

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

SUMMARY REPORT / RECORD OF THE PROCEEDINGS
MARCH 25-26, 2015
ATLANTA, GEORGIA

Table of Contents

Welcome & Call to Order / Introductions & Opening Remarks	3
Roll Call & Review of FACA Conflict of Interest	3
OPHPR 2015 Priorities.....	4
Interval Updates – OPHPR Division Directors	5
OPHPR Policy Update.....	11
Preparedness Updates from Liaison Representatives.....	15
CDC Response to Ebola: Overview and Discussion of Issues Arising From Long-Term Outbreak Response	16
Mental Health Response to Community Disasters.....	22
Welcome & Call to Order/ Roll Call/Review of FACA & Conflict of Interest.....	31
National Health Security Preparedness Index (NHSPI) Update	31
Hurricane Sandy Recovery Initiative.....	35
Impact Measurement in Preparedness and Response.....	39
CDC Red Sky	41
Meeting Recap and Evaluations, Action Items and Future Agenda	44

CENTERS FOR DISEASE CONTROL & PREVENTION
OFFICE OF PUBLIC HEALTH PREPAREDNESS & RESPONSE
BOARD OF SCIENTIFIC COUNSELORS MEETING

Building 19, Auditorium B3
Roybal Campus, Tom Harkin Global Communication Center
1600 Clifton Road, NE,
Atlanta, GA 30303

Wednesday, March 25, 2015 (Meeting Day 1)

Welcome And Call to Order / Introductions AND Opening Remarks

Thomas Inglesby, MD; Chair, OPHPR BSC

Chair, OPHPR BSC called the Board of Scientific Counselors (BSC) Meeting to order at 10:03 AM.

Several Centers for Disease Control and Prevention (CDC) staff members and members of the general public also provided introductions.

Dr. Inglesby said it has been an extraordinary year that has exhibited the need for emergency preparedness and showcased CDC's response to emergencies. The purpose of the BSC Meeting is to provide advice and guidance to CDC in regards to emergency preparedness and response.

Roll Call and Review of FACA Conflict of Interest

Samuel Groseclose, DVM, MPH; Associate Director for Science, OPHPR and Designated Federal Official, OPHPR BSC

Dr. Groseclose conducted an official roll call of all BSC Members and Ex Officio Members. Quorum was present.

Members must be present during any voting periods; therefore, members were asked to notify Dr. Groseclose before leaving portions of the meeting to ensure that quorum is maintained. The meeting was led by Dr. Inglesby, the Chair. Discussions and deliberations were among BSC Members, Ex Officio Members, and Liaison Representatives. The public was allowed to comment during the Public Comment portion of the agenda only. All speakers were asked to identify themselves. All participants agreed to have their comments monitored and recorded.

Dr. Groseclose reviewed the BSC responsibilities as per its charter. Members were asked to identify any conflicts of interest. Dr. Tom Inglesby has two funded CDC projects: study investigating public health and health care sectors "lessons learned" from Superstorm Sandy and a project developing and validating PPHR and community resilience indices.

OPHPR 2015 Priorities

RADM Stephen C. Redd, MD; Director, OPHPR

Dr. Redd, who is the New Director of the Office of Public Health Preparedness and Response (OPHPR), gave a brief overview of his past work and time at CDC. Dr. Reed has been with CDC for 30 years and is trained in medicine. His clinical work was conducted at Grady Memorial Hospital.

Most of his work at CDC has been in the area of infectious disease, where he has held several positions. In 2014, he served as the Acting Deputy Director of OPHPR for several months. Yet, even with his extensive years at CDC, he was surprised at the number of activities that occur within OPHPR. The response to the Ebola crisis really showcased the amount of expertise and partners that CDC can bring to the table. His interface with the Select Agents and Laboratory Safety Programs was one of the highlights of his present position. He has learned a lot from the experience.

There are three priorities established around Ebola and efforts to contain and eliminate the problem in Africa, as well as keeping the United States at a zero-disease status. The first goal is to make the response process as seamless and “crisp” as possible. Second is to measure the impact of OPHPR’s work in order to examine its effectiveness in a response. The third priority is to focus on partnership efforts and use human resources effectively. He noted that the Ebola response has also caused greater interest from other CDC Divisions and increased requests to collaborate with OPHPR.

Dr. Redd said he was impressed with expertise on the Board. His goal is to increase BSC meeting participation from CDC Divisions outside of OPHPR, who can provide very rich information. He hopes this initiative will be part of the focus for future BSC meetings. The BSC allows CDC to hear the voices of external partners which will help CDC change and critique its processes.

SGE: *I thank you for the invitation to allow us to impact OPHPR. I find that boards are more useful when the agency that’s seeking the advice finds it to be valuable and when the members feel like they have something to contribute.*

SGE: *Having experience in several areas of CDC, what are best practices around leveraging and engaging partnerships amongst federal, private sector, and public sector? How are you thinking about those opportunities?*

CDC: *There’s a lot of things we can do to get ready for events and opportunities to practice for those beforehand so that creativity doesn’t have to be applied to things that could have already been built. However, it is important to also have some flexibility or ability to change course if deemed necessary. The goal overall is to be able to do both of those while ensuring an exemplary response.*

Interval Updates – OPHPR Division Directors

Jeff Bryant, MS, MA; Acting Director, Division of Emergency Operations

The first decade after 9/11 has been focused on building an emergency management program (EMP). The EMP was originally developed through a peer-review process. The goal now is to strengthen the programs and processes developed nationally and internationally.

Some priorities were set out at the beginning of the EMP. Priority 1 was to deal with workforce development from 2013 to 2016 through a training system designed to achieve the core competencies and provide a role-appropriate emergency management curriculum. Priority 2 focused on program development, from 2013 to 2016, by strengthening the EMP through adherence to the national Emergency Management Accreditation Program (EMAP) Standards.

The year 2014 was not all about Ebola. There was progress seen in Africa as it relates to polio and MERS, which continues to be monitored globally. There has also been a drop in the number of unaccompanied minors into the United States thanks to help from FEMA. But Ebola did occupy most of 2014. The most heavily affected countries were Guinea, Sierra Leone, and Liberia. There are 328 individuals currently deployed. A day of response normally deploys 450 staff members.

The EOC capacity development efforts are addressing workforce, infrastructure and systems. It tries to consider the country's baseline and determine what can be done to be at least minimally successful. This endeavor is not achieved by using a U.S. vision, but is modified to fit what is being seen on the ground and with input from country partners. Efforts are underway in the Ebola-affected area to install a large communication suite that will be managed through the Cloud.

The Division is currently working with the World Health Organization (WHO), the Department of Defense (DoD) and other governmental and nongovernmental stakeholders to leverage collaboration and to bring their expertise to the table in order to create a coordinated response. In a matter of hours, the DEO can be across the country or the world. Seventeen countries have signed-on to receive assistance via the Global Health Security Agenda and are considered to be Tier one countries. Work has been conducted in 11 countries, but there's still more work to be completed.

DEO intends to finish strong in the polio and Ebola work. The DEO is also examining its current practices in an effort to become more effective and efficient during responses. It will continue to enhance partnerships and continue staff development to further its success.

Below is a list of recommendations made:

SGE: *I think there's a need to do an assessment on communications and risk communications.*

Liaison: *This area requires a lot of conversation and attention. I am eager to learn more about how you communicate with the states and their EOCs.*

SGE: *Remember as complexity increases, clarity around roles and responsibility tends to decrease. Not increasing that clarity will cost you time. You should implement processes to ensure that that does not become a barrier.*

SGE: *The international response framework needs to also be examined.*

SGE: *There are opportunities left to think about response and recovery and how to do that effectively. Preparedness helps to do both of those well. There's a lot of paralysis when there's an emergency, but we have a library of resources and lessons learned from past crises. We need to look at those and learn from them. The challenge is to build a system that will allow people to plug in and unplug in a coordinated way to help address an event.*

Robbin Weyant, PhD; Director, Division of Select Agents and Toxins

Figure 1 below illustrates the many ways that DSAT was utilized during the Ebola Response. As a result of the response, many new partners have been brought to the table.

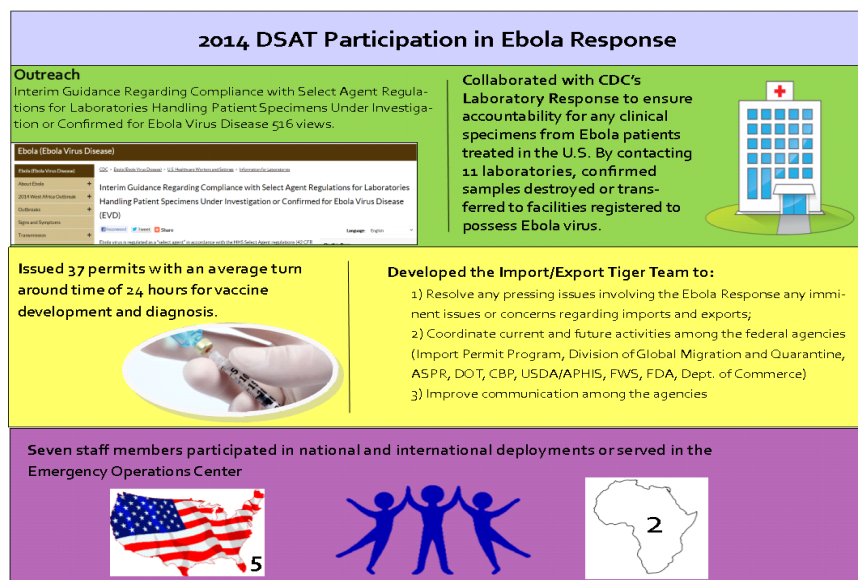


Figure 1

Between 2005 and 2012, there were 1,059 APHIS/CDC Form 3 Release reports submitted to CDC. There were 531 from registered entities and 528 from entities exempt from the select agent regulations. In addition, 3,780 potentially-exposed workers were reported; 10 laboratory acquired infections were reported: 5 from registered laboratories and 5 from laboratories exempt from select agent regulations. There was no evidence of transmission to the general public.

Incident reports can be separated into three categories: no workers exposed, single worker exposed, and multiple workers exposed. Single worker exposures are more likely to occur in regulated settings and multiple worker exposures were more commonly reported from non-regulated facilities. The Division is examining ways to reduce these events.

Last summer, three notable biosafety incidents occurred. From June 6 - 13, CDC responded to an incident of *Bacillus anthracis* mishandling (Figure 2), and from March to July 9 an incident involving shipment of CDC flu lab specimen contaminated with the Avian influenza H5N1 occurred (Figure 3). On July 2, there was the discovery of Variola virus at a Food and Drug Administration (FDA) facility on the National Institute of Health campus.

