CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
OFFICE OF PUBLIC HEALTH PREPAREDNESS AND RESPONSE (OPHPR)
BOARD OF SCIENTIFIC COUNSELORS (BSC) MEETING

SUMMARY REPORT
MAY 1-2, 2012

BOARD OF SCIENTIFIC COUNSELORS (BSC) MEETING
OFFICE OF PUBLIC HEALTH PREPAREDNESS & RESPONSE (OPHPR)
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)
1600 Clifton Road, NE
Atlanta, GA
May 1-2, 2012

DAY 1

WELCOME/INDIVIDUAL INTRODUCTIONS/OPENING REMARKS

Thomas Inglesby, MD, Chair, OPHPR BSC, and Ali Khan, MD, MPH, OPHPR Director, welcomed all participants to the BSC meeting. Dr. Khan remarked on the constantly changing threat environment, noting recent news in *The Economist* regarding experimental modification of the flu virus virulence, and thanked the Board for coming together to provide OPHPR guidance and advice and for their assistance to help CDC think critically about our efforts to keep our country safe.

REVIEW OF FACA CONFLICT OF INTEREST AND WORK GROUP STATUS UPDATES

Daniel M. Sosin, MD, MPH, Deputy Director and Chief Medical Officer, OPHPR and the Designated Federal Official (DFO) for OPHPR's BSC called the BSC meeting to order. Dr. Sosin then took roll call of the BSC Members and Ex Officios to determine if there was quorum. BSC, Ex Officio, and Liaison members participating by phone and in-person are listed in Appendices A and B. Quorum was met.

Dr. Sosin reviewed the description of the duties of the BSC Board per the charter. Dr. Sosin confirmed with the BSC Members whether they had identified any conflicts of interest; none were noted. Dr. Sosin asked that if, in the process of the two days of deliberations, a BSC Member believed that they did have a conflict of interest, s/he should draw that to his attention so that it can be resolved.

REVIEW OF UPDATES TO OPHPR RESPONSES TO BSC WORK GROUP REPORTS AND RECOMMENDATIONS

For each recommendation for which an OPHPR Division had been asked by the BSC to provide an updated response, OPHPR provided written updates to the BSC members prior to the May BSC meeting. OPHPR provided responses to BSC Work Group reports and recommendations from the following Divisions:

- Division of Emergency Operations
- Division of Select Agents and Toxins (DSAT)
- Division of Strategic National Stockpile (DSNS)
- Division of State and Local Readiness (DSLR)

BSC members were invited to comment on or ask questions regarding the updated responses in the order listed above.

Division of Emergency Operations (DEO)

BSC: Is it a vision for the emergency operations center (EOC) to be the provider for all public health actions associated with CDC's polio eradication effort?

CDC: Our approach is for primary leadership and response management to achieve polio eradication to stay with the program – in this case, with CDC's Global Immunization Division in the Center for Global Health. DEO has created the infrastructure, standard operating procedures, and support services in the CDC EOC, and identified selected resources to respond to this type of health threat.

BSC: What's the capacity of the CDC EOC to respond to the next incident?

CDC: Our capacity within the Division is very limited. At minimum, we try to support coordination of emergency travel in support of the response. If it is a more complicated or larger response, then we have to bring in addition resources from throughout CDC to respond. In a scenario in which the DEO EOC has to support the response to more than one event concurrently, it is challenging to determine when and how to effectively shut down one event response and transition to supporting the remaining event.

Division of Select Agents and Toxins (DSAT)

BSC: Responses to several of the BSC recommendations indicate that an information system to be functional in 2014 will address the issues raised in the BSC recommendation. Can CDC be confident that the identified solution will meet future needs? I.e., is DSAT "shooting to where the puck will be"?

CDC: This BSC review was done in 2008, but many of these issues still need to be addressed. A lot of the issues are information technology (IT)-related and are being informed by current events. It is a very fluid environment, and there are political and programmatic overlays to this. If there is a topic that warrants more work with the workgroup, we can do that.

BSC: What is the current status of SARS-associated coronavirus on the special agents and toxins list? University of Pittsburgh did a critical risk assessment of this agent and recommends special handling for similar agents that have the potential to initiate large scale epidemics.

CDC: The Special Agents and Toxins regulations are being rewritten now. SARS-associated coronavirus will be included in the new regulations.

BSC: Recommendation: At a future BSC meeting, OPHPR should consider providing the BSC a demonstration of the SABRE-CAT and other biosecurity risk evaluation software products being evaluated for use by DSAT and USDA.

Division of Strategic National Stockpile (DSNS)

BSC: What is the reading level of the information materials distributed by DSNS to support distribution of emergency medical supplies? CDC should ensure that the health education materials distributed make sense to our public. There's a huge body of literature that speaks to the reading level to use, the number of pictures supplementing text, etc., depending on the population we're speaking to.

CDC: CDC reviews educational material for reading level and comprehension and agrees with the BSC comment.

BSC: It would be useful to know a little more about what the statement, "The principal barriers are leadership, apathy, decreasing grant funds and the lack of personnel to mount a large-scale dispensing effort." in the DSNS response means. For example, whose leadership?

CDC: DSNS staff were not available to respond during the discussion period. CDC will follow-up on this question.

BSC: What does "DSNS analyzed the utility of the 12-hour push package" mean?

CDC: DSNS is reevaluating where they can move materials and the exact items that people need rather than sending the whole push package in the first 12 hours following the initiation of a federal response. As a result of this assessment, DSNS is slowly phasing-out some of the 12-hour push packages, but not all. In addition, CDC has multiple redundant transportation contracts – both air- or land-based. So DSNS is determining the circumstances in which they should move away from the push package to a modality that provides "just what you need".

BSC: Another area is the issue of pediatric formulation.

CDC: That is not a part of the DSNS review per se, but it is noted as an issue that needs to be considered.

ASPR Ex Officio: Many of the emergency medical products needed for pediatric populations aren't actually available in the SNS but need to be developed. ASPR consults with a group of pediatrics specialists on these issues.

BSC: DSNS should also look at the extent to which we are working with other vulnerable groups to make sure they get the countermeasures.

CDC: CDC agrees with the BSC member statement.

Division of State and Local Readiness (DSLR)

BSC: Several of the DSLR responses to BSC recommendations are marked "concur in principal" and have now been addressed. Did money materialize to allow DSLR to address?

CDC: No, new funding was not provided to DSLR for this purpose. DSLR established a governance board, and is using that board to define and implement a more formal process for Public Health Emergency Preparedness (PHEP) and Hospital Preparedness Program (HPP) grant alignment and performance monitoring. DSLR met the intent of what the Board had recommended in those instances where the recommendation is reported as having been addressed.

BSC: Can you speak to the prioritization shift from the Targeted Capabilities List?

CDC: OPHPR wound up with 15 PHEP capabilities and prioritized those capabilities into Tier 1 and Tier 2.

LABORATORY PREPAREDNESS: CDC SCIENCE AND PRACTICE

Joanne Andreadis, PhD, OPHPR's Senior Advisor for Laboratory Preparedness, provided an overview of the laboratory portfolio that OPHPR funds across the agency, information on collaborative projects with other federal partners, and introduced speakers who provided briefings on specific laboratory initiatives at CDC that address preparedness and response.

The laboratory portfolio is internally focused while the PHEP is externally focused but both support the CDC National Strategic Plan for Public Health Preparedness and Response. In the Plan, Objective 4 is to advance surveillance, epidemiology, and laboratory science and service practice. This is done by integrating public health preparedness and response data reporting systems and processes, as well as, increasing surveillance, epidemiology, and laboratory science research, equipment, modeling, and tools. The Laboratory Portfolio for FY2012 has been given a funding ceiling of $36,505,389.

Public health labs must be ready 24/7 to respond. Our federal, state, and local public health laboratories are part of a national network that serves as the first line of defense to protect the public against health threats. They engage in activities such as:

- Investigative & emergency response
- Surveillance
- Training and education
- Applied research

CDC's Laboratory Response Network (LRN) ties this all together. The LRN is an integrated national and international laboratory network that coordinates rapid responses to public health threats.

Our three areas of focus are in public health and applied research, information management, and laboratory diagnostics deployment and use. Our main objective is to support coordinated investments that improve our ability to identify treats, guide treatment, and inform public health action. We take an all-hazards approach, in support of the PHEP, which includes events that are natural or environmental, chemical, biological, radiological, and explosions or trauma. As

we look forward, our aim is to support the development of advanced diagnostics including developing test methods that allow us to look for thousands of targets in a single test, syndrome-based panels, and more open-ended diagnostics. These methods are faster, broader, and more informative. We want to take the raw data from all of these tests and translate them into information that's useful.

For FY 2012, we have several main concerns:

- Maintain and improve LRN capability and capacity
- Develop a range of capabilities (infrastructure, workforce, and diagnostics) to identify, characterize, and respond to priority known, emerging, and unknown health threats
- Improve information management systems to translate data to actionable information
- Improve methods to report and share data electronically

OPHPR funding is developing next generation laboratory capabilities. In the area of Public Health & Applied Research, methods and diagnostics development is about 36% of our lab budget (~ $12.95 million). This methods and diagnostic development helps to:

- Identify, characterize, and sequence new strains that cause disease.
- Maintain and improve methods for chemical agent detection in human samples
- Develop nucleic acid amplification-based public health actionable assays for identification and characterization of high priority threat agents (e.g., *F. tularensis*)
- Expand mass spectrometry toxin detection methods for botulinum toxin, anthrax lethal factor, and ricin.

Laboratory Reporting and Data Exchange is 14% (~ $5.27 million) of our budget and supports the following initiatives:

- Collaborate with the Council for State and Territorial Epidemiologists (CSTE) to develop, evaluate and endorse standards for electronic detection and reporting of notifiable diseases.
- Continue Public Health Laboratory Interoperability/Electronic Test Order and Result Reporting project with the Association of Public Health Laboratories (APHL) to create seamless connectivity between CDC and partnering public health Laboratory Information Management Systems (LIMS).
- Support secure real-time information exchange among public health partners through LRN Results Messenger (160 labs) and expand deployment of next generation Laboratory Information Management System Integration (LIMSi).

Agent Detect Capacity, Reagent/Supplies, and Training is 50% of our budget (~ $18.28 million) and supports the following activities:

- Specialized LRN technical training, proficiency testing, equipment maintenance, and calibration, supplies, exercises, and coordination with federal, state, and local partners required to maintain a 24/7 robust response capacity for biological, chemical, or radiological health threats.
- Implementation of Quality System Regulation to improve production, inventory management, and effectiveness of LRN-B reagents and support FDA 510K regulatory submissions.
- Provide centralized specimen receiving, processing and distribution services; storing and distribute specialized reagents and kits to the LRN.

We also help cultivate collaboration between partners and CDC, for example via some externally funded programs with the Biomedical Advanced Research and Development Authority (BARDA), Department of Homeland Security (DHS), and Department of Defense (DOD). Because collaborations have been successful, we've decided to scale these projects so that we can identify areas where we can work together and have a more cooperative approach rather than going alone. We want to be able to develop our bioinformatics capability, look at creating federated databases and a shared specimen bio-bank, and cultivate new diagnostics essays and performance standards in order to develop validation panels that are standard for all of us. We also want to develop a shared specimen bio-bank.

ANTHRAX DIAGNOSTICS: PRIORITY GAPS AND ACTIONS

Conrad Quinn, PhD, Senior Fellow, National Center for Immunization and Respiratory Disease (NCIRD), described current work on the anthrax Diagnostic Development Strategy which is aligned with Public Health Emergency Medical Countermeasures Enterprise (PHEMCE) Scenario-Based Analysis. The PHEMCE Biologics Working Group made recommendations for anthrax diagnostics and identified them as high and medium priority. High priority is the requirement for a rapid assay for the differential diagnosis of early inhalational anthrax in symptomatic individuals. The medium priority requirement is to support research on biological markers of asymptomatic infection to B. anthracis.

Our recommendations to address gaps fell into two groups: current confirmatory diagnostics and improved diagnostics. Current confirmatory diagnostics are dependent on culture of isolates or non-culture methods that are positive late in the course of diseas; and antimicrobial susceptibility information may not be available within a clinically relevant period. Improved diagnostics should support the earliest diagnosis of infection, impact effective treatment, aid definition of exposure zone, and provide information to help triage of limited resources.

We identified some high and medium priority gaps. High gap priorities were:

1. Pre-symptomatic anthrax diagnostics
2. Deployment of rapid antimicrobial susceptibility testing (r-AST) in the LRN
3. Minimizing risk of latent infection from residual spores

Medium priority projects include:

1. Qualified user accessible, high fidelity, whole genome sequence database for *B. anthracis*
2. Method for collection and quantification of viable airborne *B. anthracis* spores
3. Rapid culture independent tests to confirm *B. anthracis* antimicrobial susceptibility

The Exposure & Pre-symptomatic Anthrax Diagnostics Program will be a tri-CDC-center program: NCIRD-NCEZID-NCEH. It is BARDA-funded thru FY13-Q1 and it will:

- Sustain CDC Subject Matter Expertise in anthrax diagnostics, vaccines and Laboratory surge capacity
- Provide cross-trained laboratory staff for laboratory surge capacity (NCIRD-NCEZID-NCEH)
- Support development of *B. anthracis* exposure and pre-symptomatic anthrax point of care and laboratory-based diagnostic tests
- Builds on CDC intellectual property and accomplishments

Additional Anthrax Management Team laboratory accomplishments include the establishment of dried blood spots as a matrix for anthrax serology and the generation of a draft laboratory diagnostic testing priority plan to guide program activities.

LABORATORY RESPONSE NETWORK DIAGNOSTICS INTITIATIVES

Toby Merlin, MD, Director, Division of Preparedness & Emerging Infections, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), provided an introduction to the Laboratory Response Network (LRN), a network of membership labs that provide highly standardized and accurate testing that can assist and inform public health or law enforcement in their decisions or actions. The LRN started with a focus on biological agents but has also moved to chemical and radiological agents, as well.

The LRN is composed of:

- National Labs (n=3) responsible for specialized strain characterizations, select agent activity, and working with highly infectious biological agents and toxins

- Reference Labs (n>150) responsible for investigation and/or referral of samples and include public health, military, veterinary, agriculture, food, and water testing labs

- Sentinel Labs (n~1,000s) responsible for routine diagnostic services, rule-out diagnostic testing, and referral steps in specimen identification process. The sentinel labs can test samples to determine if they should be shipped to reference or national labs for further testing.

The LRN is also an end-to-end test development and deployment system – from assay development to assay performance validation to proficiency testing to operational diagnostic testing.

Current efforts in LRN testing will yield improved ricin antigen detection assay; improved *F. tularensis*, *Y. pestis*, and *Burkholderia* species real-time polymerase chain reaction (PCR) assays, rapid antimicrobial susceptibility testing for *B. anthracis* and *Y. pestis*, *Rickettsia* species real-time PCR assay, and strain repositories to support Public Health Actionable Assay (PHAA) standards. This is all being done in collaboration with DHS.

R&D efforts use a tiered technology approach to pathogen identification including the following: MassTag PCR (supports rapid multiplexed PCR detection of up to 20 known biothreat agents), microarray testing which uses microarrays for the identification and characterization of unknown or emerging biothreats, and high throughput sequencing and metagenomic analysis which uses advanced laboratory instrumentation and robust bioinformatics to identify and characterize advanced or unknown biothreats.

The LRN's current challenges include:

- Declining preparedness funding
- Technology decision points
    - When/how to move from singleplex to multiplex testing
- Increasing need for bioinformatics
- Surge capacity

CDC LABORATORY RESPONSE TO CHEMICAL THREAT AGENTS

Jim Pirkle, MD, PhD, Director, Division of Laboratory Sciences (DLS), National Center for Environmental Health (NCEH), discussed the chemical and radiological side of a laboratory response. The NCEH lab group (~ 430 staff members) seeks to improve the rapid detection, diagnosis, treatment and prevention of unsafe exposures to chemical threat agents.

NCEH developed the Rapid Toxic Screen, which measures 150 chemicals in the blood and urine. To test for all these chemicals, the screen requires the use of 22 mass spectrometers and 100 people. Some chemicals that are included in the Rapid Toxics Screen include: nerve agents (including sarin, soman, tabun, VX), nitrogen and sulfur mustards, ricin, mycotoxins, drugs of abuse, cyanide-based chemicals, toxic metals, and incapacitating agents.

