. They cross-train professionals on public health assessment and analysis, and implement applied, broad-based, sustainable solutions for improving public health.

Background/Rationale for Innovation:

The mission of the USPHS Commissioned Corps is to protect, promote, and advance the health and safety of the United States. In order to achieve this mission, the Office of Force Readiness and Deployment (OFRD) in the Office of the Surgeon General is tasked with building, monitoring, and maintaining readiness capacity for the USPHS. Historically, OFRD addressed this responsibility through online, classroom, and field trainings. The field trainings were set up throughout the country, and served to train the officers in hypothetical situations. The trainings included primary care Rapid

Deployment Forces (RDF), Applied Public Health Teams (APHT), Mental Health Teams (MHT), and case management Services Access Teams (SAT). The trainings, though informative, had little ongoing impact on the surrounding communities.

In 2010, an innovative idea emerged that would combine the trainings with service missions. This assumed high risk because it moved to non-traditional means of training and OFRD was unsure not only of how it would be received by the USPHS officers but also how they would be affected by the change. The risk was accepted because educational theorists and educational based practice suggested that the probability of failure would be low. This groundbreaking model allowed USPHS to train its officers to protect the health and safety of the United States while promoting and advancing health infrastructure. OFRD worked in synergy with underserved rural and urban communities, and USPHS Commissioned Corps teams transformed local health and human service projects into purposeful training and capacity-building opportunities. As a result of this project, the Corps now establishes core-level emergency preparedness competency among officers and across public health and primary care entities in areas where training occurs. Results of the projects include improvements to the capacity of primary care settings which support non-urgent and community-based healthcare services day to day. Projects also improve overall community preparedness in the event of an emergency by integrating efforts with overall city planning, surrounding hospitals, neighborhood community service organizations, and city/state public health and emergency management agencies. This initiative further strengthens the federal government through coordination, collaboration and interaction among public health leaders representing a plethora of agencies.

Description of Innovation:

CHASM emphasizes strategic initiatives and inter-agency collaboration to address the ever evolving public health and medical problems, needs and challenges of this nation. Through CHASM, the USPHS supports advancement of scientific knowledge and strengthening of our nation's infrastructure and workforce. Further, it

increases the efficiency, transparency and accountability of HHS programs. This is accomplished through applied public health and medical readiness training designed by a consortium of partners. Purposeful training has led to an improvement of health care services to medically underserved populations; the prevention and control of disease; the identification and correction of health hazards in the environment; the promotion of healthy lifestyle's for the Nation's citizens; and the improvement of mental health.

CHASM sites are selected by identifying communities with great public health needs. This is accomplished through a review of county health rankings, health statistics, discussions with Indian Health Service, and reviews of recently reported concerns or events that have made a community vulnerable. Sites may also be selected if a need to improve an understanding of a given healthcare program or geographic region is identified.

After the site selection is made, CHASM leadership works closely with the community to target areas of need. The missions are then designed around those needs. A sampling of some of the activities carried out during CHASM include:

1. Centers for Disease Control and Prevention (CDC) Community Assessment for Public Health Emergency Response (CASPER)
2. Epidemiology Rapid Assessments for community health profiling
3. Well Water Sampling and Surveying
4. Uptake Surveys on H1N1 and Seasonal Flu
5. Food Safety Training
6. Hazard Vulnerability Assessments
7. Disaster Engineering Training
8. Health Education
9. Coal Worker X-ray Surveillance Program
10. Heavy Metal and Toxin Assessments
11. Airborne Infection Isolation Assessment
12. Community Education
13. Food Safety Assessments
14. Risk Communication
15. Inter-operability Communication Tests
16. Health Fairs Providing Free Dental, Vision, and Medical Care to 1,500 People in 2 Days
17. Sheltering of Animals during Emergency

18. Child Care Emergency Preparedness Assessment
19. Vulnerable Population Emergency Shelter Training
20. Point of Dispensing Planning
21. Workforce Mental Health Protection
22. Provision of Vaccines

The program has the capability to offer even more services, depending on community needs and available resources. Since CHASM promotes partnering among government agencies, we have potentially endless capabilities.