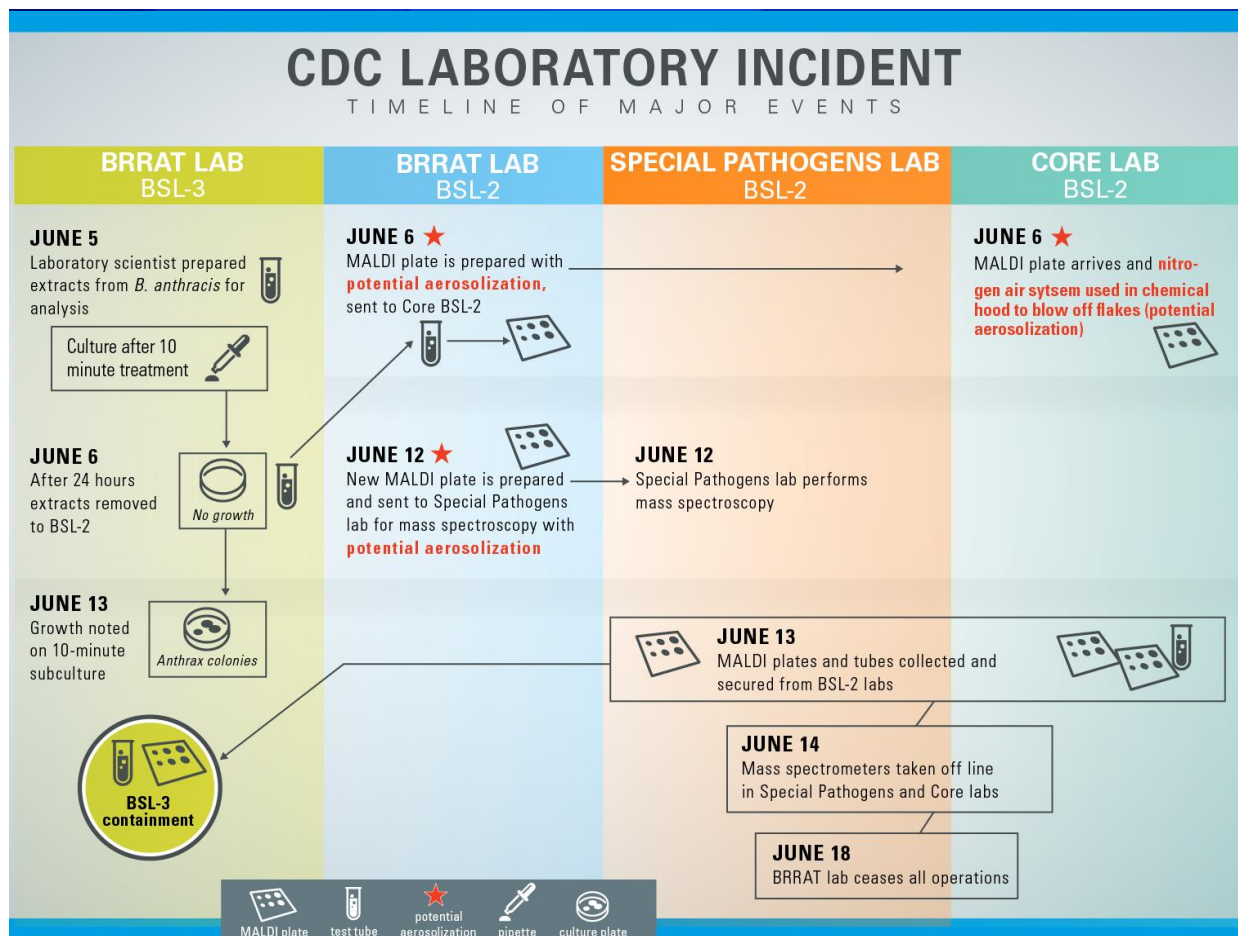


Figure 2

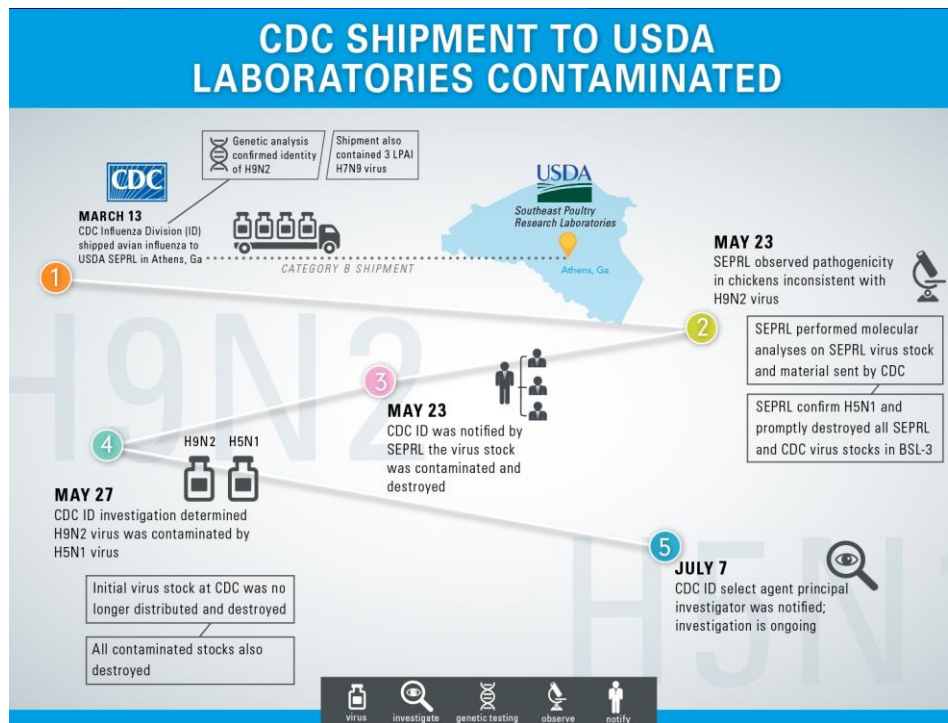


Figure 3

In response to these incidents, on August 28, 2014, the White House released a memorandum from John Holdren, Assistant to the President for Science and Technology, and Lisa Monaco, Assistant to the President for Homeland Security and Counterterrorism, calling for enhanced biosafety and biosecurity measures. The Holdren-Monaco memo calls on federal agencies to take three immediate actions:

- Conduct a comprehensive review of current biosafety and biosecurity protocols to ensure adequacy and appropriateness for today's infectious disease research
- Inventory and document culture collections
- Increase attentiveness throughout research community to ensure the safety of laboratory workers and the America public

In response to the Memorandum, DSAT assisted the White House Office of Science and Technology Policy and the National Security Staff with the government "Safety Stand Down" by ensuring the discoveries of select agents and toxins in unregistered space were appropriately secured or destroyed. The Office also coordinated activities of the Regulatory Working Group of the Federal Experts Security Advisory Panel and participated in an external stakeholder process to assess the benefits and burden of the Select Agent Regulations.

In the future, DSAT will carry out the following initiatives to strengthen biosafety and biosecurity:

- New verification inspection paradigm to focus on worker knowledge of entity biosafety and biosecurity policies
- Update the National Select Agent Registry and CDC Import Permit databases to allow for the more efficient management of information
- Review select agent regulations to optimize the assignment of responsibility for biosafety at regulated entities

DSAT briefed attendees at the U.N. Meeting of Experts of the Global Health Security Agenda convention on the implementation of U.S. regulations for personnel suitability and engaged in assisting the government of the Republic of South Africa in improving the South African import/export program. As a result of this assistance, the back log of permits was reduced by 95% and the time it takes to process permits was shortened by up to 88%.

The 2015 Global Health Security Agenda includes improving the nations' laboratory security capabilities and making people around the world safer from threat of unintended release of these deadly pathogens using onsite consultation, as well as, training and outreach efforts. DSAT has received authorization and funding for development of national bio-risk evaluation and monitoring programs in the Republic of Georgia and Thailand. Thailand was visited the week of March 9 and the Georgia visit is scheduled for April 2015.

The BSC provided the following recommendations:

Liaison: *In the last couple of years, it seems as if state health departments have been left out of the Form 3 SAT release notification loop. Can we add a notification to the state?*

CDC: *We do have a process that can work for that and we can look at how to expand that program.*

Liaison: *It could be a SAT Form Four notification process is also used for Form Three reports.*

Chris Kosmos, RN, BSN, MS; Director, Division of State and Local Readiness

The overarching theme in DSLR is state and local preparedness for its partners. Ensuring the impact of DSLR's work is front and center and includes increasing the use of the PHEP, ensuring readiness, translating the science, filling the gaps in the field and serving as a two-way conduit to enhance communication and response, as well as strategic alignment with DSLR.

There have been some accomplishments to report:

DSLR had to struggle but did achieve the goal of defining impact at the state and local level. Comparing capabilities pre-9/11 to existing capabilities helps highlight the achievements made. Ms. Kosmos reflected on her work in Chicago's Emergency Operations Center (EOC) pre-9/11. At that time, there were very few plans and no platforms for response. A committee was created to build an infrastructure framework that exemplifies how state and local preparedness would look.

DSLR recommends capabilities that states and locals need to have in order to effectively use the MCMs. A tool is being developed to assess and improve operational readiness in the states when utilizing MCMs.

Involvement of several state initiatives around Ebola responses.

DSLR has worked diligently with its state partners and SNS to be equipped and have advanced mechanisms in place. It stood up an active monitoring process in a record-breaking time and disseminated it to CDC's partners first for vetting and feedback. DSLR has monitored over 10,000 travelers and accomplished the feat without funding being in place; however, funding needs to be addressed so that it can be provided quickly during a response.

The Division is ensuring proper, seamless assessment and treatment processes by developing a tiered system for hospitals and has designed this health care guidance with ASPR. There have been many national conference calls (over 8,000 partners participating) and weekly team meetings. Supplemental Ebola funding came in two separate awards, which is the best that could be done at that time.

Several challenges have been identified:

DSLR needs to make sure it has the same communication and healthcare response and same organized approach as that used with ASPR and the public health system. There is also a need to identify any remaining gaps in a comprehensive communication and healthcare response.

Methods need to be devised to better contrast capabilities of the past to the future in light of improved processes, systems and technologies. There's a need to tell the story of PHEP highlighting successes. A needs-based strategy is desired for placing preparedness staff within the state and local public health departments to build preparedness and response capacity. Every jurisdiction finds these resources helpful.

BSC Recommendations:

Liaison: *I continually hear that community preparedness and resilience are intertwined. I would like to either discuss it or put it on the table for future discussions. Healthier communities are always more successful and resilient.*

SGE: *An organizational design specialist should be added in your work. Organizational design has to become integrated in the culture. Have a competition with the division to see who can provide the best design.*

Steve Adams, MPH; Deputy Director, Division of Strategic National Stockpile

The Division of Strategic National Stockpile (SNS) has addressed the following recently:

Anthrax 60-day planning. There's a detailed plan for DSNS' response to large scale anthrax release which was completed in 2014. Significantly updated requirements and assumptions now exist based on current information from CDC's Anthrax SMEs. Socialization of the plan is ongoing but has been delayed by the Ebola response.