When there's a need to increase laboratory surge capacity, DLS accesses all its mass spectrometry labs. NCEH cross-trains these individuals and can expand to State Public Health Labs to analyze samples.

For radiologic threat agents, our goal is to improve the rapid detection, diagnosis, treatment and prevention of unsafe exposures to radiologic threat agents. At this time, we're not so concerned about a nuclear blast or a dirty bomb but rather poisoning and dispersive devices. We wanted to make sure we could measure as many radionuclides as possible, but they come in several forms. We deal with alpha, beta, and gamma radiation. DLS is developing the urine radionuclide screen that rapidly measures 22 radionuclides in urine. We use about 20 instruments and 44 people for this process.

Our surge capacity for large numbers of samples is zero. We have no additional capacity within DLS because of the unique instrument requirements. No state Laboratory Reponses Network-Radiologic (LRN-R) exists. Current plans are for the establishment of 10 state LRN-Rs, but funding is pending.

QUESTION & DISCUSSION (LABORATORY PREPAREDNESS)

BSC: To what extent are you trying to use a large database to be used by others in the future?

CDC: CDC built MicrobeNet, a user-friendly online database for pathogen identification which will allow us to share our phenotypic and genotypic knowledge of our vast microbial collection with the public health, medical and scientific communities and allow them even faster access to information that could lead to rapid response to emerging infectious disease problems. We also have the ability to link what we're doing together with other federal agencies. We believe in liberating data and information.

BSC: On the chemical side, how soon can you get lab results back?

CDC: About 8 results in 4 hours, and everything in 36 hours.

BSC: Can you talk more about mass spectrometry and using it in toxics identification? How deployable is it and is that an important part of the system?

CDC: We need to make sure we have a good capacity. We need to have the ability to perform 5,000 assays a day and right now we're at 400. Therefore it makes sense to have dedicated labs with mass spectrometry expertise, and once you get the lab capability established in several places you can have these laboratories to run it through. In the next 5 to 7 years, we need to have those dedicated labs.

APHL Ex Officio: It was agreed that we need to preserve the capability to perform microorganism cultures. So we need to devise a system to maintain those capabilities. We also need to recognize that metagenomics is the future and begin to plan for that transition now.

CDC: I would put in a plug for improved sample collection that will enable us to have a preserved sample that is there so that you can reference it in the future.

CDC: Part of the CDC strategy is to stand up additional bioinformatics capability here so that we can be more involved. And the interagency activities we're involved in are helping us to do that.

BSC: To what extent can we measure degradation of public health lab capacity? Getting information on what is happening in the field is critical.

CDC: There are a series of PHEP laboratory capability measures which should be sensitive to those changes. The LRN has identified some weaknesses in their capabilities including limited radiological lab capability.

PROGRAM RESPONSE TO BSC RECOMMENDATIONS FROM THE CAREER EPIDEMIOLOGY FIELD OFFICER (CEFO) PROGRAM EXTERNAL PEER REVIEW

John Horan, MD, Director, CEFO Program, OPHPR, responded to the BSC work group's nine (9) recommendations – concurring or concurring in principle to all recommendations (Appendix C).

QUESTION & DISCUSSION (PROGRAM RESPONSE TO CEFO PEER REVIEW)

BSC: I understand the practical aspects of figuring out what CEFOs do in order to define their core competencies, but it is overly restrictive. This approach may be a very circular way of defining CEFO's core competencies that provide the states with greater service. I would urge

you not to stop there. It may be a good place to start but not to stop there.

BSC: This is a wonderful program, but it's not clear what it wants to be. How do you know that the CEFOs are in the right place, doing the right thing? The CEFOs come from many backgrounds; and there's got to be a vision of what the states need and then what the CEFOs can bring to bear. This will help to prescribe a career growth for the CEFO and then you have a win-win scenario.

BSC: I'm struck by the fact that you can't offer assurance of continued employment. Is this a position that's considered risky and if so, are you getting the best people?

CDC: Yes, some people have indicated that they're concerned about risk. Whether the risk is deterring others from coming into the field, I'm not sure. It may be the line of really good people is not as long as it used to be, but the ones we have are top-notch.

BSC: When did this get started?

CDC: It started in 2002 very closely related to the events that occurred in the fall of 2001.

BSC: Is this the maximum number of CEFOs in the field?

CDC: Currently, 32 CEFOs are in the field. We have requests from two states to fill two additional CEFO positions.

BSC: You said ASPR declined participation in cost-sharing to help sustain one or more CEFO field positions. Can you tell me why?

CDC: Lack of money in the Hospital Preparedness Program.

ASPR Ex Officio: While the PHEP and HPP cooperative agreements were aligned, funding wasn't merged. There are different authorizations for the two programs and you have to work carefully around that.

BSC: It seems that one of the issues is to ensure that CEFOs are as successful as possible in their places. I think a mentoring or coaching program for the CEFOs to deal with issues that arise in the working place would be helpful.

RESEARCH PORTFOLIO BUDGET: INTRODUCTION & OVERVIEW

Bill Digioia, MBA, MA, Associate Director for Financial Resources, OPHPR, provided an overview of the OPHPR budget for FY 2012.

We get our appropriations from Congress and it's given to us in budget activities. For FY012 the ceiling is $1,280,632,457. Of that amount, OPHPR gives out approximately $152 million to other CDC Centers and Offices to support our strategic objectives. We are one of the few centers that disseminate funds within CDC. We have two annual project review periods, Reporting Period 1 and 2, for which CDC programs report to us on what they are doing with the money - their objectives and deliverables are defined and progress towards achieving them is reported. The bulk of the money funds multi-year projects originally awarded as continuation projects for a specified time period.

In order to better define the OPHPR portfolio, projects were divided into the following categories (% of Total FY 2012 OPHPR funds per category):

- State/Local Public Health Preparedness (48.8%)
- Strategic National Stockpile (36.0%)
- Response/Recovery & Program Support (6.0%)
- Epidemiology and Surveillance (2.9%)
- Laboratory (2.9%)
- Medical Countermeasures (3.4%)

OPHPR supports 19 epidemiology and surveillance projects largely conducted outside of OPHPR. The three centers that receive the most money are NCEH, NCEZID, and OSELS. Some of the projects include:

- Data Exchange and Dashboard Platforms, e.g., a web-based system to join together epidemiologic and laboratory data in real time and enhance electronic information sharing of surveillance, outbreak, recall, and other data sharing

- Epidemiology Tools for Response, e.g., developing new functionality in Epi-Info to quickly create questionnaires based on standard vocabulary from the Public Health Information

- Preparedness and Response Operations, e.g., providing the training and tools necessary for public health professionals to prepare and respond effectively to nuclear or radiological events

- Preparedness Modeling, e.g., providing the quantitative analytical expertise to comprehend the public health impact of, and to forecast the effects of interventions for a broad spectrum of public health sequella associated with natural and human-caused disasters, including but not limited to disease outbreaks, chemical releases, radiological exposures, explosions, and natural disasters.

- Training/Capacity Building, e.g., enhancing state and local epidemiologic capacity for public health preparedness and response by assigning CDC epidemiologists to state and local health departments.

- Surveillance Systems, e.g., utilizing poison center data for real-time national surveillance

OPHPR currently funds 19 different laboratory projects, of the following types:

- Agent Detection, e.g., radionuclide screening and maintenance of laboratory capacity to detect and characterize 22 priority radionuclides, likely to be used in terrorist attacks

- Data Exchange, e.g., maintenance and support in developing and promoting standard solutions for laboratory data management and exchange

- Method and Assay Development, e.g., mass spectrometry toxin detection (botulism, anthrax and ricin) to strengthen diagnosis, treatment and prevention

- Reagent/Supplies, e.g., providing reagents, equipment and supplies to Laboratory Response Network (LRN) laboratories

- Training, e.g., support of existing and new LRN protocols (maintaining bioterrorism agent detection proficiency)

An additional 19 Medical Countermeasures projects are supported by OPHPR and include:

- Development of Informational Resources, e.g., quick reference cards for hazardous agents generically referred to as Non-Traditional Agents

- Stakeholder Participation and Priority Setting, e.g., coordination with partner agencies such as FDA in healthcare delivery and adverse drug event (ADE) monitoring

- Achieving Regulation Compliance, e.g., ensuring that the receipt, storage, deployment and utilization of all current and future SNS-stockpiled investigational medical countermeasures for CBRN and other public health threat agents comply with FDA regulations (Code of Federal Regulations Title 21).

- Vaccines, e.g., maintenance and storage of smallpox therapeutics and ensuring a continuous manufacturing capability allowing for a surge capacity if needed

OPHPR has initiated its 2013 funding allocation process and is soliciting new projects from the CDC community that address any one of 39 initiatives that align with OPHPR's 8 strategic plan objectives.

QUESTION & DISCUSSION (RESEARCH PORTFOLIO BUDGET)

BSC: What would OPHPR's FY 2013 budget look like if there's a continuing resolution, and what does sequestration do to the office?

CDC: If there's a continuing resolution (CR), CDC programs can spend funds equivalent to the amount they had spent historically during the previous year. We look at what was obligated in the previous year and that's what you have to operate with in the current CR.

If sequestration occurs, all bets are off in relationship to this. We have to go back to the budget reduction amount, determine where we can sustain the cuts, and go from there.

BSC: So there will be a target for the office?

CDC: Sequestration is applied at the budget authority level. So there's some latitude but only within those lines. We used to have very broad budget authority, but now there's not a lot of latitude.

CDC: OPHPR does get significant dollars, but our current budget is about two-thirds of what it was a decade ago. By the time you do the slice and dice, there's not a lot that goes to the local level, and we know what those impacts are. The other thing that's gone is the evidence base for the public health preparedness program. There are no additional dollars for research and learning centers. Over half the money retained in our office goes out to other programs. We would like to make sure we retain this funding approach going into 2013. Preserving those dollars for state and locals is extremely important. We try to be strategic in where we make the cuts so it's not slice and dice across the budget. We try to be creative when looking at project costs and cost-savings so there is minimal impact.

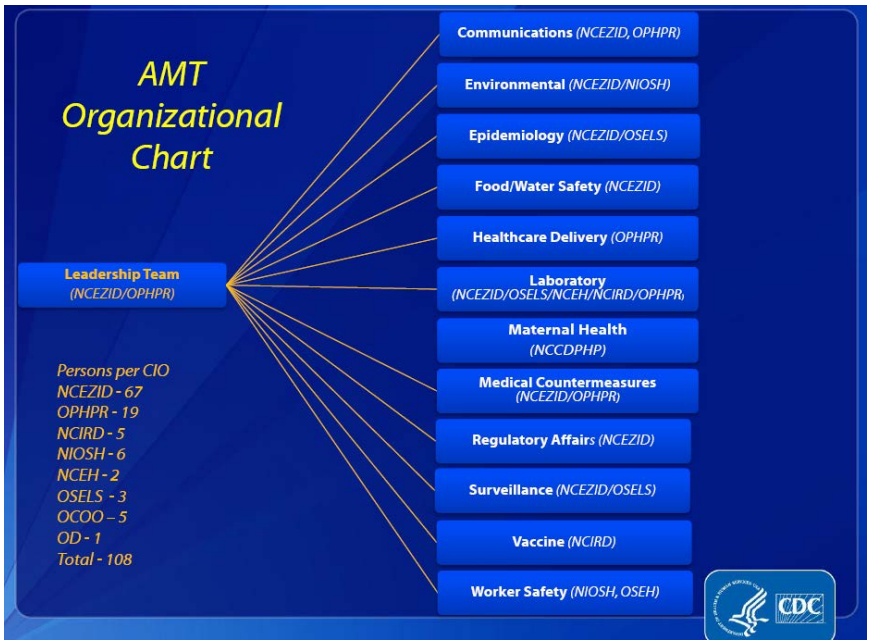
BSC: The last set of tables of initiatives that align with OPHPR strategic objectives -- talk about how that was put together and where does that come from?

CDC: These initiatives were defined by workgroups. CDC and OPHPR stakeholders came up with these initiatives. CDC programs will be able to propose projects that address specific initiatives. After all project proposals come to OPHPR and are reviewed and scored, decisions are made on which to fund.

ANTHRAX MANAGEMENT TEAM ACTIVITIES

Tracee Treadwell, RN, DVM, MPH, Associate Director for Infectious Disease Preparedness, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), provided an introduction to the activities of CDC's agency-wide Anthrax Management Team (AMT) which addresses a broad range of topics including surveillance, epidemiology, outbreak response and control, and identification and characterization of organisms.

Over the last year or two, there has been an increasing interest in anthrax, but the interest first peaked in 2001. We realized that we needed to prioritize the government entities' activities to address anthrax threats and increase downstream impact of medical countermeasures (MCM)-related activities. But we're doing this in the presence of limited staffing and resources. The AMT also wanted to coordinate, integrate, and prioritize the activities so that we could improve the external engagement and visibility of issues, utilize our resources efficiently, and improve tracking and follow-through of the activities. The AMT, an agency-wide effort, is comprised of several leadership teams to address the 12 functions described in the AMT organizational chart (Figure).



Achievable priorities were identified by AMT and agreed upon by senior CDC leadership. They then were reviewed and approved by the CDC Director. The AMT has developed and submitted a spend plan for priorities to OPHPR.

There are a number of activities that needed to be tackled. Just to highlight a few, the information about anthrax on CDC's website was initially found in several places, so we wanted to create a one-stop-shop type webpage. We've had several meetings around medical countermeasures to look at how we treat the exposed populations. And for worker safety, we want to update the health guidance documents for workers conducting sampling.

We have a lot of challenges. There are gaps in the science, a lack of established processes, and eroding LRN laboratory capability and capacity. So in summary, we need:

- Improved coordination and integration of anthrax activities
- Identified and redirected resources and personnel
- Enterprise-wide commitment and engagement for critical studies to inform public health policies and clinical utilization above and beyond what is needed for an Emergency Use Authorization (EUA) or licensure
- FDA commitment to address regulatory scientific challenges

Ray Strikas, MD, MPH, Education Team Lead, National Center for Immunization and Respiratory Disease, reported on efforts to define approaches to prioritize use of Anthrax Vaccine Absorbed.

Anthrax Vaccine Absorbed (AVA) is marketed as BioThrax and is the only licensed anthrax vaccine for use in the United States. It is licensed for persons aged 18-65 years of age for pre-exposure use as a five-dose IM series. For post-exposure prophylaxis (PEP), CDC recommends 60 days of antimicrobials in combination with 3 subcutaneous doses of AVA. The post-exposure regiment and use of AVA in all age groups are not approved, and we're working

with the FDA on that. AVA approaches are under consideration to facilitate PEP use as an investigational new drug (IND) for PEP in adults and children (non-mass event); IND for PEP in children during mass event (non-research and research); and for emergency use authorization (EUA) for PEP in adults in an event.

Wide-area aerosol exposure event refers to a large outdoor aerosol attack with potential to expose hundreds of thousands of people to anthrax spores. Primary and secondary aerosols may occur during an event. The risk of spore inhalation is better understood for primary aerosolization, compared to re-aerosolization. The primary interventions, such as administrative and engineering controls, are effective ways to protect the health of responders by limiting exposure.

We do need to figure out how to prioritize the vaccine, so we're focused on post-event AVA prioritization in the case of wide-area anthrax aerosol attack. Vaccine supplies may be insufficient to protect the entire potentially-exposed population in wide-area anthrax aerosol attack, and, therefore, may require prioritization. Policy considerations for post-exposure AVA use after a wide-area anthrax aerosol attack are subject to change at any time when, or if, new information becomes available.

We started our study last summer to develop the first draft of the guidance for PEP AVA use. Eleven subject matter experts reviewed the guidance and gave us input. We also conducted public focus groups to validate if our guidance made sense. There have been briefings within CDC and briefings with other federal partners are planned. The next steps are to complete the focus groups, go over the focus group work, assess where we are, meet with our steering group, and finalize our findings (Fall 2012).

There are some guidance assumptions:

- Limited amount of anthrax vaccine available
- Timeframe: begin vaccination 7-10 days after the event
- Does not address vaccination for long-term exposure risks to anthrax aerosols (> 6 months)
- Directed towards Federal, State, and local health and emergency management officials

This **does not consider**:

- Prioritization for antibiotics
- Specific worker safety requirements (e.g., personal protective equipment (PPE)).
- Policy decisions regarding pre-event AVA vaccination

In addition, the document is not an operational or implementation plan.