Impact:

CHASM has made a strong, measurable impact on communities since it was established in 2010. CHASM's specific goal is to decrease health disparities, while strengthening health infrastructure and the health workforce, through cross training and education. For the USPHS, regional partners and nonprofit public health officials, the value of CHASM is measured through data that reflects reactions, learning, behavior, and results through the adaptation of Kirkpatrick's model. Reactions and learning are measured together, through the administering of a post-mission questionnaire. Behavior is captured in daily blogs and observed by USPHS leadership and regional partners. Results are measured by examining epidemiological data at one year intervals, as available. Preliminary data suggests that CHASM participants are successfully building capacity and training our nation's public health workforce. Additionally, CHASM boasts an impressive return on investment (ROI). For every dollar invested in a CHASM project, at least 2 dollars of services are rendered. This makes the ROI much greater than the cost of the investment. In its first year, CHASM engaged over one thousand Corps officers from twenty of the Secretary's emergency response teams. In seven weeks, they rendered over \$3.6 million of care and infrastructure building to thirty-eight counties in four states. In conjunction with nongovernmental organizations, academia, local health departments, and volunteers, these medical expeditions provided free health, dental, and eye care, veterinary services, and health education. Clinics registered 3,432 patients and

provided 4,737 services and procedures, valued at \$1,003,376.00.

USPHS officers interacted with local stakeholders to identify thirty types of public health training opportunities. Execution of these projects required cooperative engagement of local stakeholders and SME's in environmental health, preventive medicine, epidemiology, disaster engineering, industrial hygiene, food safety, radiation and veterinary fields. In Maryville, TN, USPHS officers assisted local public health officials to identify heavy metal contaminants at an abandoned smelter site surrounded by low income housing. They helped the community understand contamination pathways affecting local drinking water and the Tennessee River; children had been using this site as their playground, because of insufficient barriers. As a direct result of CHASM, the smelter site was declared an EPA superfund project, for which \$2.6 Million was allocated for cleanup efforts.

CHASM's second year saw the expansion of the program, from sites in rural Appalachia, to sites across the country. CHASM participants returned to Pikeville, KY to evaluate impact over time, while expanding their outreach. New populations served included American Indian tribes and Hispanic Americans along the Texas border. The latter is one of our country's largest humanitarian medical projects, and serves an impoverished population (average per capita income \$5,559 to \$8,899). Many of the people live in housing where water, sewage systems, and paved roads are atypical. Even with rolling budget cuts of 80%, CHASM increased the value of medical services provided in 2011 CHASM Operation Foothold to \$1.85 million (from the \$1 million worth of services in 2010 Operation Nexus).

Lessons Learned:

The most significant lesson learned by CHASM participants is the importance of building trust, having the federal government work in conjunction with communities (instead of doing the work for them). By leveraging marketing through public information officers, multiple media outlets, and community leaders, CHASM increases the level of participation among community members and leaders. The definition of success for each CHASM event is unique, and has to be defined collectively with the local community. Optimizing the measure-

ment of impact and the success of projects often necessitates some level of feedback from the community over time. This strengthens the program's overall ability to determine which projects and interventions caused observable outcomes. USPHS has found that the more involved the community is with determining and addressing their health care needs, the more successful the outcome of the mission.

These lessons have led to more productive, comprehensive approaches to building health infrastructure; better medical operations in austere environments; an emphasis on cultural understanding; expanded knowledge of ways to counter health myths; and more efficient preparation for emergency response. Overall, this innovative program aligns to HHS mission to protect the health of all Americans, by providing essential human services. It demonstrates a leap in creativity by engaging members in the community that are least able to help themselves, through hands-on application in real time. It is particularly transformative because it creates the ability to bring in subject matter experts from across the federal government under one umbrella, creating value through the depths of knowledge pooled. This knowledge is cross-trained among the officers and skills such as leadership development, air and water testing, establishment of sustainable partnerships and the the ability to communicate and negotiate with partners and local health department community stakeholders is then shared with other federal agencies as the officers return to their OPDIVs. In this regard, many federal agencies have benefited from CHASM's lessons learned and acquired knowledge.

Programs conducted realize and reduce endemic conditions that present serious threat to health. By partnering with local communities, NGOs, federal agencies, states, counties, and tribal nations, CHASM participants learn that partnerships foster great possibilities. Each year the list of CHASM partners continues to grow. With that comes a better understanding of our country's health needs, creative applications for decreasing health disparities, and a well-trained workforce that is ready to provide an effective response to disasters and emergencies.