Private-sector pilot with Walgreens. This is a partnership to support and augment MCM distribution and dispensing in an emergency. The Walgreen's collaboration provides access to their national electronic billboard sign network for emergency public health messaging. The Walgreens' pilot is an effort that will hopefully bring additional partners to the table but will also allow stakeholders to have flexibility in the way they would like to partner. Some exercises have been conducted.

Other accomplishments were realized during the Ebola Response. The Division purchased \$2.7 million of Ebola-specific personal protective equipment (PPE) so that SNS could provide a bridge supply to hospitals in need until the supply chain fills their PPE orders. There have been collaborative efforts with manufacturers and hospitals to leverage the supply chain for Ebola PPE, assist in getting strategic hospital orders filled, and establish a new model for CDC response when MCMs are not available in SNS.

Seasonal flu activities included:

Addressing challenges identified by partners in long term care facilities (LTCF), who were unable to get large orders of antiviral drugs

Establishing a call center to coordinate with manufactures and ensure LTCF orders were filled

DSNS has experienced some challenges and accomplishments. There have been some nerve agent antidote auto injector production issues. The Division has been working through production issues for more than a year now and is looking at ways to prioritize the use of the current supply.

In relation to Anthrax Vaccine production, there have been no problems identified with the lots delivered to SNS in spite of an announcement by the manufacturer of the discovery of foreign particles in a small amount of vials. DSNS will provide future updates as they move forward.

Congress has asked the division to supporting the IOM review of the SNS. A standing committee has been assembled to review DSNS' present work and will look at the configuration of the 24-hour push packages and how to make them more effective.

BSC Recommendations:

SGE: *One of the most significant challenges we found at the local level is price gouging by some of the manufacturers. A federal procurement might minimize that, if not eliminate the price gouging issue.*

SGE: *In a future meeting, we'd like an update on the completed BSC SNS 2020 report and your findings and observations.*

OPHPR Policy Update

Amy Loy Mac Kenzie; Acting Associate Director, Office of Policy, Planning and Evaluation (OPPE), OPHPR

Ms. Mac Kenzie provided some information on OPPE and its role. The OPPE supports several activities including: Policy Strategy, Policy Technical Assistance and Training, Policy Clearance, State and Federal Legislative Interactions, Interagency Collaborations, and Partnerships.

The Office has engaged in several efforts: publication production, budget planning, Congressional briefings, and VIP visit coordination.

Recent surveys indicate that terrorism is a top congressional priority for 2015. Republicans control the House and Senate for the first time in eight years. New Senate Majority Leader Mitch McConnell (R-KY) and Speaker John Boehner (R-OH) are traditionally supporters of preparedness and response activities. Congress has raised questions such as how to negotiate with MCM manufacturers and where CDC employees have been deployed. The Appropriations Chairs have an interest in natural disasters, like tornadoes and hurricanes. Other interested parties include Rep Rogers (KY) – Chair House

Appropriations Committee, Rep Cole (OK) - Chair Labor-HHS-Ed committee, Sen Cochran (MS) - Chair Senate Appropriations Committee, and Sen Blunt (MO) - Chair HHS committee.

Recently, congressional outreach has resulted in 2 hearings, 23 congressional briefings, 32 congressional inquiries and 3 technical assistance requests. Some of the major topics that have been covered with Congress include:

Updates on new authorities and requirements in PAHPRA
Innovation in the preparedness landscape particularly in the medical countermeasure arena
Ebola response and any lessons learned
Efforts to address the needs of vulnerable populations, especially children

CDC preparedness funding in FY 2015 will center around several major activities including: preventing or mitigating threats to the public's health, and integrating public health, the healthcare system and emergency management. There have been actions related to advancing surveillance, epidemiology and laboratory science and service practice. There is expected to be an increase in the application of science to preparedness and response practice and more efforts to bolster public preparedness and the response infrastructure. Also expected are improvements in the ability of the public health workforce to respond to health threats and more promotion of the concept of resilient individuals and communities.

The fiscal year 2016 President's budget requests \$1.382 billion for OPHPR, which is \$29 million above the fiscal year 2015 enacted level. The following budget changes are included in the President's FY 16 budget:

\$36.7 million increase for the Strategic National Stockpile to allow for replacement of expiring medical countermeasures

\$10 million increase for CDC preparedness and response capability for the Select Agent Program to improve oversight of dangerous biological agents and toxins. (This is the first time DSAT has had its own budget line and the idea is to move towards automating monitoring and reporting.)

\$17.4 million decrease for State and Local Preparedness, which reflects elimination of the Academic Centers for Public Health Preparedness

In addition to regular funding, the Ebola response also garnered its own funding. There will be approximately \$1.8 billion appropriated for CDC's Emergency Ebola domestic and global response activities, as well as Global Health Security Agenda and \$145 million for PHEP supplemental Ebola grants (All 62 grantees are to be awarded in late March.). The PHEP supplemental funding targets the accelerated development of public health preparedness capabilities needed for Ebola and other infectious diseases. There will be \$10 million added for Career Epidemiology Field Officers (CEFOs), who will be assigned to selected states.

Over 70% of OPPE staff have supported the Ebola response since June 2014, including deployment to West Africa, leadership of CDC's Ebola policy unit, and participation on several incident management taskforces. OPPE will examine the after action reviews to identify areas for improvement. In the future, it will incorporate lessons learned into the response policy structures

OPPE's challenges include:

Long-term funding for state and local PHPR. As these catastrophes fade from the memory, people tend to forget how important it is to be ready. Care should be taken to keep preparedness in the forefront.

Long-term response such as the Ebola event, which is straining staff resources.
Performance and accountability, where there's a need to showcase the impact of preparedness funding.
Improvement in how OPHPR communicates its outcomes.

OPPE is looking for guidance and input in the areas of development of OPHPR's policy agenda. Policy is essential for good public health, so OPPE would like the BSC to help identify any policy gaps, opportunities or barriers that should be addressed in order to improve our effectiveness. In the future, OPPE may ask the BSC to examine the Partnership Action Plan that is being developed to identify gaps and suggest how the office should prioritize areas that have been overlooked.

BSC Recommendations:

Liaison: *I've been thinking about risk communication, which can sometimes be focused more on the negative, but not as much attention to the asset. It has been shown that positive messaging is more effective to the public. I think it's a policy shift in what data we collect and what data is more impactful to the public.*

SGE: *It's important to tell the story of what happens if money goes away as well as telling the story of progress made since 9/11.*

SGE: *From a state colleague perspective, I think it would be good to find the right policy to create a symmetry. We also need to determine a way to eliminate all the barriers procuring funding.*

SGE: *Maybe we should have a session to discuss better ways of doing positive asset communication.*

SGE: *One of the most well-communicated programs was the TV show, ER. Film School should be employed. They are experienced at conveying stories. TV newscasters are also better able to translate events to the public. Their methods should be examined to see how they could be applied to preparedness and response.*

SGE: *I would suggest taking a closer look at administrative preparedness.*

Ex Officio: *We should look at administrative preparedness in a coordinated way and have a combined discussion. Also, we can investigate how to communicate effectively through films; we should look more at films and see how we can use the science behind films that convey messages to determine how that can apply to preparedness.*

Liaison: *Conveying how preparedness will impact individuals locally may cause people to take more of an interest.*

SGE: *It seems accountability is a common theme, as well as the ability to measure and exhibit it.*

SGE: *There is a large body of work on these issues but none of it has been applied to preparedness. Once you have the data, identify platforms needed to disseminate your message to those your stakeholder community.*

Preparedness Updates from Liaison Representatives

Association of Public Health Laboratories (APHL) – Dr. Christina Egan

During the Ebola response, APHL worked very closely with the LRN, OPHPR and DoD to rapidly deploy the DoD Ebola assay throughout the country. It was a seamless process and the assay was quickly deployed.

The association has also been working with CDC to provide feedback for the EOC and PHEP Ebola Supplemental Performance Measures. APHL has held conference calls and provided feedback.

APHL has participated in several of the listening sessions hosted by the White House's OSTP Office. Attendees were able to convey their concerns and areas of interest. APHL will also collaborate with the DSAT Program in reference to the Select Agents Program Guidance Documents.

Two systems have been implemented. The LRN Messenger allows laboratories to manually enter their data. The Laboratory Information Management Systems Integration (LIMS_i) has been implemented in many laboratories to help reduce double data entry and data quality errors. Currently, 34 state and local labs report in LIMS_i. There's some challenges that still exist in the LIMS_i and APHL is working with OPHPR to address those.

Association of State and Territorial Health Officials (ASTHO) – Dr. Marissa Levine

The overarching theme for ASTHO's recent work is partnership. The Preparedness Policy Committee worked with FEMA and the American Red Cross to make suggested changes to the shelter intake form, which support collection of more information on health status. This was a priority recognized during the response to Hurricane Sandy. Final changes to the document will be made this year.

The ASTHO and the National Emergency Management Association (NEMA) participated in an orientation of new state health officials. Charlie English, Emergency Management Director, Georgia, discussed with the group the importance of the relationships between public health and emergency management and provided examples of their work together during emergencies. Mary O'Dowd, Commissioner of Health, New Jersey spoke to new state emergency managers about the roles of the state health agency and the health official's role in an emergency.

ASTHO worked with National Governor's Association (NGA) to create a similar partnership with the Governor's Homeland Security Advisory Council. The goal of the partnership is to bring about a greater understanding of the roles, responsibilities and issues of each profession. An initial meeting was held in January 2015 and a follow-up meeting will occur in May 2015.

Working with NEMA, ASTHO has developed a set of 10 mission-ready packages (MRP) for mutual aid deployment through the Emergency Management Assistance Compact. It is the first effort of its kind on the national level. Five additional MRPs will be developed this year, which will focus on traditional public health functions, like epidemiological surveillance and food-borne disease epidemiology.

Council of State and Territorial Epidemiologists (CSTE) – Dr. Patricia Quinlisk

CSTE is now in year 2 of CDC-CSTE Cooperative Agreement. Activities include:

Standing up internal capacity at the National Office for national incident management training and response, to make it more robust
Developing organizational concept of operations (Con-Ops) with other public health agencies
Continuing to take part in the National Health Security Preparedness Index development and implementation

There have been several webinars hosted by CSTE on healthcare infection control. The organization has also reviewed some of the proposed performance measures for the Ebola Epidemiology and Laboratory Capacity cooperative agreement supplemental award to the states to ensure efficient use.

On the international front, CSTE had four of its epidemiologists deploy to Mali, Nigeria and the Ivory Coast to aid in the CDC containment strategy efforts. Supplemental funding was provided for the epidemiologists. More epidemiologists will be deployed Guinea to support ongoing outbreak management.

CSTE received ongoing funding from NCEH's Division of Environmental Hazards and Health Effects for disaster epidemiology training and advocacy. A stakeholder workshop will be held to examine ways to coordinate and facilitate the sharing of information, as well as identify workforce training needs and opportunities. A repository will be developed to collect best practices and tools utilized in various disasters.