There are principles to consider for prioritization. Primary aerosolization poses a greater risk than secondary aerosolization, and responders are categorized based on activities and not by job title. There is coordination between this document and the "Guidance for protecting responders' health during the first week following a wide-area aerosol anthrax attack"

We drafted a prioritization document to include those who should receive vaccination post exposure to AVA. Tiers were assigned to those different individuals.

TIER 1

- Individuals with potential exposure to primary aerosols of *B. anthracis* during the initial release
- Category 1 responders (i.e., forensic investigators, environmental remediation)

TIER 2
- Individuals without exposure to primary aerosols of *B. anthracis* BUT at potential risk for exposure to secondary aerosols of *B. anthracis*
- Non-Category 1 Responders and Laboratorians without exposure to primary aerosols of *B. anthracis*

TIER 3
- Individuals who travel through the affected area
- Individuals living in areas that border the affected areas

We're conducting focus groups now to get the public's input on prioritization criteria and the current approach. We will also consider input from the focus groups for completing the prioritization guidance. Focus groups will be held in two cities, Seattle and one to be determined, with 20 groups each containing 7 to 9 people. Focus groups will be comprised of the general public, first responders, and public health workers.

Some other activities the vaccine team has been doing include developing vaccination cards, pediatric post-exposure prophylaxis protocols, and continuing discussions with the FDA around route of administering the vaccine and a dose schedule.

A timeline of next steps includes:
- Focus groups – April-May, 2012
- Public experts' meeting – June or July, 2012
- Federal review and approval of guidance – Fall, 2012
- Develop implementation guidance with partners - 2013

John O'Connor, MS, Associate Director for Communications Science, National Center for Emerging and Zoonotic Infectious Diseases, reported on the AMT's communications activities. The AMT Communications Team previously identified CDC communications gaps related to the release of weaponized anthrax and identified a need for consistent, up-to-date information that people can easily find at a single website (CDC.GOV/ANTHRAX), and off-the-shelf communications products that can be used immediately in the event of an anthrax attack. Our plan for addressing these gaps is divided in two phases:

Initial Phase
- Communication products for general public
- First 72 hours of anthrax attack

Later Phase
- Communications for other audiences, such as provider education
- Post-72 hours of anthrax attack

In doing all of this work, the communications team is paying attention to risk communication. Our communication-specific goals include:

- Maintain credibility and public trust by regularly providing timely, accurate, accessible, consistent and comprehensive information.
- Avoid speculation and conjecture. Dispel rumors, misinformation and misperceptions as quickly as possible.
- Identify, train, and use the most credible spokespersons.
- Use all available channels of communications to ensure accessibility and availability in languages other than English.

To help inform what we wanted to do, we conducted a national survey (3,698 survey respondents). More than half said they did not know or were not sure if inhalation anthrax is a life-threatening disease. Only 37% of respondents knew that you cannot "catch" anthrax from someone who has it, and about half were unsure. Fourteen percent thought you could catch it from others. Nearly 84% of respondents agreed that if a doctor told them to take antibiotics for 60 days to treat inhalation anthrax, they would take the antibiotics for the full 60 days. Only 27% of respondents said they would stay in a community contaminated by anthrax if officials told them to stay there. These findings suggest that we will need messages for people both staying in place and those moving away from exposure.

We realized that it was critical to have communications with the public in the first 72 hours after an anthrax attack. We are developing materials and tools to address this communication need. One key message being considered is 'Every day counts, get treatment, stay alive'.

We're working on two anthrax websites. One will be a day-to-day CDC website that has consistent, up-to-date information about anthrax. The other is an activation-ready site to be used only if an attack occurs. It will include information that people need to know to survive. Scenario-specific information can be added when available.

We have developed a timeline for completing those websites:

FY 2012
- March: Vet website designs with AMT leadership and CIOs
- April-May: Build out both websites
- May: Test and review websites
- June-July: Finalize designs and content for websites, vet with AMT
- August: Clear content
- September: Launch day-to-day website; dark site ready when needed

FY 2013
- Update with new guidance and communications materials

Some additional communication steps will include producing videos that the AMT teams said would be critical during a response and testing the anthrax messages and materials with various audiences. We've done some work with partners and stakeholders. We also want to do some media training.

Some questions to the BSC that can help guide us:
- Are these key messages appropriate during and event?
- Are there things we're missing?
- Do the key messages make sense?

QUESTION & DISCUSSION (ANTHRAX MANAGEMENT TEAM ACTIVITIES)

BSC: I know there was a very well publicized exercise, in 2001, focused on smallpox, and its finding was that we're not prepared. How are we using past lessons learned? To what extent are you working with lawyers and ethicists to find out if people resist care and or if they don't want countermeasures? Are you working with those individuals?

CDC: A lot of exercises have occurred. One of the first things we did was to review after action reports. We found that many of the AMT-relevant priorities are not unique to an anthrax event response. The AMT is also trying to leverage what our colleagues in influenza are doing. Some preparedness and response processes are not specific to a disease and we're looking to see how we can use those more globally. That is also the same for communications -- to try to learn about what worked and didn't work. We have had several ethicists review the guidance draft and have gathered their input. We're working regularly with our general counsel and FDA's guidance council on what can be put into a guidance document. We can anticipate some of the issues. We want to first figure out what are the barriers, so we are in the early stages of this process.

BSC: If it's a wide-spread release, no matter how robust the response, you can't get everyone through the system at once. So it goes beyond communication. How do we summon people? Do we do it -- alphabetically or by zip code or blue eyes or brown eyes? And those questions need to be look at with ethicists as well.

CDC: That is very dependent upon the jurisdiction and what the mass prophylaxis campaign is. Each jurisdiction has some special considerations, and so they need to make some decisions on how they plan to operate based on those. There is no homogenous solution. This is dependent upon the state plan.

CSTE Liaison: So maybe there should be a sharing of best practices.

CDC: Good point. We have tried to promote the sharing of best practices and will help facilitate that. We operate several listservs. We have some large scale and regional summits where folks are brought together and we could use those for disseminating best practices. You are also saying that we need a backup plan. If so, who should facilitate that?

ASPR Ex Officio: The DOD has been very good about stepping up to the plate and offering their resources. There're discussions on expanding the US Postal Service model. There is a lot of innovation out there and a number of exercises going on.

CDC: The dispensing cycle is the hardest piece of this to make work. There are so many different modalities. We've created some partnerships with some non-traditional partners to assess this. So we need to consider multiple strategies to address dispensing.

BCS: We try to make these guidelines very static and they're not. It's not one-size fits all. There are a lot of moving parts, and it continues to evolve.

BSC: Are all the critical people being involved in the process? You could try different models and see if they work. Doing that might reveal individuals who are being left out. Or you could superimpose your model over the top of an already used model and see where the outliers are or what is not being included.

ASTHO Liaison: By the time this prioritization is released, will the pediatric issues have been resolved?

CDC: There's agreement that if children have had exposure we recommend the use of the vaccine. We heard from individuals who provide vaccine that the word "investigational" makes people think that you're using their children to test a vaccine. The LRN staff will be recommended for pre-exposure vaccination. CDC has begun to survey the staff to see if they would like it. Vaccination is voluntary.

ASTHO Liaison: You talked about a video and I'm thinking about the distribution model. The messaging and the way you distribute become complicated when looking at how to message for children and adult.

APHL Liaison: I didn't hear anything about laboratory testing and I think that's an area where we need to manage the public's expectation.

CDC: We'll add it to the communication products, including fact sheets.

BSC: I didn't hear about getting input from first responders in the focus groups. I know in some of the planning we were doing, we ran into some unexpected responses from first responders.

CDC: We did meet last week with first responders; we'll do more of that going forward.

BSC: You should explore having conversations with Google and other search engines that if an event happens they flip a switch so that anthrax information would be the first thing to populate in the search.

ASTHO Liaison: A template for state and local health departments and templates for nongovernmental groups should be accessible for press release. And can you elaborate on the vaccine card?

CDC: It is part of the toolkit. We're guessing a little bit on what the scenario would be like. For example, if a person moves from one locale to

another, they need to have access to that information because each locale is not homogenous in their process.

BSC: The other group that needs messages is the physicians or hospital communities. They need information in a way that is useable to them.

CDC: As guidance is being recommended, for example, we have access to members in American College of Obstetrics and Gynecology (ACOG) to help develop communication materials for their constituencies.

BSC: Communications have to be multifaceted.

CDC: We're working on a couple of different levels right now. If an event were to occur, there's a group that is activated, who will provide communications on a variety of fronts. They check on various media outlets to see where there are inconsistencies and they address those miscommunications. There is no one easy way to communicate.

PUBLIC COMMENT PERIOD (DAY 1)

No public comments were made.

STRATEGIC NATIONAL STOCKPILE: NOVEL APPROACHES TO ANTIVIRAL DELIVERY

Anita Patel, Pharm.D., MS, Division of Strategic National Stockpile, OPHPR, reported on CDC's work to evaluate different strategies for distribution of antivirals during an influenza pandemic or a similar scenario. Timely antiviral treatment during an influenza pandemic depends upon success at every step. Therefore, we wanted to take a look and see if there was a way to improve our processes. We found that in the 2009 H1N1 pandemic, commercial supply of antivirals was adequate but state and local health departments reported challenges, such as:

- Planning assumptions did not match 2009 H1N1 pandemic
- Lacked visibility of commercial supply chain and state/local medications
- Pediatric formulation temporarily unavailable at peak
- Some "spot" shortages reported
- No standard way of tracking
- Staffing issues (in some states) impacted ability to distribute and dispense antivirals

We wanted to explore the option of using everyday systems to effectively distribute and dispense antivirals during a pandemic. There are three large distributors of approximately 90-95% of pharmaceuticals. These distributors are able to provide next-day, same-day or emergency delivery and have expertise in meeting demand, ordering, forecasting, inventory management, tracking, and distribution.

There are also about 60,000 pharmacies in the United States and approximately 93% of Americans currently live within 5 miles of a retail pharmacy. Pharmaceuticals are their core business and they are accessible with convenient hours. Pharmacists are highly trusted, can

identify high risk patients, and have expertise in medication distribution, dispensing, tracking, and monitoring, and patient counseling.

The Antiviral Dispensing Project began in May of 2011 and will go through August of 2012. Our key partners on this project are ASTHO, NACCHO, American Pharmacists Association, National Association of Chain Drug Stores, National Community Pharmacists Association, and Rx Response. The goal of the project is to improve the availability of and access to antivirals during an influenza pandemic. Some key activities are:

- Explore the feasibility, acceptability, cost, and impact of leveraging existing systems by sending SNS antivirals to pharmaceutical distributors and pharmacies to distribute and dispense
- Develop processes to align with usual commercial system practices (inventory control, pharmacy ordering, tracking, billing)
    - Explore innovative financing mechanisms, e.g., how dispensing fees could be covered for uninsured/underinsured

We have identified some key areas for investigation:

- What proportion of antivirals should be sent to state health departments and what proportion to distributors?
- Triggers for sending out SNS stockpiles?
- Leveraging inherent strengths of key participants:
    - Public health's unique reach to underserved and other populations
    - Distributor's and pharmacies' reach
    - Specific uses for state/local stockpiled antivirals?
    - Distribution strategies: "prime the pump", per-capita, demand-based, mixed model?
- Financing:
    - How to assure that cost/payment is not a barrier?
- Acceptability, feasibility, cost, reliability?

There are number of issues that need to be tackled. An alternative antiviral drug distribution plan must be feasible and acceptable. It must be feasible to address legal barriers, commercial partner interest, retail pharmacy throughput/simulations, and reach to non-pharmacy locations. It must also meet the needs of uninsured, have the ability to track assets, and support cost analysis. It also needs to be accepted by public health, distributors, pharmacy executives, pharmacists, providers, and the public.

QUESTION & DISCUSSION (STRATEGIC NATIONAL STOCKPILE: NOVEL APPROACHES TO ANTIVIRAL DELIVERY)

DHS Ex Officio: How do you track who pays for what?

CDC: They could be charged a dispensing fee. But "who should pick up that charge?" is a concern and an issue we're trying to address.

BSC: Texas used this model, and the state contracted with the pharmacy. The physician would identify patients as uninsured or insured and that determined what stockpiled was used.

ASPR Liaison: Tracking was the biggest issue. A different Medicaid number was to be used for antivirals that came from the stockpile. My concern was people coming by and getting medication over and over again. But it worked very well in Virginia.

BSC: I am little concerned with the process model that indicates that state or local health departments would be responsible for providing antivirals to the uninsured because this isn't prophylaxis. This is filling physician prescriptions. LHDs are not equipped to do this efficiently.

CDC: We did some modeling with Cornell University investigators based on adjusted epidemiological estimates derived from 4 previous pandemic scenarios. The goal was to maximize the percent of clinically ill people who can get their antiviral prescription filled at a pharmacy during a pandemic. We were looking at flu epidemiology to help project triggers for release of federal assets and wanted to minimize stock outs at store levels by optimizing inventory in the supply chain.

We hope that this model will allow us to estimate the approximate burn rate of antivirals when distributed through commercial system in relation to epidemiological data. We are trying to establish how many partners we want in order to determine how many distributors/pharmacies are needed and the impact of one vs. multiple commercial partnerships.

The pharmacy simulations are being done in collaboration with ASTHO, National Association of Chain Drug Stores (NACDS), and National Association of Community Pharmacists (NACP). The focus of the simulations is to examine throughput and surge capabilities of average pharmacies. The independent pharmacy simulation occurred in March 2012, so we have some information. The large scale simulation will be in June 2012. The simulations look at dispensing under traditional pharmacy practice principles. The pharmacy will operate at surge levels and this will mirror the normal prescription environment. We are looking to capture details on prescriptions filled and patients served concentrating particularly on: quantity, accuracy ,time, and quality of care

The simulation will identify bottlenecks in dispensing and provide potential solutions.

It is absolutely critical that we have asset visibility, be able to pull and manage data, and be able to determine the appropriate level of information sharing for partners.

BAS: How are you working with the elderly, handicap, and disability community?

CDC: We found that many of those individuals have already partnered with pharmacies that deliver to them, and we assume that those pharmacies will still be offering that as a service. But if that changes, we will need to look at that.

BSC: I would suggest that we don't completely assume business as usual.

BSC: You simulated a scenario that required use of surge capacity?

CDC: From a distribution standpoint, it's not a problem. From a pharmacy position, it depends on how much they can handle. We're simulating an alternative supply chain solution. It doesn't try to model the existing pharmaceutical supply chain process. Real operations have not been applied here.

BSC: I'm concerned that you may be comparing apples to oranges in these systems.

CDC: I think it is apples and oranges. We would not compare what we're doing here to that of an anthrax response. We believe we have the capability and we should leverage that. However, we may need to reconcile our outcome measures.

ASTHO Liaison: I think we should use the commercial supply chain to get things to people. The illustration indicating that health departments would dispense to underserved and tribal nation populations and to those attending public health clinics does not represent all the dispensing locations. Also, how do you avoid the public health system competing with the commercial supply chain? I think that's an important issue. Public health is there to serve the under-served populations.

BSC: And I don't think we [public health] should [serve the underserved populations] because we might exacerbate the problem. I would say setting up a two-tiered system may make things worst.

BSC: The system has to be customized for each jurisdiction. There are some health departments that do provide services to the poor and uninsured, and others have community health locations.

CDC: We also need to take into account the learning curve of the pharmacy staff. We have to give them a pre-briefing so that in a pandemic they will be more prepared.

BSC: What about allergies?

CDC: So as part of the simulation we did included individuals that had asthma and chronic obstructive pulmonary disease. The pharmacy was aware of the preexisting condition and 3 out of 4 of those individuals were identified

BSC: And the pharmacy should be a secondary check point.

CDC: Regarding the disabled and vulnerable populations, we're looking at the faith-based community as well as other key partners to assist with that. We're also testing the willingness of others to go out and get the

prescriptions for them. There's high acceptability from the states to send someone out to gather their prescriptions.

BSC: The assumption is that everyone will see a physician to get a prescription?

CDC: Yes, and we're also thinking of a nurse triage line. If people qualify for a prescription, that prescription will be called into the pharmacy.

BSC: There's a shortage of pharmacists; so in a surge, I'm not sure if they're the way to go.

BSC: You don't anticipate changes in antiviral thresholds?

CDC: We could see some adjustments and changes. You will see a maximum on the throughput end. Scalability of the model is there.