Potential for Transferability and Scalability across the U.S. Department of Health and Human Services (HHS) and Other Federal Agencies

CHASM focuses on partnering with agencies across HHS, as well as other federal agencies, and the potential for transferability and scalability is high. For FY2012, CHASM program leaders have scheduled a strategic planning conference with multiple government agencies not previously engaged in CHASM projects. The purpose is to foster greater interagency discourse and exchange on innovative ways to reduce or eliminate health disparities, while strengthening health infrastructure and the Nation's workforce.

CHASM will continue to have a wide range of initiatives for 2012. Potential community partners include Crow Reservation, Montana; Rose Bud, South Dakota; Shiprock, New Mexico; Cameroon and Hidalgo County, Texas; Oakland, California. Novel initiatives this year include:

- Developing youth leadership within communities to assist with wellness promotion, disease prevention, suicide prevention, and community emergency response planning
- Assessing and creating processes for credentialing and privileging so that communities and response teams may achieve attestation that volunteers are both qualified and competent
- Improving health care providers' ability to do trend analysis on community health profiles, and training them to use the tools to facilitate communicating those findings
- Facilitating the sharing of best practices on latent TB infection, which significantly shortens and simplifies the course of treatment from nine months to 12 weeks, and assisting in the development of policies related to hazard response and maintenance of those programs

The CHASM program is a cost-effective way for efficiently utilizing the USPHS, a highly mobile collection of SMEs whose mission is to protect, promote and advance the health of the nation. By leveraging USPHS SMEs for short periods of time, from across federal agencies, with expertise in environmental health, epidemiology, toxicology, nursing, program administration and

development, primary care, mental health, preventive medicine, and applied public health care, CHASM promotes transferability and scalability. The potential for program growth is infinite within and beyond HHS.

Events:

2011 Operation Foothold

In 2011, the Operation Foothold mission provided great monetary impact on local health infrastructure. The mission provided \$1.85 million worth of services affecting 500,000 people. Specifically, in Operation Lonestar in Texas, 5,918 patients were seen and 36,230 services were provided, including 7,293 vaccines to 3,577 people. The top diagnoses were related to obesity and nutrition, and education on those subjects was provided.

In Pine Ridge, South Dakota, 1,198 medical services were provided to 730 patients during a 3.5-day span. During this mission, 44.3 percent of clinic patients seen were children. At events like these, hosted by non-reservation counties, USPHS has historically seen groups of patients in which only 3 percent were children. The extreme rise demonstrates the new trust between the tribal community and the USPHS. Through this mission, 374 dental services were rendered with a focus on restoration and prevention. Vision exams were provided for a total of 359 people, and 329 pairs of glasses were made. Diabetes screenings were conducted, and information was provided at the clinic. Assessments of the public water system were completed, and the data gathered were shared with water authorities, to help the local utility maintain the current systems that provide water to 12,000 residents. The assessment will impact and support funding allocations for the Environmental Protection Agency Drinking Water Infrastructure Grant Tribal Set-Aside program nationally. The teams trained tribal members to develop a community health profile estimating rates of several key health indicators. In turn, this will help to aid in planning and resource distribution for health and wellness services for over 30,000 residents of the reservation. Public health service announcements on local radio provided information regarding behavioral health issues, healthy decision-making, stress reduction, parenting, communication skills, anger management, and compassion fatigue.

The Paducah, Kentucky mission focused on earthquake preparedness and recovery. The mission conducted a Federal Medical Station (FMS) exercise with the county and state, which converted and assessed feasibility of an air dome for use as a medical shelter that would provide surge relief medical care after disasters. During this CHASM effort, officers designed and deployed a flow dashboard for an FMS, which provided situational awareness of patient flow. Members of the community were trained to complete a CASPER survey for Western Kentucky, which covers 8 counties. The CASPER survey assessed emergency preparedness for earthquakes and health conditions. Additionally, 405 surveys were completed. This means 96 percent of the surveys sent out were completed, well above the expected 80 percent completion rate. The CASPER surveys were then analyzed and compiled to be reported to the local health department. Earthquake preparedness, in personal care homes and child care centers, was assessed, and workers were further educated on the matter. An earthquake emergency preparedness video targeting young children was produced and will be distributed to many day care centers and posted on the Internet. Per the request of the community, psychological support was provided to Carlisle County elementary school children and families suffering from post traumatic stress after a fatal school bus accident.