CDC Response to Ebola: Overview and Discussion of Issues Arising From Long-Term Outbreak Response

Ian Williams, PhD, MS; Deputy Incident Manager, CDC Ebola Response

There have been several international challenges experienced, such as lack of public health and health care infrastructure; overburdened public health and healthcare systems; and lack of acceptance of Ebola, which has not been fully surmounted by education. There still exists fear and stigma among the population and distrust of outsiders.

But progress has been made. Liberia did get to zero-status level but recently had one new case. Lessons learned from Liberia's successful strategy will be utilized in the other affected areas.

The international response activities place emphasis on both addressing the immediate outbreak as well as leaving behind a strengthened public health and emergency management infrastructure. In order to sustain long-term global health security, it is important to detect threats early, respond effectively and prevent avoidable catastrophes.

CDC has deployed nearly 1,000 public health experts to Guinea, Liberia and Sierra Leone, as well as to other countries. It has trained 690 master trainers and 23,000 front line healthcare staff, as well as staffed labs, including one in Sierra Leone that has tested more than 12,000 samples. It has also conducted more than 230 facility assessments. This CDC response is unprecedented.

On the domestic front, there have also been some challenges. To respond to challenges, the following activities have occurred:

CDC Ebola Response Teams (CERT) leveraging SME's expertise

Updated PPE guidance
Contact tracing
State support particularly around securing more funding
Updated active and direct active monitoring guidance
Public health and healthcare system outreach

For the domestic response, there were over 840,000 healthcare workers trained via online trainings and 6,500 healthcare workers trained in-person. CDC designated 55 Ebola Treatment Centers in 17 states including Washington, D.C. The Rapid Ebola Preparedness (REP) Team made visits to 81 facilities in 21 states, as well as Washington, D.C. In addition, 56 LRN labs were approved to test for Ebola. The first Ebola test took 24 hours to perform, but current testing takes only 4-6 hours. A significant amount of surge and push was applied to make this happen.

Two teams have been created to help in the domestic efforts: Rapid Ebola Preparedness Teams (REP) and CDC Ebola Response Teams (CERT). The REP Team helps assess infection control and overall preparedness to safely care for patients with Ebola. Roughly 10 to 20 individuals on the CERT Team provide guidance and technical assistance to hospitals where an Ebola case has been confirmed.

CDC has also enhanced the PPE guidance, which was distributed on October 20, 2014. Three general principals were emphasized: no skin exposure, rigorous training, and supervision by a trained monitor.

Much work has been done to ramp up entry screening in the United States. State health departments have been very helpful ensuring adherence. There has been enhanced entry screening at five U.S. airports for all U.S.-bound air travelers who have been in Guinea, Liberia or Sierra Leone. Travelers coming from Guinea, Liberia and Sierra Leone are actively monitored by a state or local health department. The travelers receive Check and Report Ebola (CARE) kits with information on Ebola, tools to help check their temperature and symptoms for 21 days and information on who to call if they develop symptoms

Monitoring the movement of people with Ebola has greatly decreased new incidents of Ebola. Guidance has been provided and CDC is working with state and local health department closely in that regard. Updated recommendations were issued to reduce the risk of Ebola spreading to other passengers or crew and ensure people infected with Ebola are able to quickly access appropriate medical care. The interim guidance has been updated by doing the following:

- Establishing “low (but not zero) risk” category
- Adding “no identifiable risk” category
- Modifying recommended public health actions in the high, some and low (but not zero) risk categories
- Adding recommendations for specific groups and settings

To respond to domestic challenges on a state level, there are weekly check-ins with partner organizations, as well as regularly scheduled Clinician Outreach and Communication Activity (COCA) calls, webinars and notifications. Funding has been allocated to support domestic Ebola preparedness and response as well as hospital infection control.

There have been two funding opportunity announcements (FOAs) to address domestic response. One will provide \$145 million in Public Health Emergency Preparedness (PHEP) funding to support accelerated state and local public health preparedness planning as well as operational readiness for

responding to Ebola. Currently, all 62 jurisdictions submitted funding applications by the February 20 deadline. CDC anticipates issuing funding awards in late March/early April. The second FOA will provide \$106 million in Epidemiology and Laboratory Capacity to support healthcare infection control, lab biosafety and global migration. The FOA was posted on January 20, 2015 and applications were due by February 19, 2015. Awards will be issued in early April 2015.

There have been some domestic challenges with regards to healthcare systems. As a result, there has been extensive hospital outreach with ASPR, along with calls with hospital and nurses associations. CDC has held live training events. Acute care hospitals and other healthcare facilities can serve in one of three capacities: frontline healthcare facility, Ebola assessment hospital, or as an Ebola treatment center. This tiered approach will ensure that the nation has the capacity to respond in a coordinated way.

Dr. Williams, in closing, provided the timeline illustration below of the advance action and rapid response to Ebola utilized in New York City (Figure 4).

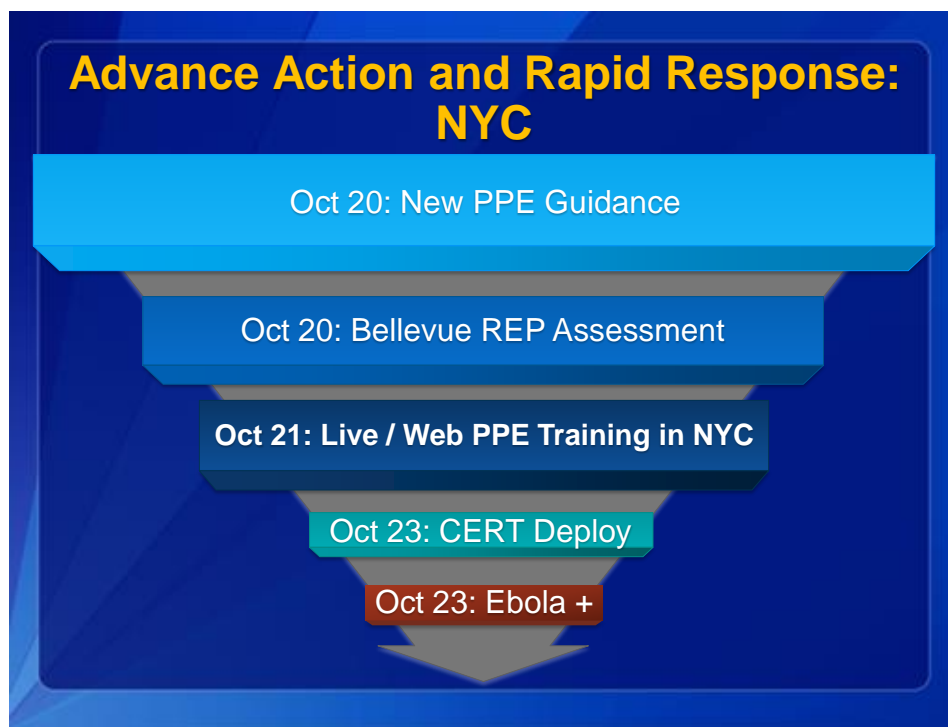


Figure 4.

He also provided the map below showing the National Network of Ebola Treatment Centers in the United States (Figure 5).

HHS and States Build a National Network of Ebola Treatment Centers

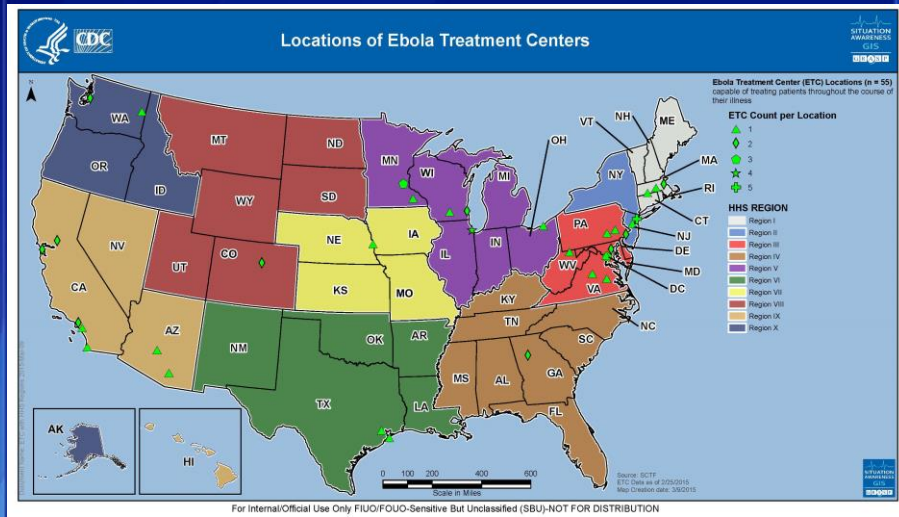


Figure 5.

BSC Recommendations:

- Liaison: *My concern is that all health care facilities need to have some basic level of preparedness and not just those we feel are more susceptible to incidents.*
- SGE: *There's no such thing as a single crisis. They're usually multiple. So what is required is not a tiered approach but a matrix. The ante is raised and the question is what thought will be given to expansive crisis management preparation, not just planning.*
- Liaison: *The responses recently have caused us to reach out to our clinical partners and helped them to realize that we are a good resource to have. There may be an opportunity to put out some of those good policy messages out to show how we have come through these recent incidents.*
- SGE: *We should continue to examine intersections of expertise between not only governmental agencies but also nongovernmental and leverage those identified cross sections. Often times mechanisms have been created that can be slightly altered to work for preparedness. The better we get at leveraging existing expertise and strengthening those intersections, the better we will be.*

Chris Kosmos, RN, BSN, MS; Director, Division of State and Local Readiness

In thinking about the domestic approach, DSLR took a systems design point of view and identified potential points of failure and ways to improve and fix those issues. To develop the system, we followed the traveler and thought about the steps that needed to be taken to ensure that no one infected with Ebola boarded a plane. Then they developed processes to be employed before travelers board a plane and another set of processes for travelers who land in the U.S. The result was a funneling approach that would divert possibly infected individuals to specific locations where care could be sought. To continue communications with those particular travelers, cell phones were provided and a system created to get infected travelers into care in a way that decreased anxieties.

The next step was to address the emergency medical services (EMS) processes to make sure the states had EMS plans. DSLR leveraged the regulatory role of EMS and repurposed some formerly used practices to fit the EMS role.

The next move was to hospitals. DSLR used a tiered strategy to funnel people to the right level of care and then designed appropriate PPE for those tiers.

The housing situation was tackled. Possibly-infected individuals would be placed in residential-like housing to avoid overburdening the hospital system. This would allow the public health departments to release those individuals back out to society after being asymptomatic for 21 days.

On the domestic front, DSLR utilized its SMEs to determine how to create the system and leverage existing capabilities. She felt that if systems were prepared in this fashion more often, there will be fewer surprises. When states stand up their EOC, there should be a mechanism put in place that will allow

CDC's EOC to connect into the response so that information sharing can occur. The next response should be better as a result of this system.