ADJOURN

DAY 2

CDC'S NATIONAL HEALTH SECURITY PREPAREDNESS INDEX

Yoon Miller**,** Health Scientist, Office of Policy, Planning, and Evaluation, OPHPR provided an introduction to CDC's National Health Security Preparedness Index project.

Since 2001, there have been many different benchmarks employed to measure preparedness, but no composite representation of the preparedness capabilities across the public health spectrum currently exists. Over the past decade, significant resources have been invested toward developing and strengthening the national health security infrastructure. What has been identified is a need to quantify the current status of preparedness at the state and local levels, measure progress, and estimate the return on investment for preparing and protecting the health security of America. This goal can be achieved through the development of a National Health Security Preparedness Index (NHSPI).

While we aspire to strengthen our preparedness and response efforts, we do not plan to use the index as a punitive measure, but to use it to identify and make available a path to emulate best practices; identify gaps to provide opportunities for improvement; raise awareness of next generation trends to allow more effective response to emerging threats; support evidence-informed decisions; and empower guidance on how to build preparedness.

Under a CDC cooperative agreement, ASTHO is initiating development and has created a project team structure to design and launch the Index. This index will span the breadth of the preparedness domain topic. It will embrace the already established relevant and applicable metrics and only create where gaps exist. It will include viewpoints and feedback from the broader preparedness community and will be sensitive to, and proactively manage, how the Index should be interpreted and used. The mission of the NHSPI is to present an accurate portrayal of public health and health system preparedness that provides relevant, actionable information to drive decision making and continuous improvement of the nation's health security.

For the NHSPI, a 16-member steering committee has been employed to provide guidance and direction and assistance in decision-making. They also protect the integrity of the project charter, mission and vision. A Governance Workgroup was also created under the steering committee to advise the Steering Committee on major decisions. Under the Governance Workgroup are two groups: Model Design and Stakeholder Communications. CDC and ASTHO are supporting the Steering Committee. The Association of Schools of Public Health (ASPH) will provide some research assistance for the project. There is also a group of invited observers that includes more healthcare system-oriented individuals and organizations.

The project plan for year one has been broken down into four phases: kickoff and requirements, design, test, and launch. Under each of these phases, several activities are scheduled to occur. The Kickoff occurred on March 8, 2012. At the kickoff, several activities were accomplished:

- Mission statement created and adopted
- Purpose of Index defined along five dimensions
- Chairs and members seated for all workgroups
- Invited observers invited to represent key stakeholders so they can shadow process
- Research agenda established
    - Association of Schools of Public Health (ASPH) and Preparedness and Emergency Response Research Center (PERRC) principal investigators are engaged on two topic areas
- Public website for project under development by ASTHO
- List of potential Index measures generated and compiled

James Blumenstock, MA, Chief Program Officer, Public Health Practice, ASTHO, serves as ASTHO's project director and reported on initial stakeholder feedback regarding the NHSPI project.

The recent 2012 Public Health Preparedness Summit provided the first opportunity to get feedback on the NHSPI from the practice community once they heard the vision for this effort. The overall reaction was very guarded support for the initiative. Most were struggling to figure out how this would benefit them in dealing with policy and strategy issues. The two overall concerns that states and locals expressed were "will this be used punitively?" and "is there a need for the Index considering the development of measures for the 15 public health preparedness capabilities and PHEP/HPP Grant Alignment?". They felt that it would have been better to do this two years ago and questioned whether this was really the right time to advance the index.

Some other concerns expressed were:

- First, we need to decide what we will measure, then move on to how it will be measured
- Some misunderstanding of whether this Index means more work for public health program Directors
- Should measure how much "traditional" PH incorporates preparedness system elements
- Use scientific method to determine what questions are most important
- Need to include aspects of healthcare system preparedness, especially with HPP/PHEP alignment coming up

We also heard very loud and clear that this cannot be a freestanding, isolated entity and to recognize that there are other efforts under way like Project Public Health Ready and the Public Health Accreditation process. So there's a question of should they feed into this or are they independent?

In discussions, several questions arose:

- How can we mitigate/manage any unintended consequences of the Index?
- Should the Index report a single number for each state, or would it be more worthwhile to break out each component that goes into the Index? Or both?
- Is it possible to create a "one size fits all" measure of preparedness, given the variability of states (size, population density, home-rule issues, etc.)?

The issue of NHSPI ownership arose and continues to be raised. Who manages and it maintains it? Who pushes it out? Who owns it, so that it is respected and impactful?

NHSPI workgroup members participated in a brainstorming exercise regarding measures for the index model and generated 218 unique responses. From those responses, seven themes were identified:

1. Communication/Coordination w/ partners
2. Workforce
3. Public Communication/Outreach
4. Surveillance
5. Laboratory Capacity
6. Response Readiness
7. Funding

What we would like to accomplish with the BSC is to have some discussion around four questions:

- Are the top categories of suggested Index measures what you expected?
- Are any important measures missing from this list?
- Should preparedness measures for the Index focus on "capacities" (structure, assets, resources) or "capabilities" (processes, operations, performance) or both?
- Are there any "outcome" measures of preparedness that can be used in the Index?

QUESTION & DISCUSSION (CDC'S NATIONAL HEALTH SECURITY PREPAREDNESS INDEX)

CDC: The Index will not be everything for everybody. We plan to bring a better evidence base to our monitoring of preparedness than there is currently out there.

ASTHO Liaison: Some of the feedback we received is that people are supportive of this effort and getting it right, but there are others who are worn out. They have been evaluated for the last 10 years, and it has caused more harm than help. So, for ASTHO, our biggest challenge is to be respectful of that thought and help them understand that if we do this right, it will be the best effort to date. It will be better than that of Trust for America's Health (TFAH).

BSC: It is critical that we document what the preparedness money is buying us and how it affects our effectiveness.

BSC: It seems one of the critical issues related to the index is a crosswalk between the categories you're talking about and how they tie into what public health says it does on a day-to-day basis. We also want to make sure that the index is reflecting the competencies we've identified.

BSC: I want to make sure you take into account the need for closeness with the legal department around this issue. It should not be ignored.

ASPR Ex Officio: There was discussion of whether these would come down to a single national index. Will that still happen?

ASTHO Liaison: Index measures will be state-specific but we also have to help our federal partners. Comments we're hearing is we need to look beyond state and local systems/jurisdictions and others say to also evaluate the federal in addition to state and local. So we need to decide where we draw the line on that.

BSC: Make sure you're getting the size correct.

ASTHO Liaison: And we heard that one-size does not fit all. So we do have to wrestle with that notion.

ASTHO Liaison: I think it's important not to lose the policy focus. Some of the things I saw were very operations-focused.

BSC: We're looking to the Model Design Workgroup to assist with that.

ASTHO Liaison: And we need to make the point that it's not just operational.

BSC: I was initially skeptical and had similar concerns but with more discussion found that it would be a very valuable tool. We heard someone from the White House say that they've gotten questions about whether we're through with preparedness and shouldn't we be done with it. And we need to do a better job of explaining this to OMB and Congress. We need to make it sharper and not punitive. TFAH is doing what they're doing to be proponents of public health. Doing this will help us get the resources for things that are not currently performing well. There is also some talk of adding healthcare measurements into this down the road but right now we're focused on public health.

ASPR Ex Officio: Right, we want to make sure the healthcare system is an integral part of this. There is also going to be a National Preparedness Report. We've pushed to make it clear that this is a first report and things may change in the future. The report is not ideal, but it will be there every year. It is descriptive and is based on the state preparedness report provided by emergency management.

ASTHO Liaison: Some states had great input and others none. So next year we want to fix that and have more front-end input.

BSC: Are we making efforts to get the story out there on a routine basis of what these cuts are doing? It doesn't seem like we're telling that story and fighting back. Why isn't that a priority for CDC and public policy?

CDC: We try to reach to the media all the time to convey the consequences that these cuts will cause, but unfortunately it's not as sexy as some of the other stories. This project is an effort to relay to the public what is happening or not happening.

BSC: There needs to be clarity of vision because the data does not tell the complete story. If this is about providing state and locals with the knowledge that they need to have, then clarity of mission is necessary.

BSC: The Trust made a shift from a ranking of the states to a description of the deterioration of the public health system and indicated that this was no time for the government to stop supporting preparedness activities. On another note, I see preparedness and response but I don't see much here in the index related to recovery and resiliency, which are often ignored in preparedness.

ASTHO Liaison: I think recovery and resilience can be more challenging.

BSC: Mitigation is also not clear.

BSC: I don't know if this is a good time to stick your head up. The Prevention and Public Health Trust Fund may be viewed by some as a "slush" fund. I also think we have to convince the field of public health itself of what the money is purchasing and what the index will do.

DHS Ex Officio: It's no longer enough to say my constituent wants it. Congress needs these reports to justify why they are supporting programs. Trust for America's Health has been the best we can offer right now, so I think the Index will give you a chance to influence decision makers. Otherwise the hemorrhaging will continue. Anything you can do to make this better will be helpful. You're not alone in this. Other federal agencies like FEMA are also experiencing this. Don't underestimate power. Find those advocates and provide them with the right tools and they can push this.

CDC: I agree. It is incumbent on all of us, not just CDC, to convey the role of public health. Also, with the index we need three to five clear measures that get right to the point.

BSC: People working on the index are trying to do this with minimal burden. We need to find a place where this index will be trusted by the feds and locals, so ownership needs to be given significant thought and input from the community.

BSC: I think the real issue [for some jurisdictions] is being measured poorly. People support being measured well. If there's a lot of counting stuff that doesn't truly show your true effectiveness, it can be a deterrent.

ASTHO Liaison: We hope there will be a measured systematic approach going forward. Thank you to those that have been engaged to date and we look forward to getting more feedback.

UPDATES FROM LIAISON REPRESENTATIVES

Association of Public Health Laboratories (APHL)

[Not present]

Associations of Schools of Public Health (ASPH)

[Not present]

Association of State & Territorial Health Officials (ASTHO)

We are looking at creating a national network of nurse triage lines to handle the surge that may occur to get antivirals into the community. We are developing a conceptional model for that and poison control centers are definite players in that as well.

We are looking to do an assessment of the nation's hospitals and how much respiratory personal protective equipment they have to get some pulse on whether those resources are available.

Radiation readiness is growing. We have a clearinghouse available at Radiation Ready.Gov and a peer review group that looks at common practices. We have a report that provides a very high level view of the strengths and weaknesses in domestic response.

We're working on the emergency care drug shortage. ASTHO has taken the lead and we have presented the status of why this is an issue now and some coping strategies. It was sobering to hear the horror stories that are occurring around the country due to lack of medication, suboptimal dosing, or substitutions. So, we're trying to develop some better measures to improve this area.

We are rolling out four toolkits to help the practice community deal with federal law, regulations, policy, etc. Data sharing and volunteer management toolkits are also under development.

There are a few other activities to note. We have been engaged in the Pandemic and All-Hazards Preparedness Act (PAHPA) reauthorization process. There's also continued discussion with the FDA and the HHS/ASPR Enterprise Executive Committee on medical countermeasure shelf life expansion, legal authority, and what makes sense from an economic perspective.

Council of State & Territorial Epidemiologists (CSTE)

We recognize the increasing pull on members to be involved in the index and have created a subcommittee. We are involved in a lot of the informatics activities and covering a lot of meetings that are occurring on that topic.

We're also looking at lessons learned during H1N1 and ways to improve our processes. CSTE also has an Applied Epidemiology fellowship program that includes preparedness competencies for the fellows.

National Association of County & City Health Officials (NACCHO)

The Medical Reserve Corp (MRC) continues to expand. There are 630 MRC members and we are continuing to get applications for additional individuals. The Project Public Health Ready (PPHR) has 270 health partners in 26 states that received PPHR status and several are apply for recertification.

We are trying to find additional funding to look at biosurveillance. We want to make sure we don't lose any of the tools developed.

We have put together a Preparedness Policy Advisory Group including preparedness coordinators from every state. They want to have well-informed decisions around policy and strive to reflect the broad diversity of local health departments throughout the country.

We have been working with ASTHO, CDC, and ASPR on administrative preparedness. We are looking at opportunities and barriers to public health preparedness in that regard.

We have also designed a database for the preparedness coordinators that covers a variety of topics of interest.

National Indian Health Board (NIHB)

[Not present]

DIVISION OF STRATEGIC NATIONAL STOCKPILE (DSNS) PROGRAMMATIC REVIEW: PROPOSAL

Daniel Sosin, MD, MPH, OPHPR's BSC DFO introduced OPHPR's proposed request to conduct a Programmatic Review that relates to the future responsibilities and activities of the Strategic National Stockpile. CDC wants the Programmatic Review to be a collaborative effort between the BSC and ASPR's National Biodefense Science Board. We have laid out a series of review topics and we will need to designate at least two individuals from our BSC, a co-chair and a member, to participate with this.

For this review, the working group will do research and gather data to inform the recommendations. We want to have a process of eliciting responses from senior leaders about what's missing, what should be there, and suggested approaches to managing emergency medical supply chain capabilities so that we can anticipate the tools we need for the stockpile. There is also the need for metrics for reporting program capability and informing improvement.

So the three proposed foresight review topics:

1. Validate the anticipated responsibilities of the SNS in the year 2020;
2. Recommend approaches for meeting those responsibilities as efficiently as possible; and
3. Propose metrics.

Greg Burel, Director, Division of Strategic National Stockpile, OPHPR, provided an overview of the evolution of the SNS.

The first iteration of the SNS was created in 1999. At that time, there was limited availability of material, limited or virtually no guidance on what the stockpile should look like, and appropriations were limited. CDC decided that the creation of an organic transportation network was not reasonable. There already exist very robust transportation networks that move product everyday, so we decided to leverage that.

CDC also engaged with other federal agencies. We recognized that there were government agencies that do nothing but buy pharmaceuticals and medical devices, Veterans Administration being one, and we expanded our vision from there.

We started providing technical assistance to states and localities so that they could effectively manage and use the materials we would give them in the face of an event. We did some non-punitive reviews of states plans and graded them as red (bad), yellow (areas of concern identified), or green (good).

SNS is much more than housing "stuff" and buying "stuff". We give consideration to what form do we need to package this in so that it can be used appropriately and in the most rapid fashion. We give thought to placement of these materials around the country so that they can be moved in the most rapid and effective way. We have to assure that we comply with regulations around holding those products. We do a lot of work with developing multiple partners in various sectors to effectively use these materials. We create guidance and policy around countermeasure response. Some of that results in clinical guidance and support and application of regulatory management. We provide subject matter experts for states and locales and have moved to evidence-based scoring for state plans.

We've provided a number of tools on how best to deploy these processes. We provide commercial off-shelf packaging. We continue to work on supporting national health security in a variety of ways. We are working on a cooperative agreement with the American Academy of Pediatrics (AAP) to update guidance on anthrax. We're working with the FDA on additional medical countermeasures, and we've done a lot of other work with vulnerable population workgroups.

We look at material readiness in different ways and hold materials in various manners. We have contracted with organizations that do management logistics. We buy access to products from manufacturers, which allows the manufacturers to rotate that material into their existing private-sector market so that we don't deal with expiring product. We have done a lot of work on countermeasures such as push packages. We found we can decrease cost by moving push packages to centralized inventory and still deploy them as rapidly as we could before.

We manage deployable teams. They are important to us when mounting an appropriate response to assist states and localities. We've done effective training with the states and localities so that in a response we don't have to be present on the day materials arrive. They are able to self-manage and, by doing this, we have recognized some savings.

Our budget has been reducing. We're anticipating more budget reductions as time moves on. Therefore, we continue to work on reducing operating costs and identifying sound investments for the future.

QUESTION & DISCUSSION (DSNS PROGRAMMATIC REVIEW)

ASPR Ex Officio: ASPR is very excited about being involved in this. This will have an impact on the stockpile long- and short-term, and this is truly a collaborative effort.

BSC: What should be the elements or features of the review?

CDC: This is a draft charge. We wanted to make sure that this is clear, and then you can formulate how you can help us with it.

BSC: Were there problems, challenges or dilemmas that cause this list?

CDC: It's a combination of a fluid environment, changing scope in mission with the stockpile, and a number of forthcoming activities that could change the way we envision this stockpile enterprise. We want to continually progress the stockpile to where it needs to be in the next 10 years. We also want to be efficient and save money while achieving the goals of the stockpile. And we can only document improvement by having metrics that are reliable. We want this group to take a look at the metrics and how we should be measuring the success of the stockpile.