Because Pikeville, Kentucky was previously a CHASM location, the 2011 mission in this area allowed epidemiological data to be further analyzed over time. Since Pike County schools face a large obesity problem, teams initially analyzed BMI data from all schools in 2009 and again in 2010. The findings impacted school programming, and results over the past year included a decrease in obesity among schoolchildren. With the assistance of the teams, the White House named Pikeville, KY, a Let's Move! City (The Let's Move Initiative is a national challenge encouraging cities to take steps towards fighting childhood obesity). Officers helped the NGO RAM deliver over \$300,000 of free dental, vision, and general medical care in less than 48 hours. Over time, there was a decrease seen in the number of dental extractions required, and an increase in the number of people receiving restorative care. The teams also provided hazard respirator medical clearance exams for emergency response personnel, and training in hazard

communication and risk assessment. The teams delivered training in prescription drug abuse interventions and Psychological First Aid, and train-the-trainer sessions for the Kentucky Community Crisis Response Team, individuals working in shelters, local nursing programs, law enforcement, and first responders. Well water and air sampling for 900 families was conducted, and two reports on methane and radon levels were composed and submitted to aid the local health department. Teams also added tests for mine gases with sulfur, volatile organic compounds (VOCs) and methane, to the previously performed analysis of EPA-TO15 VOC. Teams conducted a CASPER disaster response survey in five counties to assess community preparedness. Two-member field teams conducted CASPER surveys for public health preparedness in Pike (pop. 65,446), Floyd (pop. 41,899), Johnson (pop. 23,827), and Magoffin (pop. 13,166) Counties, and the Kentucky River District (pop. 116,000) in eastern Kentucky. The CASPER survey had a 97 percent completion rate, which was well above the expected 80 percent threshold. Teams trained members of four counties on how to write and solicit grants, helped grantees submit grant applications, and had one grant approved within a week.

2010 Operation Nexus

CHASM's 2010 Operation Nexus provided over \$1 million worth of care to 38 counties in four states in 7 weeks. In the four free clinics operated and maintained through unified command with the NGO Remote Area Medical (RAM), RDF, SAT, MHT, and Tier III assets, a total of 4,737 services were provided to 3,432 patients. Of that, 1,239 were medical services, 1,956 were dental services, and 1,542 were vision services.

In San Saba County in Texas, the APHT conducted both CASPER and mosquito surveys. This mission yielded reports on the team's findings for Texas Department of State Health Services officials, as well as a database of local information that can be utilized for local planning and policy initiatives. The training provided the APHT with the ability to implement CASPER survey methodology in a timeframe similar to that of a real disaster; data gathering, entry, cleaning, analysis, and interpretation, and report generation, were completed in a compressed timeframe of 60 hours.



In Tennessee, many rural populations depend on individual wells for drinking water. These wells are greatly susceptible to contamination, flooding, and outages. APHT performed a total of 1,048 site visits to homes, where team members collected data on location, features, and deficiencies of individual water supply and wastewater disposal systems. They also entered these data into the state's geographic information system database, and provided citizens with technical information and a resource for laboratory testing of their water. This significantly improved the state's capability to supply safe drinking water to their people, in the event of emergencies.

In 2007, 234 cases of tuberculosis (TB) were reported in Tennessee with an equivalent TB case rate of 3.8 per 100,000; the state does not have the equipment or capacity to comprehensively evaluate healthcare facility environments for TB infection control. APHT provided TB site environmental monitoring services and assessments. Reports were formulated for each site, providing specific information on the system status and needed changes. APHT traveled to 12 sites in nine counties, and the findings included malfunctioning negative pressure monitors, incorrect installations of High Efficiency Particulate Air (HEPA) filters, and location of exhaust within 25 feet of staff break areas and building entrances, all of which put staff and patients at risk. Reports provided site administrators with guidance on specific steps to improve TB infection control practices.

In Pike County, Kentucky, the APHT collaborated with the county health department in an epidemiological assessment of body mass index (BMI) data collected from sixth grade middle school students. This facilitated evaluation of school programs and their effectiveness at addressing childhood obesity. Additionally, the APHT introduced the Pike County Health Department to free CDC-developed software, and offered contacts to provide technical and programmatic assistance.

• ¹Kirkpatrick, Donald L., and James D. Kirkpatrick. Evaluating Training Programs: the Four Levels. San Francisco [u.a.: Berrett-Koehler [u.a., 2008.]]