BSC Recommendations:

SGE: *From a local perspective we did not anticipate what to do with travel companions or how to provide clothing, housing, etc.*

SGE: *It's not just the compilation of lessons learned in a crisis but looking over those lessons and figuring out what keeps appearing. Another thing to consider is unconscious assumptions. Those two aspects should be examined further.*

Greg Burel; Director, Division of Strategic National Stockpile

SNS' expertise is making use of the medical supply chain that is available daily and applying knowledge and influence to a variety of partner organizations who are also engaged in medical supply chain logistics.

SNS is looking at ways to make the supply chain work better. Purchases were carefully made to fill gaps in PPE. This effort required working with the Ebola treatment facilities to ensure all the materials needed were provided, and if needed, the facilities could plug directly into the SNS supply chain to acquire resources.

As of result of their work, SNS has developed an internal tool that will help individuals assess their current supply chain capabilities and what gaps need to be addressed. SNS materiel can be disseminated if needed to help fill gaps identified by treatment facilities. This process would continue until the treatment facility could resume using its supply chain.

When SNS identifies emerging conditions that will require more material than what has typically been used in the healthcare field or material that has not typically been used, the normal solution is to call the major distributor to see if they can fill the order. If that does not work, an alternative method is employed.

SNS is also looking for ways to be a bridge to find a solution versus always being the answer to the problem. SNS will continue to be part of the answer until the commercial market can handle the demand.

SNS also recognized that federal agencies were not examining what one another was purchasing and specifying to get materials delivered. Going forward, we will work to provide a united front that utilizes more collaboration techniques.

Jeff Bryant, MS, MA; Acting Director, Division of Emergency Operations

There's a life cycle to a response. The response starts small and ramps up. But, during the Ebola response, there was a time that the affected areas' health care and public health systems were overwhelmed. The magnitude of the response had to decrease and come to a level where management could resume.

During the response, a cremation policy was put into place, but the policy sometimes went against the belief of the populations in the affected area. The policy drove behaviors like secret burials. The policy, therefore, had to be changed. The lesson learned was that in order to be successful in these instances, cultural sensitivity has to be given great consideration but there are times when that cannot be done and previously prescribed methods have to be reinstated.

BSC Recommendation:

SGE: *If indeed cultural sensitivity is important, then a cultural anthropologist needs to be a part of the team. We also have to look at the assumption banks and the known and unknown.*

CDC: *There needs to also be an examination at the local level around dead body management.*

SGE: *I would like to hear more about fear communication and blame management at a future meeting.*

Mental Health Response to Community Disasters

Carol North, MD, BSC Member; Ruth Perou, PhD; Acting Mental Health Coordinator, CDC; Eric Carbone, PhD; Chief, Applied Science and Evaluation Branch, Division of State and Local Readiness, OPHPR

Dr. North began her presentation by presenting some common principles that are now known as a result of disaster research. People are resilient. Most individuals do not develop psychiatric illness even after severe disaster exposures. Distress is normative. Virtually everyone has mental or behavioral health symptoms following exposure to an emergency, but this should not to be confused with psychiatric illness, which differentiates distress from pathology. Distress deserves recognition and intervention since more people are distressed than mentally ill after a disaster.

Another principle is psychiatric diagnosis is not just a label. It is necessary for the selection of appropriate interventions because one size does not fit all. Psychiatric illnesses require effective treatments such as psychotherapy and pharmacotherapy. While distress requires intervention without pathologizing. Interventions include support, reassurance and education.

Post-traumatic stress disorder (PTSD) is a conditional disorder, where trauma exposure is required. This causes complexity in thinking of how to avoid it. Trauma is threat to life or limb, with a specific type of stressor. This is what causes complications. Emotional response to the incident does not make it a trauma. Qualifying exposures include:

Direct: threatened injury/death or actual injury to self

Eyewitnessed: in-person witness of trauma to other(s)

Via close associate: learning of trauma exposure of loved one

NEW in DSM-5: experiencing repeated or extreme exposure to aversive details of trauma such as first responders collecting human remains; police officers repeatedly exposed to details of child abuse.

Exposures via electronic media, TV, movies, or photos count only if work-related.

To simplify our understanding of PTSD, Dr. North used the following illustration to define PTSD (Figure 6).

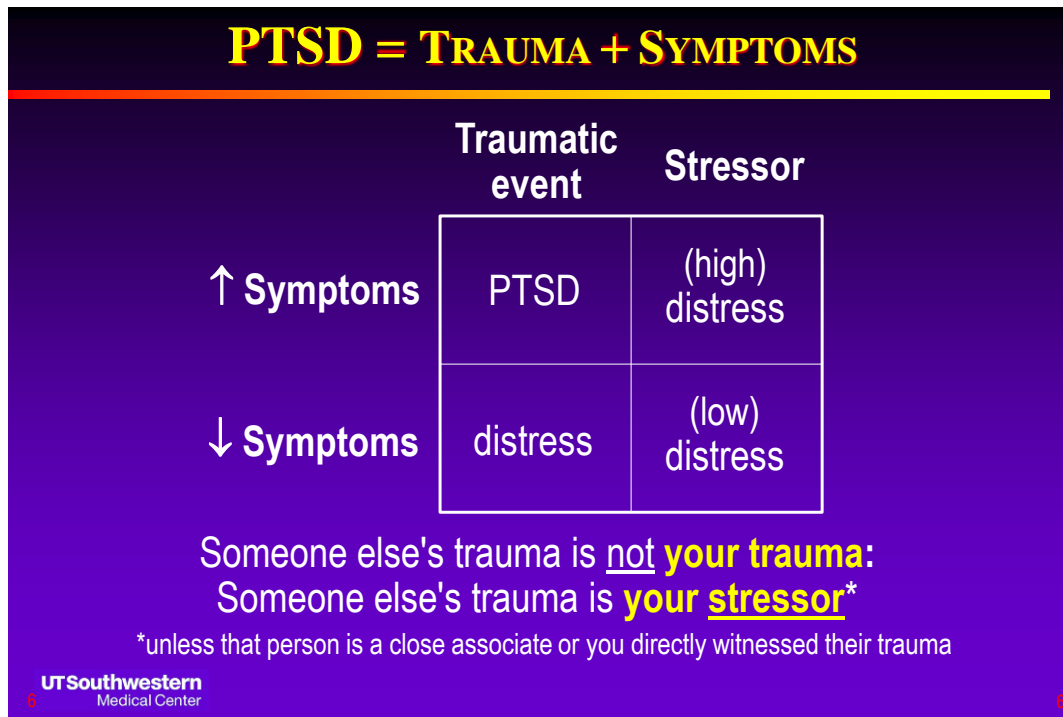
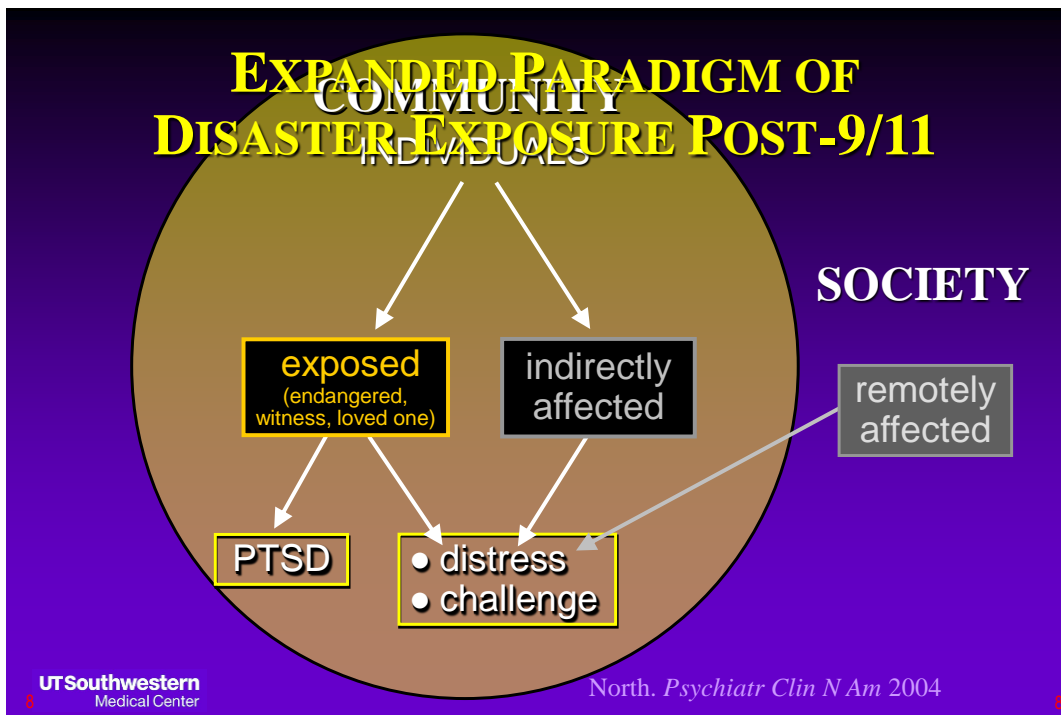


Figure 6.

Some individuals try to address PTSD using symptom scales but they cannot assess full criteria or diagnose PTSD or PTSD prevalence. The scales capture symptoms not anchored to qualifying trauma exposure. Therefore, errors are magnified in populations with little or no exposure.

To address PTSD the paradigm needs to be expanded. The following diagram was shared for illustration.



PTSD is sometimes treated as if there is a gradient effect when it is actually a categorical condition.

A systematic review was conducted and a framework was designed to address mental health as a result of disasters. The essential elements of emergency and medical response to mass casualty incidents involve 3 main activities:

- 1) Search and rescue
- 2) Acute stabilization and triage
- 3) Definitive medical treatment

The application of these 3 elements to mental health functions in disaster response translates into:

- 1) Identifying psychiatric disorders and MH needs (case identification)
- 2) Triage and referral
- 3) Providing appropriate MH services and interventions

As a result of the work, general strategies were developed. Mental health (MH) response to a disaster is best integrated into broader emergency and medical response. Three main elements of disaster MH response framework: 1) identification, 2) triage, 3) treat/intervene. The effective disaster mental health response is fundamentally based on accurate assessment of the mental health needs. Begin by addressing exposure to trauma and other disaster stressors and complete a full diagnostic assessment. Select the appropriate interventions based on individual assessment. Formal treatment for psychiatric disorders will only be needed by a few individuals. Most individuals will require psychosocial interventions for psychological distress.

A broad approach is required. Mental health needs and mental health responses differ with disaster situations and populations, as well as time frames within disaster situations. Consider the exposure groups: Trauma exposure, such as threat to life or limb and other disaster-related stressors like losses,

social disruption, and hardship. Also take note of the time frame. Mental health effects vary at different stages. And take into consideration pre-existing population characteristics.

In massive high-magnitude disaster with intense exposures, several steps were prescribed to triage mental health needs.