CDC: We now better understand how to mount a response and work with states and locals to make it successful. This is our thoughtful approach on how to intervene in the supply chain process.

ASTHO Liaison: I don't see the word "vaccine" in the review. How we acquire the vaccines or stockpile them is important to the state.

CDC: Vaccine management is definitely included in this as well. We are working more closely with the healthcare sector to make sure we are coordinating our efforts.

BSC: I think the review should pay attention to demographic changes and mitigating health inequities.

BSC: Can you clarify how this is different from the prior review of SNS?

CDC: Previously, we looked at modeling the logistics of supply chain, and that's not entirely what we're talking about now. We have not worked out the mechanics of this review. It will be larger, harder and may take several months, about 6 months with data collection in between.

BSC: The previous BSC review of the SNS couldn't conclude anything or were the reviews general?

CDC: They were general.

DHS Ex Officio: The important part is how does it flow, what are we missing, and what can improve the flow? How are you looking for us to validate this?

CDC: The workgroup should lay out the mission of how it sees things going forward. That could be done one-on-one or the DHHS Enterprise Executive Committee can work on a list and we refine that. We want you to inform the decisions. We want to make sure you're in agreement with where we're going.

BSC: I have some uneasiness about this. The next question after validating is the requirements of the countermeasure of an emergency management system, and I don't know that we have the expertise to answer that on this board. What does this system look like? If we think about this process of doing the requirements, we could look at the models used by Apple, as an example.

CDC: So you're suggesting bringing in someone from Apple to work in a consulting manner.

ASPR Ex Officio: You can do workshops or invite people to be part of this group. Or we can ask certain expertise but we might have some conflict of interest in those expertise.

BSC: When the military wants to do the next biggest thing with planes, for example, they take two or three of the big vendors and say give us your best plan for what we're trying to accomplish.

CDC: This is a good time to ask the fundamental question of what is the best way to do medical countermeasures. This is very different from past reviews. We are going to give you an opportunity to say what our program should look like.

DHS Ex Officio: This does not lend itself to one solution. I don't believe there's one concrete strategy. You will ebb and flow and twist and turn all the way through this. So don't put it all on paper but give yourselves that flexibility to move.

BSC: And your committee should change as these emerging strategies come up.

CDC: This is helpful. There will be specific ideas that come to mind whether Apple or some other logistic supply chain. We'll do some follow-up emails to solicit additional information.

BSC: I would think that we can establish general strategic principals and separate those from the operational issues and goals.

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CDC: We also have a concern about the anthrax vaccine (AVA). We want to leave with a clear set of issues that we need to address. Department of Homeland Security has questions regarding use of the

licensed AVA for pre-exposure. We do provide anthrax vaccine for laboratorians that work with anthrax. This is a licensed pre-event vaccine and the vaccination program is entirely voluntary. The first responder community needs to be assessed to see who would want to take advantage of this vaccine. We have the opportunity to make it available.

We have an opportunity, without putting at risk the stockpiling of AVA, to use that vaccine. We can also learn from this. Not all communities are going to want to do this. But for those that are interested, it will provide us lessons on how to safely use the vaccine, the side effects, etc and better prepare public health.

I want to preface this discussion by saying there's no new money to do this. Some of you have heard a lot about this and we want to hear your opinions.

DHS Ex Officio: The questions we normally get is, "who do you vaccinate?". It's hard to develop a risk profile. Questions regarding AVA use came to us from states and locals. We want to make sure all checks and balances are in place. It's been a win-win effort and exciting to work on.

This is the AVA distribution pilot. This is a resource that's available only to the federal government. It has a short shelf life. We're hearing that people want it, but we want to provide it in a responsible manner. If first responders feel that they are at risk, they can access this on a voluntary basis. This will differ state to state and will begin on a small level, two cities or two states initially. We need to identify those initial partners and determine if a national rollout is warranted. We will start getting ASTHO and NACCHO involved on that feedback. We want this to be a dialogue.

ASTHO Liaison: How do we deal with the regional variations? What's the right size of public health engagement? Let's have public health see this first and provide some input.

We need as much time as you can give us to vet this to the first responder community.

CDC: It is expected to be early July and last to the end of August for the proposal. We're seeking organizations that meet the requirements of the pilot. We would like to know who would like to do it and tell us how you would do it. There will be 6 to 8 weeks to respond to that.

DHS Ex Officio: We're hoping that at least 50 to 100 folks will be interested in being vaccinated in those pilots.

BSC: Communication is going to be critical on this. Everyone needs the same message to reduce damage control particularly related to risk versus cost.

DHS Ex Officio: The vaccine is free of charge. We will have to work on shipment and management.

BSC: Begin with a disclaimer that this is not an effort to get rid of a bunch of vaccine. We have to be careful not to set ourselves up for political backlash. There may be also the thought that we're experimenting on first responders, so we have to be ready to communicate well on that issue, as well. First responders are a community that has its own ethos and we need to understand that ethos.

BSC: There are a lot of command and control issues, and you need to figure out how you're going to deal with that individual who refuses.

DHS Ex Officio: We're not interested in this being forced upon an individual. Do you think that we are very explicit in our guidance kit about that?

CDC: I think you're saying we need to protect people from coercion and put that in our guidance.

BSC: There has been a lot of recent work that we can use as models to anticipate some of the problems and resistance that might arise.

CSTE Liaison: I worry about risk communication with state heath officials.

DOD Ex Officio: I'm sure people are planning to consult with DOD about our vaccination plans.

DHS Ex Officio: We have consulted with DOD and have gotten information from them as well as the FBI, who has a small program. So we are continually looking for lessons learned.

PROGRAM RESPONSE TO BSC RECOMMENDATIONS FROM THE PREPAREDNESS AND EMERGENCY RESPONSE RESEARCH CENTERS (PERRC) PROGRAM EXTERNAL PEER REVIEW

Mildred Williams-Johnson, PhD, Director, External Research Program Office (ERPO), OPHPR, provided the program response to the BSC PERRC Program external peer review recommendations (Appendix D).

We received the final BSC review report on January 3, 2012 and shared the report with the PERRC PIs to gather their input. Of the 19 recommendations, we concurred on five recommendations (Recommendations 1, 4, 6, 14, 18; Appendix D); concurred in part to Recommendation 10 (concur 10b; concur in principle 10a, 10c, 10d); and concurred in principle to the remainder (Recommendations 2, 3, 5, 7, 8, 9, 11, 12, 13, 15, 16, 17, 19). The reasons why we concurred in principle were due to several common issues: time, staffing, and funding. We are providing to you our suggested response should resources become available in the future. We would like input from you on whether our proposed ideas are reasonable and adequate or are there other avenues that we might pursue in response to these recommendations.

Unexpectedly, in FY 2012, we received ~ $4 million to support the PERRCs. We considered the funding priority criteria defined by the BSC working group's recommendation 2. However, based on the project period and the limited information available to discriminate the PERRCs' research performance, we decided on equal funding to all PERRCs (approximately $430,000 per PERRC) and asked them to focus their efforts on dissemination and translation of research outcomes.

QUESTION & DISCUSSION (PROGRAM RESPONSE TO PERRC PEER REVIEW)

BSC: I am wondering if there's an effort to determine what we want to get out of this for this last year as we wrap up because some of these recommendations no longer apply.

CDC: Upon successful CDC review of their continuation applications, each PERRC will be awarded $430,000 in FY 2012 funds. The intent of the FY 2012 funding is to put their work into practice in some form or fashion, and they have to work with their practice partners to do that. If they come across something that's innovative, they can use their current funds to expand upon that. North Carolina was able to do this. With ERPO approval, PERRCS will use funding from prior years to fund activities that they need to do to finish a project they began in previous funding periods.. New FY 2012 funding is for translating research to practice.

BSC: There were really only two recommendations from the working group. One was to save the Centers and the second was to figure out how to market what the Centers do so that they get more recognition. We also believed that a center model was not the appropriate model for the future but more of an individual model. So we said if any money became available, a FOA-type funding should be used.

BSC: Is there a mechanism for no-cost extension to evaluate the outcomes of the research?

CDC: The principal investigator can ask for more time to finish their work without any additional funds.

BSC: That's great to hear and this can show the positive effects.

BSC: Can OPHPR still fund individual projects?

CDC: It is possible. You can create mechanisms with grants or working with key partners, but current resources are not able to sustain the work. We're trying to identify opportunities to innovate and use our resources creatively.

BSC: Isn't there a mechanism for creating a BSC workgroup to look at the final report of the products that come out?

CDC: There is an opportunity, but it requires careful discussion. You have to quantify and qualify your time and other factors.

BSC: Will there be a final report of the PERRC's work?

CDC: Yes, from each of the centers and hopefully one from the program.

BSC: Going back to the Index, we talked about federal support for discovery. This seems to be going downhill based off what we just heard.

ASPR Ex Officio: It's painful. There's no funding for projects like this, and this is occurring in all of our programs. "Unfortunate" is an understatement. It puts everybody in a bind. How do you measure effectiveness when everything is being cut to the bone?

PUBLIC COMMENT PERIOD (DAY 2)

No comments were received during the public comment period.

ASK-THE-BOARD: ESTIMATING THE COST OF PREPAREDNESS

Lynn Austin, PhD, MA, Deputy Director, OPHPR, presented an overview of an OPHPR initiative to estimate the cost of preparedness.

I don't have to explain to you what impact decreases in public health funding is having. Further compounding advancement of public health preparedness are:

- Decreasing public health infrastructure funding
- Increasing recognition that CDC core preparedness and response capabilities are affected
- Increasing recognition that State/Local PHEP preparedness and response capabilities and public health infrastructure are impacted by continual funding reductions severely impacting State/Local ability to respond
- Increasing recognition that State/Local staffing has been weakened from funding reductions, furloughs, layoffs, and turnover

Last year, we conducted a project at CDC to see if we could estimate the cost of responding to the 15 DHS all-hazards national planning scenarios. We developed a template to calculate costs in as many as 19 functional areas, and we looked at cross-cutting response costs across CDC. There were several overarching areas of consideration. There was the cost of fully implementing the overarching Preparedness Strategic National Plan; the cost of fully meeting the PHEMCE recommendations for the Strategic National Stockpile as well as MCM research and operational costs; and the cost of fully achieving State/Local PHEP Capabilities.

To determine cost of implementing the CDC National Strategic Plan for Public Health Preparedness and Response, we need to align the existing funded projects with the strategic plan; identify "gaps" where initiatives are not currently funded; cost out projects to address these gaps; and calculate cost of core preparedness/response activities, funded and unfunded.

The cost of implementing the PHEP capabilities is where we really need input from you and the grantees. We need to know:

- What capabilities are currently funded?
- At what level are capabilities currently funded?
- What the gap is between funded and need?
- How do we measure the cost of implementing capabilities not funded?
- How do we measure the gap between what is funded and need if fully implemented?
- What is the ongoing cost to maintain capabilities?

These are some questions we want to pose to you. But note that the first approach will be a modest effort to estimate costs. So questions we have are:

- What are the key cost sectors to include in this estimate?
- What methods might be appropriate to the time and use we intend for this estimate?
- How should the results be displayed and used?
- Who are key stakeholders or consultants to involve in this effort?
- Are there existing data resources or similar efforts in other fields that we should leverage?
- How to address core Public Health infrastructure - 10 essential public health services?

DISCUSSION (ESTIMATING THE COST OF PREPAREDNESS)

BSC: I think to get at the last point of total cost, you need to determine the cost of infrastructure.

BSC: We did a cost of failure that looked at the cost of healthcare if there wasn't health reform. We also did an analysis of the avoided deaths around immunization. We found 1400 cases that would have occurred if there was no immunization. Compare Top Off 1 to Top Off 2 and you can quantify what happens in a system that is prepared compared to one that's not. Also look at natural disasters in communities that have performed well and those that have not and extrapolate the cost.

BSC: With the cost of preparedness, you want to say this is our vision of preparedness and here's the cost. So maybe you can include some of those events that are memorable. We need to be less process and more, "This is what America needs". I like the idea of extrapolating out cost avoided. That is how WHO gets a lot of its cost like days avoided in the hospital, etc.

BSC: We also need to capture the cost due to waste in our degradation of the infrastructure. We need to link cost to value in a very direct way. CDC may not be the best entity to do this work due to conflict of interest. Maybe some outside entity or funder could do this analysis.

BSC: There may be some places where objectives might be split between groups to increase synergy.

ASTHO Ex Officio: The IOM on catastrophic disasters has some models presented that may partially inform your research.

BSC: I was thinking about the question you asked earlier, "why aren't we done with preparedness". Do we have a standard answer to that? Maybe we need to have a bullet point answer for when we are asked that.

CDC: It's not about buying preparedness equipment or materials. This is not about buying an insurance policy. It's about what's happening in state and local health departments everyday.

BSC: So maybe we need to really develop an answer to that because it sounds like there is resistance. After 10 years, people feel like "preparedness" should be done.

CDC: You are spot-on and we are working on message mapping. We are having difficulty making that argument because public health is invisible to the public. At the next meeting, we will show you some of the CPG guidance work. This will give you an answer as to why we're still not further along in our preparedness work.

ASPR Ex Officio: Stories are powerful and sometimes we don't recognize the value of the stories. Stories resonate with people. That kind of information made more of a difference than actual data. You need a hook to pull in the public. Also, we must look at cost of failure and how to demonstrate that as well. So much is based on your current public health structure. If you don't have one, what does that mean? And, if you do, what does that mean? —we can look at that.

BSC: If I were asked that question by a legislator, I would say prepared for what? Not all hazards cost the same amount. We've had more crisis in emergencies in the past years, and those crisis vary. So it's not a simple answer even after 11 years.

CDC: Right. We have so many crises that go unnoticed and therefore are not counted.

BSC: The measures we have developed over the years have gotten better and better. It's the big impacts that get the most attention.

CDC: When you do hook the public and others with the stories, have the data and measures to back it up.

BSC: What was your goal in the timeline?

CDC: For strategic planning -- given what we're hearing now of the FY 2013 budget, we might want to go ahead and act on some of the activities proposed sooner rather than later.

CLOSING REMARKS

Dr. Dan Sosin, OPHPR BSC DFO, after thanking the Board for its hard work, asked Board Members to respond separately in writing to each of the following questions:

- What went well with this meeting?
- What needs work?
- What topic would you like to see at a future meeting?

Dr. Inglesby and Dr. Khan thanked everyone for their hard work and wished everyone safe travels.

ADJOURN

With no further business raised or discsussion poised, Dr. Tom Inglesby officieally adjourned the BSC meeting.

CERTIFICATION

I hereby certify that to the best of my knowledge, the foregoing minutes of the May 1-2, 2012 BSC meeting are accurate and complete.

6/27/12

Thomas V. Inglesby, MD

Appendix A. OPHPR BSC Membership Roster

Chair

Thomas V. Inglesby, M.D.
CEO and Director
Center for Biosecurity – UPMC
Baltimore, MD

Designated Federal Official

Daniel M. Sosin, M.D., M.P.H., FACP
Deputy Director and Chief Medical Officer
Office of Public Health Preparedness and Response
Centers for Disease Control and Prevention

Board Members

Sharona Hoffman, J.D., L.L.M
Professor of Law and Bioethics
Case Western Reserve University
School of Law
Cleveland, OH

John R. Lumpkin, M.D., M.P.H.
Senior Vice President and Director
Health Care Group
Robert Wood Johnson Foundation
Princeton, NJ

Ellen MacKenzie, Ph.D.
Professor and Chair
Department of Health Policy and Management Johns Hopkins University
Bloomberg School of Public Health
Baltimore, MD

John (Jack) Muckstadt, Ph.D.
Professor
School of Operations Research and Industrial Engineering
Cornell University
Ithaca, NY

Herminia Palacio, M.D., M.P.H.
Executive Director
Harris County Public Health and Environmental Services
Houston, TX

Louis Rowitz, Ph.D.
Director
Mid-America Regional Public Health Leadership Institute
University of Illinois at Chicago, School of Public Health
Chicago, IL

Robert J. Ursano, M.D.
Chairman, Department of Psychiatry
Uniformed Services University of Health Sciences
Bethesda, MD

Elaine Vaughan, Ph.D. (By Phone)
Research Professor and Professor Emerita
Department of Psychology and Social Behavior
School of Social Ecology
University of California, Irvine
Irvine, CA 92697

Ex Officio Members

RADM Nicole Lurie, M.D., M.S.P.H.
Assistant Secretary for Preparedness and Response
U.S. Department of Health & Human Services
Washington, DC

Lisa Kaplowitz, M.D., M.S.H.A
Deputy Assistant Secretary for Policy
Office of the Assistant Secretary for Preparedness and Response
U.S. Department of Health & Human Services
Washington, DC

Alexander Garza, M.D., M.P.H.
Assistant Secretary for Health Affairs and Chief Medical Officer
U.S. Department of Homeland Security
Washington, DC

COL Michael G. Butel, D.V.M., M.P.H.
Assistant Secretary of Defense (Health Affairs) Force Health Protection and Readiness; Director, Global Health Surveillance
U.S. Department of Defense
Arlington, VA

Liaison Representatives

Association of Public Health Laboratories (APHL)
Mary J. Gilchrist, Ph.D., D(ABMM)
Consultant, Public Health
Solon, IA

Association of Schools of Public Health (ASPH)
James W. Curran, M.D., M.P.H.
Dean, Rollins School of Public Health
Co-Director, Emory Center for AIDS Research
Emory University
Atlanta, GA

Association of State and Territorial Health Officials (ASTHO)
Jean O'Connor, J.D., DrPH
Deputy Director, Public Health Division
Oregon Health Authority
Portland, OR

Association of State and Territorial Health Officials (ASTHO)
James Blumenstock
Chief Program Officer, ASTHO
Arlington, VA

Council of State and Territorial Epidemiologists (CSTE)
Patricia Quinlisk, M.D., M.P.H.
Medical Director and State Epidemiologist
Iowa Department of Public Health
Des Moines, IA

National Association of County and City Health Officials (NACCHO)
Karen Smith, M.D., M.P.H.
Public Health Officer and Director of Public Health
Napa County Health and Human Services Agency Public Health Division
Napa, CA

National Indian Health Board (NIHB)
Stacy A. Bohlen, M.A.
Executive Director, NIHB
Washington, DC

Appendix B.

Board of Scientific Counselors (BSC)
Office of Public Health Preparedness and Response (OPHPR)
Centers for Disease Control and Prevention (CDC)

BSC Voting, Ex Officio, and Liaison Membership Attendance
BSC Meeting – Atlanta, GA -- May 1-2, 2012

Last name, First name	BSC Affiliation	Attendance?	
		May 1, 2012	May 2, 2012
Inglesby, Thomas	BSC chair	Yes	Yes
Burke, Don	BSC voting member	Yes	No
Hoffman, Sharona	BSC voting member	Yes	Yes
Lumpkin, John	BSC voting member	Yes	Yes
Palacio, Herminia	BSC voting member	Yes	Yes
Rowitz, Lou	BSC voting member	Yes	Yes
Vaughn, Elaine	BSC voting member	Yes (by phone)	Yes (by phone)
Butel, Michael	Ex officio (DOD)	Yes (by phone)	Yes (by phone)
Garza, Alexander	Ex officio (DHS)	Yes	Yes
Kaplowitz, Lisa	Ex officio (HHS/ASPR)	Yes	Yes
Getchell, Jane	Liaison (APHL)	Yes	No
Blumenstock, Jim	Liaison (ASTHO)	No	Yes
O'Connor, Jean	Liaison (ASTHO)	Yes	Yes
Danila, Richard	Liaison (CSTE)	Yes	Yes
Smith, Karen	Liaison (NACCHO)	Yes (by phone)	Yes (by phone)
Bohlen, Stacy	Liaison (NIHB)	Yes (by phone)	No

Appendix C.

Career Epidemiology Field Officer (CEFO) Program

Response to BSC Program Review Recommendations

March 19, 2012

The Career Epidemiology Field Officer (CEFO) Program thanks the Board of Scientific Counselors and the Program Review Workgroup for the thorough review of our program and the thoughtful recommendations for sustaining and improving it. This report provides an update on our responses to the recommendations. For each recommendation we present responses in one of three categories:

- **Concur** - We agree and we have funding, staff, and control over the means to begin addressing or implementing the recommendation
- **Concur in principle** - We agree, but we do not presently have either the funding, staff, or control over the means to begin implementing the recommendation
- **Non concur** - We disagree with the recommendation and provide the reasons for the disagreement.

1. The CEFO Program should develop an overarching, long-term strategic plan (e.g. 5-10 year) which should be informed by an initial gap analysis of jurisdictional needs for the services provided by CEFOs.

~~**Non concur**~~ **Concur in principle (Amended April 2012)**
Reason: OPHPR has recently completed a broad strategic planning process and a review of strategic priorities that sets the environmental scan for selecting priority areas of work. We will use that work as a foundation for CEFO Program shorter-term tactical planning rather than initiate additional strategic planning specific to the CEFO Program

The CEFO Program tactical plan includes overall priorities for headquarters staff work for the next one-to-two years, including consideration of the relative priority of response to the other BSC Recommendations, # 2 – 9, and implementation plans including timelines and roles and responsibilities. Currently the CEFO Program headquarters is focusing on these immediate needs:

- Address immediate and imminent funding problems for CEFO positions by pursuing options articulated in BSC recommendation #3.
- Address a key consequence of the funding problems – out-placement of CEFOs who are in positions that will be unsupportable by PHEP funds in FY 2013.
- Following recent headquarters staff changes, realign roles and responsibilities of headquarters staff to enable supervisors to focus more on epidemiologic leadership of field staff.

2. The CEFO Program should measure its performance by:

a. implementing and measuring performance metrics that would enable CDC officials to be able to provide empirical data that accurately reflects CEFO program successes, challenges and areas for improvement.

b. using other innovative approaches

Concur

Specific Means to Address or Implement:

We are organizing a process to develop performance metrics, including these steps:

- Review existing performance metrics related to epidemiology, surveillance, and emergency operations coordination. (Public Health Preparedness Capabilities: National Standards for State and Local Planning - http://www.cdc.gov/phpr/capabilities/#capabilitiesdoc)
- Use these as a basis to develop draft metrics that can be applied to CEFOs' activities
- Convene a workgroup including OPHPR staff, CEFOs, and stakeholders (state epidemiologists and preparedness directors) to finalize pilot metrics
- Inform CEFOs and stakeholders of the pilot metrics and how the information will be used to monitor program progress.
- Pilot test performance metrics, analyze quarterly reports, summarize the results, disseminate report of results, and refine metrics as necessary.

3. CDC should explore alternative funding sources that preserve the positive characteristics of the program (flexibility and simplicity) including:

(a) Allowing jurisdictions to use multiple, non-PHEP CDC funding sources, with caveat that OPHPR would be the program administrator

(b) Exploring other internal funding sources by cross-leveraging resources at other CDC Centers, Institutes, and Offices (CIOs), with caveat that OPHPR would be the program administrator

(c) Exploring non-CDC external funding sources, with caveat that OPHPR would be the program administrator

(d) Enabling jurisdictions to use other resources under their control to fund the CEFO

(e) Enabling jurisdictions to share a CEFO

Comment: Unless a more sustainable funding model for CEFOs is identified, the Program needs to consider the use of alternative funding sources to maintain the CEFO workforce including all of the options noted above. We provide specific responses to those options below:

(**a) and (b) Use of non-PHEP CDC funding sources and cross-leveraging CDC resources**

Concur

Specific Means to Address or Implement

The CEFO Program is leading development of a systematic approach to support CEFO positions through a cost allocation/split funding process. We are engaging staff from key CDC administrative offices –

- Financial Management Office (FMO)
- Procurement and Grants Office (PGO)
- Office of General Counsel (OGC)

and staff from several CDC programs or offices that currently support or have expressed interest in supporting field-based epidemiologists, including:

- Division of State and Local Readiness, OPHPR
- Immunization Services Division, NCIRD
- Division of Preparedness and Emerging Infections, NCEZID
- Division of Healthcare Quality Promotion, NCEZID
- Office on Smoking and Health, NCCDPHP

This process includes development of formal documentation addressing program administration and management (including supervision) and written agreements to ensure the goals and objectives for the field assignee for each participating group are delineated. We are working to obtain adequate, secure funding while preserving the program's flexibility and simplicity.

(c) Use of non-CDC external funding sources

Concur in principle

Specific Means to Address or Implement
We have inquired about collaborating with two programs external to CDC – the Hospital Preparedness Program managed by the Office of the Assistant Secretary for Preparedness and Response, and the BioWatch Program overseen by the Department of Homeland Security. Although both programs currently have funding constraints, we are keeping open the possibility of future collaboration.

(d) Use of jurisdictions' other (non-CDC) resources under their control

Concur in principle

Specific Means to Address or Implement
While we are open to state or local health agencies using other (non-CDC) resources under their control, in the current economic setting such resources may be scant. When we have had discussions with a few jurisdictions about their using other funding resources under their control, neither they nor we have identified an available source of such resources.
.

(e) Jurisdictions sharing a CEFO

Concur in principle

Specific Means to Address or Implement
We have not actively promoted this approach. No jurisdictions who have a CEFO or who have expressed interest in a CEFO have requested to share a CEFO. Some CEFOs have noted concerns that their value as integral members of the health department team could be substantially diminished if they served two independent jurisdictions. We recommend considering this approach on a case-by-case basis.

4. The CEFO Program should clarify supervision and coordination of CEFO supervisor management by implementing the following:
(a) Ensuring improved coordination between CDC and field supervisors.
(b) Exploring the feasibility of providing greater access to and use of scientific support and consultation as a core headquarters management capability.
(c) Adopting a proactive (lean forward) approaches to linking CEFOs with key operational resources across CDC CIOs such as informatics, statistics, GIS

Concur

Specific Means to Address or Implement:

(**a) Improved coordination between CDC and field supervisors**

We have begun offering to do quarterly conference calls with CEFOs and their field supervisors to review the CEFOs' quarterly reports and/or address other relevant issues.

In FY 2012 we have completed site visits for CEFO assignments in Michigan, Mississippi, and Nevada, and we have scheduled visits to Arizona, California, Florida, Maine, North Dakota, Tennessee, Texas, Vermont, and Wyoming.

We continue to

- use the opportunities at scientific conferences – e.g., the CSTE annual and regional conferences, the Public Health Preparedness Directors Conference, the Public Health Preparedness Summit – to meet and network with CEFOs' field supervisors
- ask field supervisors for their input on performance evaluations in both the Commissioned Corps (Commissioned Officer Effectiveness Report, annually) and Civil Service (Performance Management Appraisal System, June and December each year) systems.

(b) Scientific support & consultation, and
(c) Linkage with key operational resources

OSPHP hired a PhD statistician in 2011, and one of her main responsibilities is to provide consultation and technical assistance for CEFOs. We are encouraging CEFOs to attend and participate in a new series of webinar presentations that she has organized on statistical topics. The presentations in February, March, and April are on multivariable analysis and statistical model building. The statistician has also begun providing consultation and support to individual CEFOs on study design and data analysis.

As in past years, CEFOs participate on the planning committee for the CEFO Annual Meeting (Aug 21-23, 2012) to identify key topics to be discussed/presented and scientific sessions in which we will invite CDC subject experts to participate.

We are planning to link with a database of CDC Subject Matter Experts (SMEs) that is being organized by the OPHPR Division of Emergency Operations. This database is intended to provide a single, accurate, readily accessible source of contact information for CDC SMEs.

We are working with the staff from CDC's Epidemiology and Analysis Program Office who developed Epi Info 7, free software that can support surveillance, outbreak investigations, database management, statistical analyses, and GIS mapping. We have encouraged and supported CEFOs to serve as "beta testers" for this software and to receive training in its use.

If funds become available in the future, we plan to implement a program of "reverse site visits" by CEFOs to CDC. The purpose of such a visit is for the CEFO to meet with CDC staff to exchange information relevant to the CEFO's responsibilities, and to strengthen the CEFO's role as a resource for technical advice needed by the state and local health departments. During the 2-3 day visit the agenda would include, as needed, one-on-one meetings with CDC subject matter experts, program staff, and project officers, an oral presentation by the CEFO in an OPHPR or other CDC CIO seminar series, and time to meet the CEFO's needs and obligations such as computer software upgrades, respirator fit-testing, etc.

5. CEFO Program strategy and policy should ensure greater assurance to CEFOs of continued employment and opportunities for advancement within the context of available funding levels

NOTE: This recommendation follows these findings reported by the BSC Workgroup:

> "The workgroup was impressed with the high quality of the CEFOs based on their presentations as well as the resumes that were part of the review material. CEFO managers and CEFOs both noted that the two-year initial field placement followed by optional annual renewal created significant anxiety and insecurity. Anecdotal evidence indicated that this reduced the potential pool of high quality CEFOs. Some of the CEFOs also expressed concern about the perceived lack of value that CDC places on CEFO field work assignment and the subsequent implications for career advancement."

Issue - Greater assurance to CEFOs of continued employment

Concur in principle

Specific Means to Address or Implement:
See response to Recommendation #3 above. The CEFO Program Senior Advisor is leading the direct assistance cost allocation/split-funding initiative in collaboration with interested programs, FMO, PGO, OGC, and DSLR.

We acknowledge the problems related to limited duration of assignments. However in the current funding circumstances, some states cannot commit PHEP funds more than one year at a time for supporting CEFO positions.

If any CEFOs' field assignments must end in a particular jurisdiction due to lack of funding, the CEFOs will have the same "rights" as counterparts in headquarters positions. CDC/PHPR will have the same level of commitment to retaining them on staff.

Issue - Greater assurance to CEFOs of opportunities for advancement

Concur

Specific Means to Address or Implement:

The CEFO Supervisory Epidemiologists, in their role as mentors, will continue the support they provide editing scientific writing, advising on analytic methods, and assisting in identifying and ensuring that CEFOs can access relevant training (e.g., on-line or classroom CDC University courses).

The CEFO Program will continue supporting CEFOs when they are requested to take on larger responsibilities. For example, two are performing the duties of State Public Health Veterinarian, one is serving as Disease Control Division Director, and one has served as Acting Chief of the Communicable Disease Emergency Response Branch. These roles require CEFOs to use leadership and management skills and allow them to gain experience that enhances their professional development and improves their eligibility for professional advancement.

6. The CEFO Program should ensure CEFOs have a defined set of core competencies through:
(a) Defining the basic set of core competencies
(b) Ensuring this includes cross-cutting competencies such as leadership, policy analysis and development, and informatics
(c) Ensuring cross-discipline competencies, including environmental and chronic disease epidemiology, are addressed
(d) Ensuring continuous professional development through the CEFO tenure.

(a) Concur in principle

Specific Means to Address or Implement:

Sets of professional core competencies have been developed by expert groups in the domains of applied epidemiology, informatics, and public health preparedness and response. We will use two of these sets to identify competencies relevant for CEFOs. We plan to have the CEFOs complete a self-assessment of their competencies, based on:

- the Applied Epidemiology Competencies (AECs) developed by CDC and CSTE (http://www.cdc.gov/appliedepicompetencies/downloads/AEC_Brochure.pdf)
- the Public Health Preparedness & Response Core Competency Model developed by OPHPR and ASPH (http://www.asph.org/userfiles/PreparednessCompetencyModelWorkforce-Version1.0.pdf)

Then we will use this information to identify the areas where CEFOs have self-perceived proficiency and the areas where they have self-perceived gaps that may benefit from targeted training.

In taking this approach, we are not directly addressing the first item in the recommendation – define the basic set of core competencies. Instead, we're taking the competencies already developed by CDC in collaborations with CSTE and with ASPH, and using them as the basis to survey CEFOs about what they're expected to do, what they're good at, and what they want or need to get better at. Once we have that information, we would use it as the basis for defining CEFOs' competencies. We realize this is an indirect approach - first tell us what's expected of you and what you can and can't do well, then we'll decide what you're supposed to be able to do. But this is a practical way to address this issue.

(b) Concur concerning leadership and policy analysis and development
Concur in principle concerning informatics

Specific Means to Address or Implement:

The Applied Epidemiology Competencies (AECs) do include leadership and policy development.

Concerning informatics, informatics competencies for public health professionals (http://www.nwcphp.org/docs/phi/comps/phi_print.pdf) and competencies for public health informaticians (http://www.cdc.gov/InformaticsCompetencies/) have been developed. While it is important for CEFOs to have functional knowledge of how informatics supports public health practice, including public health preparedness, we do not expect CEFOs to be the leaders in providing that support for states. CDC's Division of Informatics Practice, Policy & Coordination is developing the first Career Informatics Field Officer (CInFO) field assignment, at the request of the Los Angeles County Department of Public Health, and the CEFO Program has provided advice and consultation for them.