Identify trauma-exposed subgroup, some develop PTSD

Other affected population members, not PTSD

Differentiate psychopathology (e.g., PTSD, major depression) from distress (e.g., emotional strain, sadness, demoralization)

Treat psychopathology

Interventions for all distress - e.g., psychological first aid (PFA)

Anticipate long-lasting effects

The following time course should be utilized:

First days-weeks:

Too soon to diagnose PTSD (can be diagnosed ~1 month post-exposure) or new depressive episode (can be diagnosed ~2 weeks post-exposure)

Acute care for pre-existing psychiatric illness

Other interventions (e.g., psychological first aid (PFA), risk communication) for distress

Weeks-months:

Assess/treat psychiatric disorders and address distress

Months-years:

Continue treating chronic psychiatric disorders (PTSD, other)

Rebuild community (resilience)

Develop future disaster preparedness

One caveat is bioterrorism, which is unique. Psychological and behavioral responses to bioterrorism may be disarticulated from actual exposure to the agent. Psychological effects become part of the machinery of bioterrorism. Unexposed individuals misattribute symptoms of fear and arousal to biological or chemical agents thereby overwhelming the health care system. In this case, risk communication is needed.

There are some issues to consider when looking at disaster preparedness and mental health such as overstrained mental health systems. Exceeding mental health surge capacity could collapse existing systems. There should be readiness plans in place for disasters of large scope and magnitude. Specific mental health blueprints are needed for each type of disaster situation, like shelter mental health clinic guidelines that are now utilized in Dallas. An example of a mental health organizational chart and floor plans were shared with the BSC. Efforts are being made to make them publicly available.

When doing surveillance and assessment it is important to have many and varied targets for surveillance activities, like psychiatric illness, level of distress, functioning, attitudes, beliefs, and social needs. Surveillance/screening tools must be appropriate to purpose and to disaster situation/population and not for diagnosis, measuring prevalence of psychiatric disorders or making treatment decisions. This permits identification of subgroups needing further assessment and possible intervention based on full diagnostic evaluation. The tools utilized must be appropriate for the population being screened, for example screening for PTSD only among trauma-exposed groups.

Ruth Perou, PhD; Acting Mental Health Coordinator, CDC

CDC's mission is to collaborate in order to create the expertise, information and tools that people and communities need to protect their health through health promotion, prevention of disease, injury and disability and preparedness for new health threats.

CDC seeks to accomplish its mission by working with partners throughout the nation and the world to

Monitor health

- Detect and investigate health problems
- Conduct research to enhance prevention
- Develop and advocate sound public health policies
- Implement prevention strategies
- Promote healthy behaviors
- Foster safe and healthful environments
- Provide leadership and training

One in 5 children and adolescents have mental, emotional or behavioral (MEB) disorders, which costs \$247 billion annually. Approximately 1 in 6 children aged 3 through 17 years have one or more developmental disabilities. There are more than 3 million annual referrals for child maltreatment. That's nearly 6 referrals every minute, costing \$124 billion annually.

Data also shows that 26.2% of U.S. adults have a diagnosable mental disorder and 45% of those individuals have co-existing or co-morbid condition. Mental and behavioral disorders increase the risk of infectious diseases. People with severe mental illness die 25 years younger due to chronic diseases. In addition, suicide is the 10th leading cause of death for Americans and the 2nd leading cause of death among adolescents and young adults aged 15-29. These result in a \$444-billion annual cost. The high costs associated with mental health further amplify the need for public health expertise

CDC has applied its detect, respond and prevent framework to mental health. To address detection, several publications related to mental health have been featured such as those found in the MMWR and the National Health Statistics Reports. Several CDC Divisions have activities related to mental health that aid in prevention, such as those applied to the Global Mental Health in Humanitarian Emergencies and the Heads Up on Brain Injury Initiative. The Mental Health and Psychological Support (MHPSS) taskforce was instrumental in the Ebola response by working with the affected populations, covering various topics related to mental health as it relates to the Ebola response, and collaborating with its partners to learn new ways to address mental health needs associated with the Ebola response.

Eric Carbone, PhD; Chief, Applied Science and Evaluation Branch, Division of State and Local Readiness, OPHPR

Community resilience is defined as the sustained ability of communities to withstand and recover from adversity.

Enhanced resilience is critical to mitigating vulnerabilities, reducing negative health consequences, and rapidly restoring community functioning.

Mental/behavioral health of the population is an important factor in resilience.

Mental health impact of disasters and other public health emergencies is a major component of morbidity.

CDC began to focus more on mental health after a meta-analysis was conducted a few years ago and showed that the majority of injuries or trauma in most disaster settings are psychological – as opposed to physical; the ratios of psychological to physical injury range from 4:1 to 50:1 depending upon the emergency event. Key policies and guidance were developed as a result. The CDC Public Health Emergency Preparedness Capabilities (April 2011) defines a set of 15 capabilities to assist state and local health departments with their strategic planning. States and locals are suggesting more clarity in the guidance with regards to mental health. The capabilities are also used to identify gaps in preparedness; determine specific jurisdictional priorities; and develop plans for building and sustaining capabilities. Mental health is a cross-cutting area explicitly described or implicit in 7 of the PHEP capabilities.

Community Preparedness
Mass Care
Non-Pharmaceutical Interventions
Medical Surge
Responder Safety and Health
Volunteer Management
Community Recovery

The HHS Disaster Behavioral Health Concept of Operations provides coordination and guidance for federal-level behavioral health response to disasters and public health emergencies and is consistent with Homeland Security Presidential Directive 5 (HSPD-5), the National Response Framework (NRF), and National Health Security Strategy (NHSS). It describes the framework that HHS uses to manage federal behavioral health personnel, response assets and actions. The goal is to improve coordination of federal response efforts concerning behavioral health, promote consistency with state and local planning efforts, and meet needs identified through expert advisory committees and HHS analysis. The Concept of Operations is utilized only when federal government is lead or when state, tribal or territorial governments request federal public health assistance.

When looking at challenges/issues in disaster mental health the following quote is still valid today:

“The most pressing and significant problem that hinders integration of disaster mental and behavioral health is the lack of appropriate policy at the highest federal level. Compounding that problem is the lack of any clear statement as to where the authority to devise, formulate, and implement such policy should reside.”

Disaster Mental Health Subcommittee of the National Biodefense Science Board (2010)

HHS and ASPR have tried to make strides in this area.

In addition to gaps at the federal level, there is minimal consistent guidance at the community level. The community resilience framework aims for mitigation prior to emergency events and restoration of functioning post event. There are no commonly accepted sets of public health policies that guide how local public health departments should prepare for and respond to disaster behavioral health needs. Other issues or challenges include standard practices that are not consistently implemented across communities. Therefore several questions need to be answered in order to improve processes:

What is the basic level of services for disaster behavioral health?
Is the basic level sufficient to address post-disaster needs?
What role / responsibility should local public health departments assume, if any?
How should public health coordinate or integrate activities within the larger health sector (e.g., non-government organizations)?

There is a lack of benchmarks, particularly to track improvement in behavioral health after disasters, which connects to surveillance. Without this information, it is difficult to create behavioral health preparedness plans, develop guidance, or allocate resources. There is limited research on best practices for community-level, pre-event behavioral health promotion activities. There is a huge amount of research that goes on in mental health but the preponderance of research is clinical or treatment-focused.

So the question is where does or should behavioral health promotion and prevention fit within public health's responsibilities? Perhaps, this is a place where CDC could be of help. Currently, OPHPR is supporting two large mixed-methods research projects -- the Sandy/Irene Project and the Tornado Supercell Project -- that may address the overall question: What characteristics and actions of public health and mental health systems and the overall community lead to more rapid and complete recovery?

Tornado Supercell Project: In April 2011 tornadoes affected 4 counties in Alabama and Mississippi. Quantitative data was gathered through 3000, 25-minute computer-assisted telephone interviews (CATI) with residents, such as level of exposure; indicators of mental health recovery; measures of neighborhood disorder; collective efficacy; and other resilience factors. Qualitative data were garnered through 98 interviews with public and mental health agencies, staff and NGO community leaders. They focused on describing and evaluating organizational collaboration at the state and local level in Mississippi and Alabama across three time periods to determine the processes by which communities recover.

Some early themes from the qualitative component of the Tornado Supercell Project have been identified. In some areas, provisions for managing a surge of persons with mental health issues in the mass care shelter were lacking. Many communities did not have a longstanding robust mental health infrastructure before the tornados, particularly in Mississippi and the rural areas. Therefore, as response shifted to recovery, few local mental health resources could be activated. Even when services were available, respondents indicated that mental health services were underused due to stigma. Public health had more established (even formalized) partnerships with community organizations. Mental health entities had varying relationships with community organizations and it was not always clear who should provide mental/behavioral health services. Public health and mental health agencies had some coordination at the state level but such coordination was rare, if not non-existent, at the local level.

Hurricanes Sandy/Irene Project: The project focused on the time course of community recovery to "normal" levels of mental and physical health and magnitude of changes in physical and mental health compared to pre-incident levels. Qualitative data was collected using a de-identified Normative Health Information Database (dNHI), which includes United Health Group and Medicare insurance claims data. The database included information on 1.1 million people in the 37 counties; including health diagnoses and procedures, payment information, and drug prescriptions, which are indicators of physical and mental health in affected communities. Qualitative data came from focus groups comprising public and mental health department participants.

The Community resilience index or the Composite of post-event well-being (CoPE-WELL) began as a grant supplement to Johns Hopkins University PERRC and is currently funded through a research contract for FY 2014-2016. It is a systems dynamic model and composite index of pre-event predictors of post-event community functioning and well-being for all 3,144 U.S. counties. It includes:

Major domains of community resilience (e.g., population health and mental health factors, inequity, vulnerability, social cohesion).

Characteristics of the preparedness and emergency response systems

Characteristics of the event itself (type, magnitude)

A web-based tool has been developed which allows parameters to be changed to show their effect on time course of recovery. The overall aim is to be able to make predictions, inform mitigation strategies and design and evaluate interventions that enhance resilience. The index value has been computed for all counties in the U.S. and, in the future, can be disseminated to local and state health departments for situational planning.

BSC Recommendations:

SGE: *Given statistics of PTSD among children, there may need to be a unit in the schools. One should be intervening at the lowest possible level. We need interaction across a multitude of stakeholders, not just the teachers.*

SGE: *From a systems perspective, it is fragmented and will stay that way until it's fixed. Listen to the thing that was most coherent. It will probably give you the biggest bang. I'm not sure what the something is but there is something in the process that needs to be changed.*

Liaison: *Where I am from, health departments simply need to know what they need to do to assist. It would be great to have a handbook of prescribed activities to address mental health needs for a variety of emergency events.*

Ex Officio: *Having an assessment tool to figure out what is already available would be helpful. NACCHO has an online psychological first aid training. I can disseminate that information to everyone.*

PUBLIC COMMENT PERIOD / DAY'S RECAP / ADJOURN (DAY 1)

Thomas Inglesby, MD; Chair, OPHPR BSC

Public A: *I've been involved the Carter Center for some time. After Katrina, when we talked about disasters and behavior health we focus more on healthy people's response but not on those who are already diagnosed. There needs to be a way to set up a mechanism to identify those seriously ill and identify them quickly so they can get the help they need.*

Public B: *Looking at what you've done in a decade was overwhelmingly gratifying. There are priceless testimonials and lessons learned that should be cataloged passed along. These can be used when talking to Congress to show the impact of a wise investment.*

Some of the barriers discussed could be addressed without money like having preauthorized resources from say FEMA and conducting organizational design drills. Lastly, collecting the lessons learned will also serve as a history of how far preparedness has come along.