(c) Concur in principle

Specific Means to Address or Implement:

Environmental and chronic disease epidemiology-associated competencies are included in the AEC basic public health science competencies. But for environmental epidemiology we are not certain whether the assessment form developed for the AECs will help accurately identify relevant strengths and gaps for CEFOs (What is it that you need to know or be able to do, that you currently don't know or can't do?). If not, we may need to develop or identify an assessment tool for this purpose.

(d) Concur

Specific Means to Address or Implement:

Concerning continuous professional development throughout the CEFO tenure, we will use the information on competencies to help determine which areas to address to enable career progression for individual CEFOs and enhanced contributions by them in their assignments.

7. CDC leadership should reinforce and expand the role of the CEFO as a facilitator of bi-directional communication and coordination between CDC and assignee jurisdictions.

Concur

Specific Means to Address or Implement:

We are continuing to encourage and enable CEFO participation in CDC workgroups and committees. For example:

- PHPR Strategic Plan implementation – One CEFO is participating in the working group focused on advancing surveillance, epidemiology, and laboratory science and service practices
- Community Assessment for Public Health Emergency Response (CASPER) Subject Matter Experts Conference – Three CEFOs participated in this CDC-sponsored 2-day meeting in November 2011 to review and improve the methods and tools for CASPER surveys
- State, Tribal, Local, & Territorial (STLT) Surveillance/Biosurveillance Work Group – This group has been organized by CDC's Public Health Surveillance Program Office to enable CDC's STLT partners to provide input on policy development and other issues relevant to design, implementation, and use of surveillance systems and data. The group has monthly teleconference meetings in which several CEFOs have participated as their time allows.

We are working with OPHPR's Division of Emergency Operations to develop a standard operational procedure for EOC - CEFO communications. The impetus for this comes from our experience during the Hurricane Irene response in September 2011. CEFOs in eastern states struck by the hurricane (Florida, North Carolina, Virginia, Pennsylvania, New York, Vermont, Maine) participated by teleconference in daily CDC staff meetings and were able to provide valuable "front line" updates about the storm's impact and the public health response. However, most of these CEFOs were also playing essential roles in their states' response activities, and it was difficult or at times impossible for them to participate fully in both roles.

8. The CEFO Program should ensure widespread dissemination of CEFO products.

Note: This recommendation follows these findings reported by the BSC Workgroup:

> "The workgroup heard testimony from stakeholders and CEFOs regarding CEFO enhancements in epidemiology systems, training, drills and exercises, etc. These work products, enhancements to system operations and other innovations developed by CEFOs were determined to be of value to the entire public health preparedness field."

Comment: We have done limited formal planning and implementation thus far for responses to this recommendation and the next one (#9); we have focused most of our time and effort on the preceding recommendations.

Concur in principle

Specific Means to Address or Implement:

These are some examples of CEFOs' contributions in preparedness and response:

- Use of CASPER surveys in non-disaster settings, thus obtaining health assessment data for communities while providing state and local health department staff with training and experience that prepares them to perform post-disaster surveys.

- Training of state and local health department staff to use Epi Info 7 software for outbreak investigations, post-disaster surveillance, and other public health needs. In addition, during a CEFO's temporary detail to assist epidemiologic capacity development in Haiti, she trained several local staff in use of Epi Info 7 as a key element in advancing their reportable disease surveillance from a paper-based system to an electronic one.
- Development of a partnership among a state's public health agencies, schools of public health, and healthcare organizations. Through shared support for staff training and student practicums they are strengthening epidemiologic capacity despite budget constraints and personnel shortages.
- Development of a statewide policy for hospital surge capacity, to coordinate public health, emergency response, and healthcare agencies' roles and responsibilities in disaster response.

We will begin or continue to disseminate information about these and other CEFO contributions (including work products, e.g. guidelines or protocols) by various routes, including:

- Presentations at scientific conferences
- Reports in scientific literature
- Summaries posted on the web, with links to more detailed information.

9. CDC and the CEFO program should enhance the visibility of the program by promoting the products of the CEFOs work, such as publishing an annual report demonstrating the success of the program.

Concur in principle

Specific Means to Address or Implement:

- We are drafting a manuscript, "Improving Epidemiologic Capacity in State and Local Health Departments: The CDC Career Epidemiology Field Officer Program" which will describe the CEFO program and its contributions to public health preparedness and response.

- As noted for Recommendation 8, sharing CEFO work at conferences, in publications, and via electronic media can serve to enhance program visibility.

Appendix D.

Extramural Research Programs Office (ERPO)
Program Response to Recommendations from the
OPHPR Board of Scientific Counselors Ad Hoc Mid-Project Peer Review of the
Preparedness and Emergency Response Research Centers (PERRCs) Program

BACKGROUND

An ad hoc Board of Scientific Counselors (BSC) workgroup performed an external peer review of the Office for Public Health Preparedness and Response (OPHPR)- funded Preparedness and Emergency Response Research Centers (PERRCs) Program review. The review included activities conducted within the first 2.5 years at seven PERRCs (Harvard School of Public Health, University of North Carolina, Johns Hopkins University, University of Pittsburgh, University of Washington, Emory University, and University of Minnesota; funded in September 2008). Activities conducted within 1.5 years were evaluated for PERRCs at the University of California, Berkeley, and University of California, Los Angeles (funded in September 2009). The workgroup was charged with the assessment of the functioning of the administrative core (Objective # 1), and progress of the individual and inter-related research projects of each PERRC toward achieving results for near term impacts on public health preparedness and response systems (PHPRS) (Objective # 2). This review was focused specifically on an evaluation of:

1. The conduct of required activities (as specified by the funding opportunity announcement (FOA) in the administrative core and the support and oversight of individual, inter-related research projects. Reviewers were asked to evaluate:
    a. The support and development of pilot research projects and new investigator training and the potential public health impact from these activities.
    b. The role of an established Advisory Committee and evidence that this body has provided meaningful support and guidance to research at the PERRC.
    c. Centralized scientific guidance and financial administration for the individual and interdependent research projects.
2. The progress in a PERRC's individual and inter-related research projects toward achieving original research goals and the potential for ongoing research to yield near-term results (3-5 years) to help strengthen practice in the public health preparedness and response system (PHPRS). In evaluating the research, reviewers will be asked to assess the:
    a. Development of transferable knowledge to improve the PHPRS or development of tools, models, and other practical applications for response to all hazards. This may include a consideration of:
        i. Evidence that the projects have yielded research findings that have been transferred to practice and helped improve preparedness and response capabilities and performance (e.g., as a result of research findings, practitioners have changed their behavior resulting in more effective or science-based approaches to practice).
        ii. The future potential for the projects to yield results that can be transferred to practice and improve or strengthen preparedness and response capabilities and performance.

b. The extent to which a public health systems research approach is used and the extent to which research partnerships are a key factor in achieving research results. This may include a consideration of the quality and quantity of:

i. Collaborations with state and local public health and organizations across the PHPRS

ii. A multidisciplinary research team

c. The adequacy of methods to disseminate research findings that are accessible and appropriate for multiple audiences, in particular public health preparedness and response practitioners and policy makers.

d. The metrics and indicators developed for this evaluation to illustrate and measure the impact of research outcomes on PHPRS.

The PERRC external peer review was conducted by a 7-member ad hoc BSC workgroup with two members of OPHPR's BSC serving as workgroup co-chairs and five invited expert reviewers external to the BSC. The workgroup met for 3.5 days on August 9 - 12, 2011 in Atlanta, GA. In a report to the BSC, the workgroup made 19 recommendations, of which two were overarching recommendations, eight related to the core (Review Objective #1), and nine related to the progress in individual research projects and evidence of impact (Review Objective #2). The findings and recommendation from the workgroup were presented to OPHPR's BSC in a meeting held on January 3, 2012. All the 19 recommendations were approved by the BSC.

The PERRCs' work is monitored by OPHPR's Extramural Research Program Office (ERPO or "the program"). The ERPO response to each BSC recommendation is provided below. The ERPO worked with PERRC Principle Investigators workgroup for their input on how to address the recommendations that require PERRCs active engagement for implementation. It is worth mentioning that it is the same workgroup that provided input to ERPO in developing metrics for PERRC mid-project review.

For the purpose of these program responses:
"**Concur**" – the ERPO agrees and has the funding, staff, and the resources to implement activities to address the recommendation
"**Concur in principle**" – the ERPO agrees, but at this time lacks the funding, staff, or other resources to implement the recommendation. In such cases, the ERPO has proposed activity(ies) to address the recommendation should funds become available. Further action would require additional OPHPR resources (necessary funding, staff, or other mechanisms to address the recommendation(s).

BSC RECOMMENDATIONS

OVERARCHING

1. Financial support of research centers should be continued to ensure sustained development of scientific evidence and research capacity in support of best practices for the field of public health preparedness and emergency response.

Concur

Specific means to address or implement

With resources available in FY2012, the ERPO will address this recommendation to the extent possible thru the following activities:

- Fund the continuation of PERRC program activities that are determined to yield the most promising results that can be translated to support best practices for preparedness and response
- Encourage PERRCs to seek funding from other sources. The existence of these research centers has enabled several investigators to attract more than $188 million in additional funding from USAID, USDA, NSF, NACCHO, Kaiser Foundation, Robert Wood Johnson Foundation, etc. (reported from PERRCs at Pittsburgh, UNC, Harvard, Washington, Minnesota, Emory, and Johns Hopkins). It is unknown how much, if any, of these funds are directed to addressing public preparedness and response research.
- Continue to actively identify and share information with PERRCs on potential funding opportunities and research collaborations, including potential public and private funding organizations that have aligned research interests. Examples of successful collaborations are given below:
    - ERPO connected UNC, Pittsburgh, and Minnesota PERRCs with DHS's National Center for the Study of Preparedness and Catastrophic Event Response
    - Washington PERRC is working with DHS in developing protocols and procedures related to sending public health emergency information via text messaging (SMS)
    - PERRC's connections across CDC resulted in additional funding from the CDC H1N1 Task Force to Pittsburgh PERRC ($336,720), OPHPR's Division of State and Local Readiness to Johns Hopkins PERRC ($299,656), and National Center for Injury Prevention and Control to Washington PERRC ($98,735).
    - A research collaboration was established between the Berkley PERRC and NCEH (Environmental Public Health Readiness Branch) to address chemical event preparedness and response-related research.

2. If additional funding were to become available for the existing PERRCs, priority should be given to funding centers that meet the following criteria:
• A record of exceptional past performance based on both the quantitative and qualitative metrics used in the mid-course review;
• The use of a truly multidisciplinary and systems based approach to research in public health preparedness and response;
• Presents a proposed research plan that addresses recognized needs in the field, that can be completed within the time frame of the additional funding, and that has the potential to yield results that can inform practice;
• Evidence of ongoing projects that are evaluating new interventions or comparing existing programs or practices to identify what works best.

Concur in principle

Specific means to address or implement

The PERRCs were funded under a competitive funding opportunity and grant policy requires that all selected grantees must be funded at some level if funds are available. The criteria detailed in this recommendation provide an order of priority for achieving program goals and will be considered within the context of departmental and agency regulations for funding research grant awards.

CORE
PILOT PROJECTS
3. A database of pilot projects completed by the PERRCs should be developed to include a description of the overall project, a summary of results, documented or potential impact of the results, an assessment of what worked and what did not work, lessons learned and recommendations for next steps. This information should be made broadly available to the research community.

Concur in principle

Specific means to address or implement
The program currently receives information regarding research findings, work products (final, published or public products intended for use and/or dissemination), and success stories related to the pilot projects in interim and annual progress reports. Additional resources are needed to retool an existing program database to expand the information collected on each of the pilot projects, conduct a synthesis of that information, and develop a mechanism to provide public access.

Pending the availability of resources to support these efforts ERPO will work with the PERRCs to determine: 1) the type of information or products that should be made available from CDC-funded PERRC research work and products, 2) when that information or product should be shared (e.g. pre- or post- publication), 3) the methods or venues for dissemination of this information (e.g. via internet homepages of PERRCs, ASPH, NACCHO, ASTHO, and OPHPR and newsletters of ASPH, NACCHO, OPHPR and ASTHO), and 4) the extent to which the PERRCs can develop this additional information and work with the OPHPR Office of Communication to develop a strategy for making the information publicly available.

4. Any future PERRC funding opportunities should continue to encourage grantees to consider the balance and diversity of research partners and populations served in the selection of pilot projects.

Concur

Specific means to address or implement
The Pilot projects have involved research partners from across the public health system (e.g., 11 in case of Minnesota's three Pilot projects), and have served different geographic areas and different types of at-risk populations (e.g., University of Pittsburgh's pilot and supplemental studies of vaccine acceptability among minority populations, UNC pilot studies

about communicating emergency information to homeless populations, Washington PERRC pilot studies about communicating public health emergency information to Limited English Proficiency populations, etc.). The PERRCs that elected to continue pilot projects, despite funding cuts, were advised to address the diversity consideration in their selection process, e.g., PERRCs at the University of California at Berkeley and Los Angeles.
The program is also addressing this recommendation by including the following points in guidance sent to the PERRCs for preparing their progress report and FY 2012 applications for continued funding:

- Consider the balance and diversity of research partners and populations served in the selection of pilot projects if funding is available for this activity in the future.
- Describe in the interim and annual progress reports the diversity in the partners participating in and populations served in completed pilot projects.

NEW INVESTIGATORS

5. While the PERRCs have been successful in engaging new investigators from varied disciplines in their work, they should pay particular attention to ensuring greater diversity, especially of under-represented minorities.

Concur in principle

Specific means to address or implement
ERPO concurs in principle with this recommendation. PERRCs have engaged new investigators from at-risk and under-represented minority populations, including deaf and hard of hearing (UC Berkeley) and minority populations (e.g., University of Minnesota, and Harvard University). However, this was not a requirement stipulated in the FOA for the PERRCs, and extensive data on the level of diversity among the new investigators has not been captured. To address this recommendation, the program will encourage the PERRCs to make greater efforts to ensure diversity among new investigators through the following:

- Include institutions that represent under-represented minorities (listed on US Department of Education site http://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html) in their call for applicants if funds are available for this activity in the future.
- Report their efforts to ensure diversity among new investigators in their interim and annual progress reporting

6. PERRCs should track the extent to which new investigators retain their involvement in public health preparedness and emergency response research. Overall, PERRCs should develop a more systematic way of assessing the impact of PERRC training on the careers of researchers who are new to the field.

Concur

Specific means to address or implement
ERPO concurs with this recommendation. ERPO has taken the initiative to track new investigator involvement by assessing the impact of PERRC training on the careers of new investigators by tracking publications, conferences proceedings/abstracts, and other type of

products or tools where new investigators' work was involved, as reported by PERRCs in interim and annual reports. ERPO will compile a list of new investigators trained in PERRCs and will track their research interest based on their future publications in peer reviewed journals. ERPO will update the list semiannually.

It is important to note that without significant PHPRS research funding, it is difficult to attract and retain researchers. With diminishing research funding, new investigators will look for opportunities in other fields there will be long-term career benefits even if not directly linked to public health preparedness science.

7. If there are future funding opportunities for research in PHPRS, they should continue to encourage awardees to train new investigators and students, in order to grow the multidisciplinary field of PHPRS researchers.

Concur in principle

Specific means to address or implement
To address this recommendation, as allowed by departmental and agency regulations for funding research grant awards and as appropriate for the objectives of the research initiative, OPHPR will include language in future PHPRS-related FOAs to encourage applicants to train students and new investigators . For example, as appropriate, this criterion can be included as a FOA Additional Review Criterion, and considered among the funding priorities during the programmatic review of applications.

ADVISORY COMMITTEES

8. As appropriate, PERRCs should consider enhancing the involvement of: the business community, elected officials, public safety professionals and emergency management personnel. In addition, they should ensure representation of academics from disciplines often under-represented in public health preparedness and response systems research (e.g., business, engineering, psychology, sociology, anthropology, political science, economics, social work, and other health science professionals).