With no further comments, the Day 1 of the meeting was adjourned.

ADJOURNMENT

Thursday, March 26, 2015 (Meeting Day 2)

Welcome and Call to Order/ Roll Call/Review of FACA and Conflict of Interest

Thomas Inglesby, MD; Chair, OPHPR BSC

Dr. Inglesby called Day Two of the BSC Meeting to order at 8:22 AM and provided a brief welcome to the Board and CDC observers.

Samuel Groseclose, DVM, MPH; Associate Director for Science, OPHPR and Designated Federal Official, OPHPR BSC

Dr. Groseclose performed the roll call and quorum was present.

National Health Security Preparedness Index (NHSPI) Update

Glen Mays, MPH, PhD; Director, National Coordinating Center for Public Health Services and Systems Research, Department of Health Management and Policy, College of Public Health, University of Kentucky

The creation of the NHSPI began as an idea from the CDC and was designed as a collaboration of a large number of experts from diverse organizations such as the American Red Cross, Trust for America's Health, Department of Defense, and UNC Chapel Hill. The collaboration was facilitated by the Association of State and Territorial Health Officials (ASTHO).

The overarching goals of the Index are to increase awareness and understanding of preparedness; stimulate dialogue, debate and discussion across many different sectors to lead to better coordination and integration and to identify places where collaboration is not occurring. The Index is also meant to facilitate planning and policy development; support benchmarking and quality improvement through the use of metrics; and drive research and development to build the science of preparedness, response, and recovery. The Index is an ongoing process and will continue to identify gaps that need to be addressed.

The Index can be used to measure key dimensions of preparedness, health security, and resiliency that can be reported at both national, state, and, eventually, the local levels. It can also produce updated measures annually to continue to build capabilities for tracking changes. This will eventually allow longitudinal trending. The Index can reach multi-sector audiences and users when reporting the findings to public health constituents, government and the private health sector. It is aligned with the national preparedness frameworks and enhances other frameworks used across other areas of government.

Dr. Mays shared a brief timeline of the Index's history. The blueprint for the Index began in 2012 through a collaborative development partnership led by CDC, ASTHO and 25 collaborating organizations. In December 2013, the Index was first released and the initial model structure and results consisted of 5 domains, 14 sub-domains, and 128 measures. The second release in December of 2014 was a revision of the initial model with some additions. It contained 6 domains and 18 active sub-domains, and an additional 75 new measures. Seventy-five percent of the retained measures have updated data.

Development will be ongoing as the Index continues to evolve. It was transitioned to Robert Wood Johnson Foundation, who will be responsible for continuing to maintain and enhance the Index.

The illustration below shows the six broad domains of the Index (Figure 8). This is a compromise between what is currently measured and what can be measured.

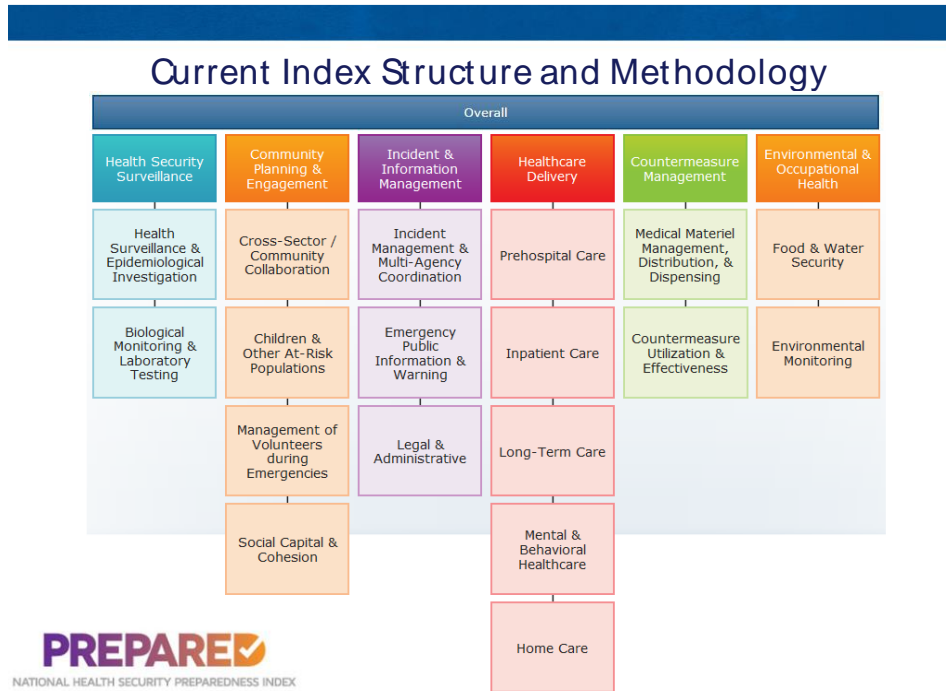


Figure 8.

Current index structure has 194 individual measures that are aggregated into 18 sub-domains and six domains. There has been an intense look at how measures can be amassed to produce more sensitive and specific measures. The partners are also identifying better scaling metrics.

The 2014 Index Results are now on the website. The scale is from 0 to 10. The national average for 2014 was 7.5 nationally, and the state overall results range from 6.5 to 8.4. Figure 9 shows the variation in the six domain levels. Scores can be exhibited not only for each state but also across domains. The results can point out important geographical variations.

2014 Index Results



- **National average: 7.5**
- **State overall results range from 6.5 to 8.4**



Figure 9.

In the past three months, the group has been doing some expansion and refinement of the Index. Activities are centered around the following:

Consolidation: reduce correlated, redundant and noisy measures

Composition: expand social, environmental, economic indicators of preparedness and resiliency. [These are areas where progress is being made and more research is being done to broaden these constructs.]

Grouping and weighting: use empirical methods for internal consistency, discriminant power. [This process is done carefully. Options are being explored to find better ways of aggregating measures to illustrate the core constructs and obtain more reliable metrics.]

Alignment: with established national frameworks of other agencies

Scaling: reflect distributional properties

Comparisons: address accuracy and uncertainty

Trending: apply new methods/measures retrospectively

Currently, the Index does not support trending over time, but there is a need to be able to show how preparedness is improving in the states. The goal is to provide better longitudinal data in that regard. The partners are also thinking through different methodologies to produce better measures. An important task for this year is to identify which domains should be weighted more heavily. The result is an Index that is more reflective of priorities.

Validation studies and testing for redundancy of measures is underway. The partners will be consulting their subject matter experts (SMES) and advisors to seek guidance on how to better group the domains.

The proposed methodological updates will require the following tasks:

Cull and regroup items based on validation and national framework mapping

Scale based on min/max transformation anchored on baseline 2013 data, which is important for trending over time

Item weighting based on Delphi panel, with option for users to reweigh based on local priorities [This will be done through a web-based platform. There will also be some customization features built into the process so states can see their base level.]

Use population-weighted state values to calculate national values

Use retrospective longitudinal comparisons back to 2013 time point [This was added due to feedback from other stakeholders.]

New measures are being considered to expand social, environmental and economic indicators of preparedness and resilience. Prior workgroup recommendations are to add pre-event community status, federal contributions to preparedness, congregate care, fatality management, outpatient care, non-pharmaceutical interventions and responder safety and health. These items have been on the wish list for a couple of years now.

Additional recommendations include:

Joint Commission on Accreditation of Healthcare Organizations (JCAHO) compliance rates with emergency management standards: hospitals, nursing homes, home health and behavioral health.

Infrastructure reliability: power, water, transportation, communication, housing, public facilities

Geofeedia data on social network communication signals: community concerns, resources. [The Index has been a part of conversations with CDC on how to use this type of data.]

Workplace policies: PTO, telecommuting

Cybersecurity measures

Inter-sectoral and inter-jurisdictional collaboration measures

Preparedness funding levels and distribution measures

Some future methodological issues include incorporating sampling variability and uncertainty into the Index and confidence intervals for comparisons across domains, states, and years. These may not be able to be incorporated into the upcoming version of the Index but will be incorporated in future Index models.

BSC Recommendations:

- SGE: *I had reservations about this when I first heard it and still do. This is an ill-structured problem but we are approaching it with structure. I cannot believe that there will be one index; this sounds like we're forcing this into a well-structured plan. The indices actually call out a world view. Too much is riding on how things are structured. I would like to see it call out more world views*
- Ex Officio: *This will be used by a lot of people as the bottom line to gauge if they're ready for preparedness so we need to be careful in how we design the index going forward.*
- SGE: *We don't live in a single consensus type world. Eventually we might get to a single number but we should not coalesce to that number too quickly.*

Hurricane Sandy Recovery Initiative

Panel A: Mold Mitigation and Related Health Issues;
Sandy-Related Morbidity and Mortality among At-Risk and General Populations

Dr. Rebecca Schwartz, Hofstra North Shore-LIJ School of Medicine

Dr. Matthew Perzanowski, Columbia University

Following Sandy, preventable hospitalizations, like pediatric asthma and diabetes, in New Jersey were more affected by socioeconomic status than by Sandy impact. In 2012, all-cause mortality, and respiratory-associated mortality was elevated 2 months post-Sandy compared with other years, but statistical testing has not yet been performed. The findings indicated that there were no immediate effects on ER visits for anxiety one year post-Sandy. According to the NJ Poison Control, carbon monoxide poisoning and gasoline exposure via siphoning were most common reasons for New Jersey Poison Center calls. The disrupted medical care rate was twice as high in the most impacted counties.

By comparing storm zones vs. non-storm zones and prior data, the data showed the following:

16% increase in mental health ED visits during the Sandy period, and through 1 year (16%); Older adults had the highest risk

53% of the variance of carbon monoxide ED visits is explained by the severity of power outages

Injury hospitalization increased 26% after Sandy

Significantly increased risk (21%) of ED visits for dialysis

ED visits for food/waterborne disease decreased

No significant increase for CVD hospitalization after Sandy

Decreased levels of air pollutants during the Hurricane Sandy period was found

No significant difference in temperature, but lower air pressure, higher wind speed and higher precipitation (including snow) post-Sandy

In another study, the New York City Department of Health and Mental Hygiene examined data around mortality, injuries, and mental health. As it relates to mortality, they identified three periods of excess mortality after Sandy through April 2013. Hispanics and the elderly had increased mortality in specific periods. The second period of excess mortality, from 12/02/12-02/21/13, was concurrent with the 2012/13 flu season and some or most of this excess could be attributed to the flu season.

With regards to injuries, there were 52 Sandy-related injury deaths, 69% of which were due to drowning. Seventy-seven percent of the fatal injuries occurred in Zone A, which had a mandatory evacuation order, and those at greatest risk for Sandy-related fatal injuries were older adults, males and those living in low-lying coastal regions.