Concur in principle

Specific means to address or implement
To address this recommendation the program will encourage the PERRCs to enhance the involvement of members, as appropriate, from these other areas. Current Advisory Committee membership across the PERRCs include individuals from diverse disciplines, who have been involved since the start of the PERRCs (including the disciplines called-out in this recommendation), and have a depth of knowledge of the PERRCs. At this point in time, the PERRCs are winding down their research projects and there may be less benefit from adding new advisory members. However, in guidance sent to the PERRCs for preparing their progress report and FY 2012 applications for continued funding, ERPO has included language encouraging the PERRCs who are rotating in new Advisory Committee members to consider filling the gaps with individuals representing the range of disciplines and domains mentioned above, especially as relevant to the research areas of the PERRC.

9. The workgroup encourages greater use of project-specific advisory groups where appropriate. The expanded participatory advisory committee concept already adopted by some PERRCs, with greater committee "hands-on" project participation is a good one worth expanding.

Concur in principle

Specific means to address or implement
PERRCs will continue to use project-specific advisory groups to the extent possible. Those independent projects that do not have specific advisory groups will be encouraged to continue to obtain advice or input on the research from partners and organizations across the public health system at conferences, meetings, and through other avenues. The PERRCs are winding down their research projects and there may be less benefit from establishing a new advisory group or creating new project-specific advisory committees at this point in the project cycle.

COLLABORATION ACROSS CENTERS

10. Mechanisms should be created to enhance networking of both new and established investigators across centers. These mechanisms could include:
A) Development of a searchable database of PERRC investigators to include their research interests and disciplinary focus
B) Implementation of a web-based forum to allow investigators to interact with each other around specific topics of mutual interest
C) Development of a clearinghouse of surveys, tools, research findings that can be accessed by PERRC investigators
D) Development of monthly webinar series organized by topic areas or cross cutting research themes for the PERRCs to share research results and lessons learned

A. Concur in principle
B. Concur
C. Concur in principle
D. Concur in principle

Specific means to address or implement
ERPO concurs in principle with the recommendation to create mechanisms for enhancing the networking of investigators across centers. Some of the suggested mechanisms are already in place. For example, ERPO holds networking sessions of PERRC investigators across centers during PERRC annual meetings, the NACCHO Public Health Preparedness Summit (2011, 2012), and the Public Health Services and Systems Research Keeneland Conference (2010). These meetings have been excellent venues for fostering networking, and the program will continue to do so to the extent possible.

A) Significant resources will be needed to develop any searchable database. As an alternative the ERPO will engage the ASPH to determine their ability to develop a Microsoft Excel or Access file and provide this information to PERRC investigators thru the secure

PERRC Workgroup site http://workgroups.asph.org. If possible, we could then request updated information about research interests and disciplinary focus from all PERRC investigators

B) A secure web-based forum for PERRCs already exists at http://workgroups.asph.org and was made available by the ASPH at the program's request. All PERRC investigators were provided with login credentials for free access to the site. ERPO is working to encourage the PERRCs' use of this site by posting program-related announcements and documents on the ASPH workgroup website.

C) To address this recommendation, the ERPO will engage the ASPH to determine their ability to develop, with the help from PERRCs, a clearinghouse of surveys, tools, and research findings. If possible, ERPO would then work with ASPH to make this information available, with consent from PERRC investigators to post any unpublished data collection methods and findings, on the ASPH website http://workgroups.asph.org. The access to that site is restricted to PERRC investigators to safeguard PERRC investigators' intellectual property.

D) The ERPO established monthly webinars at the beginning of the program. During the subsequent Annual Program meeting, the PERRCs expressed their lack of enthusiasm about continuing the webinar series because of the time commitment in preparing for them. Alternatively, the ERPO has encouraged PERRC investigators to visit CDC to give seminars on their research depending on their funds and availability. Since May 2010, the ERPO has featured eight seminar presentations at CDC, which are also scheduled as webinars to allow other PERRC investigators, collaborators and practice partners at state and local health departments to participate. ERPO has arranged PERRCs participation/presentations in the monthly Biosurveillance Forum meeting of CDC's Office of Surveillance, Epidemiology, and Laboratory Services. In addition, the program has collaborated with OPHPR's Division of Emergency Operations to feature PERRC webinar presentations thru the Clinician Outreach Communication Activity (COCA) calls with clinical practitioners. In 2012, the ASPH will host four PERRC webinars that will be advertised to a much wider audience of public health researchers and practitioners including those from the state and local health departments. To further address this recommendation the ERPO will explore the availability of resources and level of participation for reinstituting a monthly webinar series with the PERRCs that is organized by comparable topic areas and/or cross cutting preparedness themes for the PERRCs to share research results and lessons learned.

PROGRESS IN INDIVIDUAL RESEARCH PROJECTS AND EVIDENCE OF IMPACT (Review Objective # 2)

11. OPHPR should work to develop an updated research agenda for public health preparedness and response systems. The updated agenda should build upon the IOM recommended research priorities that are the focus of the PERRCs. Future funding opportunities for research in PHPRS should emphasize the following:

- **Systems research that addresses the challenges of integrating across the components of the public health system**

- **Interventional research (i.e. development and evaluation of new interventions)**
- **Comparative effectiveness research (i.e., comparing what practices work best for whom and why)**
- **Translational or implementation research (i.e., research into the barriers and facilitators of implementing strategies of proven efficacy across different settings and at-risk populations).**
- **Mechanisms to encourage collaboration on joint research projects among awardees**

Concur in principle

Specific means to address or implement

ERPO is conducting a systematic assessment of research that has been funded by OPHPR over the last five years. The report from this assessment is intended to provide foundational information to support the development of an updated preparedness research agenda for OPHPR. The report will discuss the outcome of previous research and how these results could be expected to contribute to preparedness and response practice. A workgroup of practice partners, including preparedness systems researchers, is planned to provide some insight on additional needs to be addressed with an agenda for new research. ERPO is planning to share the report with BSC in early 2013.

ERPO recognizes the scientific values of the recommendation # 11A-D and will discuss with OPHPR leadership how this recommendation may influence our research agenda.

IMPACT OF RESEARCH

12. In moving forward, there should be greater emphasis on demonstrating impact at the regional and national levels.

Concur in principle

Specific means to address or implement

The ERPO is requesting the BSC to provide clarification whether "regional level" impact references the 10 HHS regions or other. The ERPO will continue to work with the PERRCs to assess and demonstrate the impact/potential impact of research findings at the regional and national level, such as the information that presented to the Ad Hoc Workgroup in the Research Impact Briefs. Although a limited selection of Research Impact Briefs (only one per PERRC) appeared in the program review materials, other examples exist

To further address this recommendation, the ERPO is currently developing a framework for translating PERRC and other OPHPR-funded research findings to preparedness practice, (anticipated to be available in early 2013). Implementation of the framework is intended to help OPHPR reach a broader audience of preparedness and response practitioners and facilitate the use of science-based evidence to impact preparedness practice on the regional and national level.

13. As future funding opportunities for research in PHPRS become available, priority should be given to demonstrating longer term impact and scalability of interventions and strategies.

Concur in principle

Specific means to address or implement
ERPO concurs in principle with the recommendation. ERPO will work with the Office of Science and Public Health Practice, PHPR's Division of State and Local Readiness, and the Office of the Director to determine how best to address this recommendation when future funding opportunities for PHPRS research become available. Efforts to address this recommendation are subject to conditions set forth by departmental and agency regulations for funding research grant awards and as aligned with the objectives of the applicable research initiative. ERPO has included in the guidance that is sent out to PERRCs for their progress reporting a request to identify the research outcomes that are expected to have a long term impact, and the potential for scalability.

14. The further development and dissemination of research impact statements should be given priority over the next 12-18 months. These impact statements should be used more effectively to engage with key policymakers and decision makers at the state and local levels.

Concur

Specific means to address or implement
The ERPO will:

- Continue working with the PERRCs to update the Research Impact Briefs that have already been developed.
- Engage the PERRCs in determining additional examples of research impacts and develop a timeline to prepare additional briefs for other research outcomes. In some situations, the dissemination of some of the briefs may need to wait until the research results have been published in peer-reviewed journals.
- Work with the OPHPR Office of Communication and the Office for Policy and Program Evaluation, with input from the PERRCs, to develop a strategy for using these briefs more effectively to communicate the preparedness and response impact of PERRC research. For example, hard copies of PERRC approved briefs were shared with practitioners at the 2012 Public Health Preparedness Summit. This strategy may identify more effective ways to use the briefs to engage relevant policymakers and decision makers.
- After the Briefs-related information has been published in peer reviewed journals or the investigators give consent to share the Briefs containing unpublished research findings, these documents will be posted on secure ASPH website http://workgroups.asph.org to share among all PERRCs.

15. Wherever possible, PERRCs should use well-established methods for constructing case examples for return on investment (ROI) of their research.

Concur in principle

Specific means to address or implement
ERPO will encourage the PERRCs to develop examples of ROI, to the extent possible, from the varied research outcomes. There is one example from UNC PERRC where research evidence suggested changes to improve the use of regional response teams and the NC surveillance systems. The state health department implemented changes based upon the research outcomes and saved one million dollars, a 30% savings. Due to the reduction in UNC PERRC funding, plans to evaluate the benefits of implementing that change have been placed on hold.

To further address the recommendation, during the PERRC annual meeting (Feb 20, 2012), the ERPO encouraged the PERRCs to find ways to demonstrate ROI in their research, if their resources allow to do so. The construction of case examples on ROI can be considered in future FOAs, as another way to address this recommendation.

DISSEMINATION

16. OPHPR should establish a working group of PERRC investigators and key stakeholders to develop a strategy for dissemination that can be implemented over the next 12-18 months. Particular attention should be paid to developing a strategy that will reach underrepresented minority groups and organizations involved in preparedness (e.g., minority-serving institutions, Historically Black Colleges and Universities, National Association of Black Social Workers). The workgroup should work closely with experts in communication and best practices in dissemination and translation. In developing the strategy, attention should be paid to clearly defining target audiences and how best to convey findings to those audiences, in terms of both dissemination channels and re-packaging the content to be practice friendly and relevant to the audience.
The strategy should also be sensitive to the framework of the public health paradigm (e.g., essential public health services) to ensure relevance to the broad public health community.

Concur in principle

Specific means to address or implement
Dependent on the availability of resources, ERPO would like to conduct the following activities to address this recommendation:

During the Annual PERRC Program Meeting, the ERPO discussed with PERRC PIs the idea of establishing a workgroup of PERRC investigators and key stakeholders, to ensure that the dissemination of research outcomes reaches underrepresented minority groups and organizations, such as those listed on US Department of Education site http://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst.html and elsewhere. Although it was agreed that was a worthwhile endeavor, the PERRC PIs cited the lack of resources for such an effort-intensive activity.

ERPO has consulted with OPHPR's Office of Communication about developing proposals for disseminating research findings to make them accessible to the practice community. ERPO will involve preparedness practice stakeholders in a workgroup to provide input on a framework to facilitate the dissemination and translation of research findings to the practice community.

17. The workgroup felt strongly that a robust website should be an important component of any dissemination strategy. The website should be accessible to key audiences and include PERRC research findings, practice tools, peer-reviewed articles, abstracts, pilot projects, and new investigators. An example of a website that could be emulated in part was the Cancer Control P.L.A.N.E.T. website (e.g., http://cancercontrolplanet.cancer.gov/).

Concur in principle

Specific means to address or implement

ERPO does not have the resources needed to develop a site comparable to the Cancer Control P.L.A.N.E.T. at this time. ERPO continues to use alternate means for dissemination. For example the ERPO arranged to post a brief statement about the Washington PERRC's research findings about text messaging during emergencies (in the format of video series) in the Public Health Preparedness and Response Connector newsletter. This information was then picked up and widely disseminated via newsletters from the Division of Strategic National Stockpile, and the Division of State and Local Readiness. In other instances PERRC findings have been disseminated through publications by ASTHO and NACCHO.

The ERPO presented these examples to the PERRCs during the Annual Program Meeting (February 20, 2012). ERPO encouraged PERRCs to prepare brief statements about their research findings that can be comparably disseminated, and to identify other active approaches for dissemination of PERRC findings. The ERPO has reached to the OPHPR Communications Office for assistance to develop a strategy and initiatives to better disseminate PERRC findings.

At present, ERPO has a website (www.cdc.gov/phpr/science/erp_PERRCs.htm) that is accessible outside CDC. This website has links to the individual PERRCs homepages and includes a list of the peer reviewed articles published by the PERRCs with links to freely-available articles or a link to PubMed for other articles. The site is regularly updated. The list of publications is organized by IOM PHPRS research priorities as well as by the cross-cutting priorities.

18. The broader CDC community should become more knowledgeable of the PERRCs, their activities and the implications of their research for public health practice more broadly (beyond preparedness and emergency response). OPHPR should collaborate with PERRCs to organize a seminar at CDC that would attract a large and diverse audience.

Concur

Specific means to address or implement

Some examples of CDC community's knowledge of the PERRC activities and resulting CDC-PERRC collaborations are provided in our response to the recommendation number 1. A series of PERRC seminars has been organized at CDC since May 2010. The announcement about the PERRC seminars is made CDC-wide. In addition, CDC programs known to have a direct interest in or current work on the PERRC research topic are invited to schedule in-person meetings with the PERRC presenters during their visit and seminar announcements are targeted to specific program areas that have some relation to the public health research outcomes or approach. These seminars have been well attended (with more than 50 attendees in person and thru LiveMeeting). These presentations are also scheduled as webinars so that the CDC community at different campuses and field staff around the country can have access.

To further address this recommendation, ERPO will initiate a program effort to work with all of the PERRCs to identify CDC program areas related to their research outcomes and will proactively share research information with CDC investigators to facilitate some interest and potential collaboration.

METRICS USED FOR EVALUATING PERRCs

19. Overall, the metrics developed by ERPO with input from the PERRCs are appropriate and comprehensive. Caution should be used in their interpretation as many of the indicators are merely counts of activities and do not address issues of quality. These metrics will be useful in benchmarking future progress. If new metrics are needed in moving forward, a similar process to develop new metrics should be used but with greater attention to quality and not just quantity.

Concur in principle

Specific means to address or implement

ERPO recognizes the limitations of interpreting quantitative data by itself. The survey of PERRC program outcomes requested both quantitative and qualitative data and results from both were analyzed and interpreted in the report. In the event there is a need of developing additional metrics ERPO will continue to pay greater attention towards developing appropriate and comprehensive qualitative metrics to measure impact of PERRCs research on quality of preparedness and response.

Appendix E. Acronyms

AMT	Anthrax Management Team
APHL	Association of Public Health Laboratories
ARRA/HITECH	American Recovery and Reinvestment Act/Health Information Technology for Economic and Clinical Health Act
ASPH	Association of Schools of Public Health
ASPR	Assistant Secretary for Preparedness and Response (HHS)
ASTHO	Association of State and Territorial Health Officers
BSC	Board of Scientific Counselors
CDC	Centers for Disease Control and Prevention
CEFO	Career Epidemiology Field Officer
CSTE	Council of State and Territorial Epidemiologist
DEO	Division of Emergency Operations (CDC)
DHS	U.S. Department of Homeland Security
DOD	Department of Defense (also DoD)
DSAT	Division of Select Agents and Toxins (CDC)
EHR	Electronic Health Record
ERPO	Extramural Research Program Office (CDC)
ExO	Ex Officio
FACA	Federal Advisory Committee Act
FDCH	Federal Document Clearing House
FOA	Funding Opportunity Announcement
FRO	Financial Resources Office (CDC)
HPP	Hospital Preparedness Program
HHS	U.S. Department of Health and Human Services
IOM	Institute of Medicine
IT	Information Technology
LO	Learning Office (CDC)
LRN	Laboratory Response Network
MASO	Management Analysis and Services Office (CDC)
NACCHO	National Association of County and City Health Officials
NCEH	National Center for Environmental Health
NCEZID	National Center for Emerging and Zoonotic Infectious Disease
NCIRD	National Center for Immunization and Respiratory Diseases
NIHB	National Indian Health Board
NIH	National Institutes for Health
OD	Office of the Director
OID	Office of Infectious Diseases (CDC)
OPHPR	Office of Public Health Preparedness and Response (CDC)
OPPE	Office of Policy, Planning, and Evaluation (CDC)
OSPHP	Office of Science and Public Health Practice (CDC)
PERRC	Preparedness and Emergency Response Research Center
PAHPA	Pandemic and All-Hazards Preparedness Act (PL 109-417)
PHEP	Public Health Emergency Preparedness