In terms of mental health, factors associated with mental health outcomes included residence in the inundation zone, storm-related trauma, past trauma experiences, 9/11 exposures, low social support and 9/11-related PTSD.

The graph below reflects the data collected on the utilization of NY State emergency departments (ED) by Long Island residents (Figure 10). There were 773 more ED visits post-Sandy compared to the period before Hurricane Sandy.

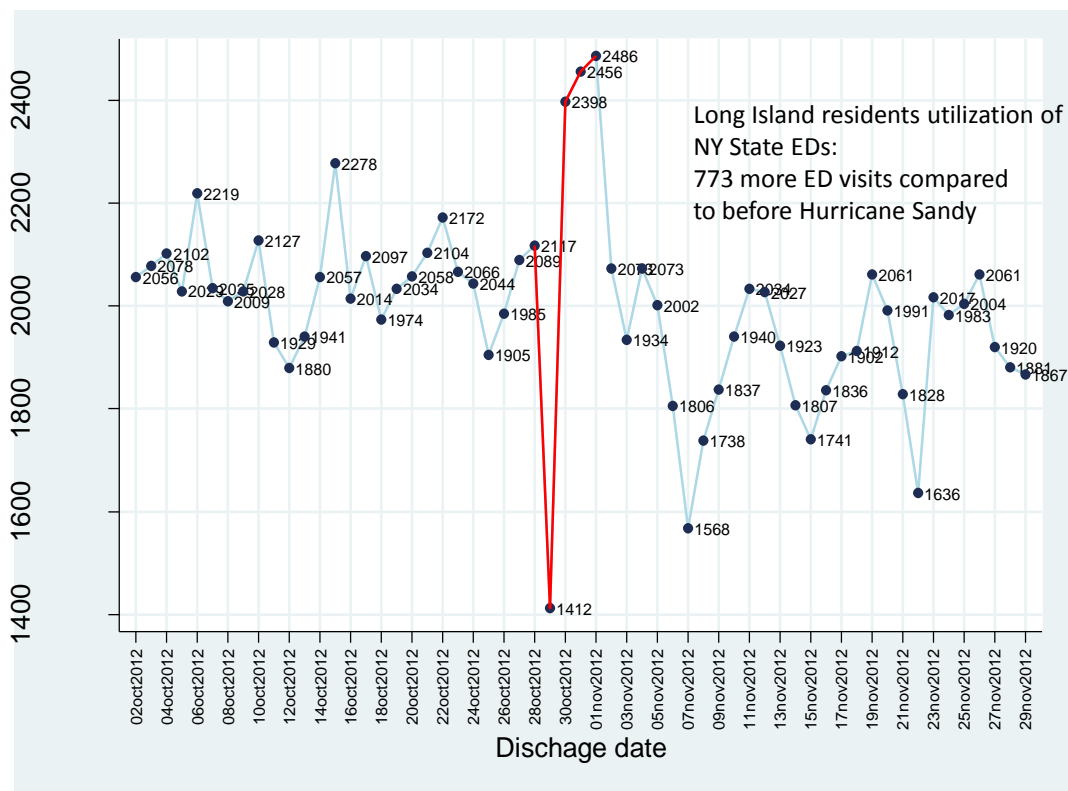


Figure 10.

The panel concluded that Hurricane Sandy exposure was associated with increased all-cause mortality and hurricane-specific injury mortality; unusual utilization patterns in the emergency departments including an increase immediately after the hurricane; and an increase in mental health diagnoses presenting to EDs one year after the hurricane.

BSC Recommendations:

Ex Officio: *ASPR is pulling together CMS, FEMA, Department of Energy and HUD data and it was amazing to learn what is already out there. This is a work in progress. But it's exciting and people can have access to some incredible databases.*

Panel B: Health Hazards among Response Workers and Volunteers; Public Health System Response

Dr. Regina Shih, RAND Corporation

Dr. Daniel Barnett, Johns Hopkins University

Panel B covered several studies that examined health workers and their evolving role in emergency responses, as well as how the public health system responds to disasters. The studies were as follows:

Understanding the Health System Impact of the Spillover Effect After Hurricane Sandy conducted by the National Center for Disaster Preparedness, Columbia University
Examining and Enhancing Public Health Workers' Sense of Efficacy Toward Hurricane Sandy Recovery examined by John Hopkins Bloomberg School of Public Health, Cecil County Health Department, and the National Center for Disaster Medicine and Public Health
Evaluation of Hurricane Sandy Public Health Response in New York State conducted by the New York Department of Health

The study conducted by the National Center for Disaster Preparedness found that even in two demographically similar, geographically proximate counties, the experience of Sandy was completely different. Public health does not always lead the response for each area highlighted in federal guidance such as the CDC PHEP Capabilities and FEMA ESF-8 priorities for the role of public health during an emergency response. The absence of public health department participation, however, should not be dismissed as performance failure as it is contingent on the local context. Furthermore, the engagement of a local health department in a particular key area may be contingent on: (1) historical context, (2) institutional culture, (3) influence of other agencies in the county or region, (4) availability of financial, material, human resources and (5) competing disaster and non-disaster related priorities.

Both counties also directed attention and resources to elderly patients residing in various home-based vs. community-based settings, such as long-term care facilities. Particularly for this cohort of vulnerable patients, coordination between the public health and healthcare delivery sectors was important in patient transfers to institutional stakeholders across the health system: hospitals, nursing homes and special needs shelters. It is essential for county agencies to establish relationships and routinely coordinate with other county departments, stakeholders in the private sector and in the community regardless of focus on human services. Often coordination during an acute disaster response becomes even more complex as regional coordination among public and private entities and across geographic locations may be required.

The John Hopkins Bloomberg School of Public Health collaboration conducted a survey among response workers and found concerning gaps. The JH-DRIST survey response rate was 63.9% among 8 local public health agencies (LPHAs). Of those surveyed, 30% of workers surveyed across 8 LPHAs in Maryland and New Jersey indicated a lack of self-efficacy around self-reported knowledge, confidence in and perceived importance of disaster recovery roles. Another 20% of respondents currently lacked

confidence in having a safe worksite or sufficient training and 20% would be unwilling to participate in future recovery efforts.

The behavior model below was utilized to examine self-efficacy and response efficacy (Figure 11).

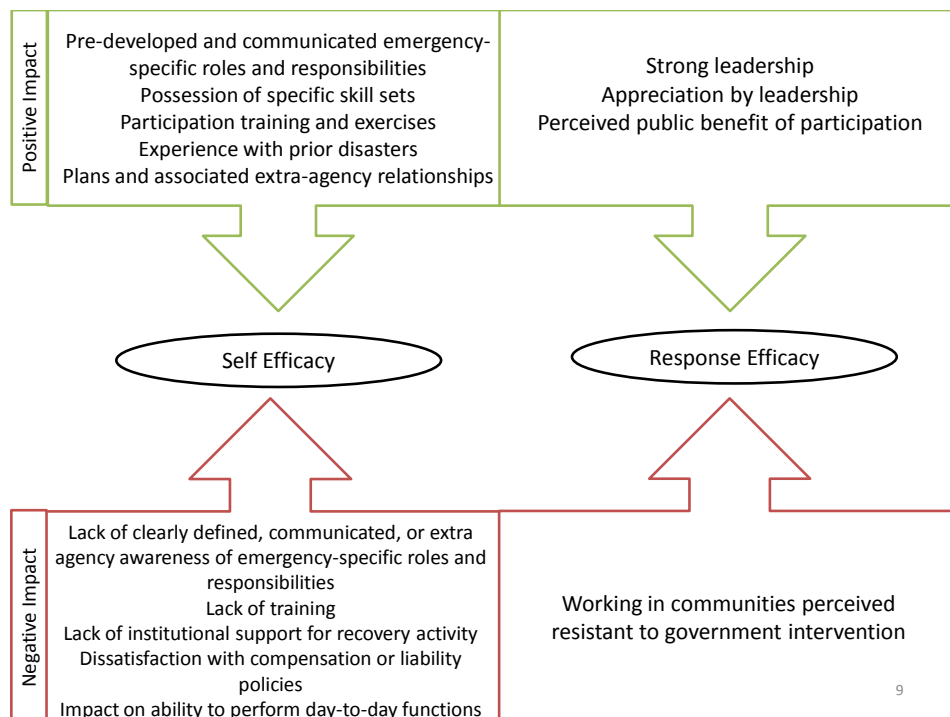


Figure 11

The study conducted by the New York Department of Health found that water system operators were not considered to be first responders during Sandy and thus were blocked by law enforcement from getting to the water system operations where they were assigned. Public health service providers, particularly non-governmental groups contracted by health departments, are not routinely practicing their emergency operations plan.

BSC Recommendations:

SGE: *The higher up the more intense the work gets. As complexity increases, clarity decreases. I would suggest writing a narrative that summarizes all the spectrums you've given. Also consider ways to come together as a resource.*

Ex Officio: *There has to be some resources put toward all of this; therefore, we need to figure out how to get the attention of political leadership because it's a major barrier.*

Impact Measurement in Preparedness and Response

Angela Schwartz, MBA; OPHPR Strategy and Innovation Officer

Many stakeholders have an interest in the impact of OPHPR, including individuals inside and outside of the government, Congress, grantees, etc. CDC's Preparedness and Response Capability annual budget is ~\$157,166,000 and includes several divisions that assist in preparedness and response activities. The State and Local Capability annual budget is ~\$661,042,000 and the Strategic National Stockpile is ~\$549,343,000.

OPHPR initiated the IMPACT Project in May 2013 to define outcomes and measures with OPHPR Divisions. The Division of State and Local Readiness (DSLRL) created initiatives to focus on the PHEP Impact by analyzing data using the PHEP funding received. The IMPACT Project was re-launched in the fall of 2014 with a dedicated project team.

The Divisions worked with Office of Policy, Planning, and Evaluation (OPPE) to re-align the OPHPR's quarterly program review with CDC's OD and the Congressional Budget Justification process. OPPE and DSLRL originated a storytelling initiative that received OMB Paper Reduction Act (PRA) approval. OPPE created the Partnerships Team and surveyed internal and external stakeholders for their input. The Revised Annual Preparedness Report was created using their feedback. Several achievements have been made. Top OPHPR leadership and numerous partners are very committed to the IMPACT Project and are encouraging a focus on outcome-based metrics for Divisions. Feedback on reported stories and our recent annual report indicate far better products are being produced.

A couple of concepts are not working. There's been incremental improvement in articulating value, so there needs to be more outcomes thinking. There needs to be a shift in the mental mindset. The following were given as reasons why these two concepts should be addressed:

- Measure lots of things, but not measuring the right things
- Process and operationally focused, not outcome-focused
- Lack of understanding of what really motivates audiences
- Silo focus limits thinking

It is evident that the IMPACT of OPHPR needs increased focus. The declining funding environment necessitates OPHPR be positioned to demonstrate and effectively communicate our progress and impact on public health security. The performance measures and other accountability methods are not capturing the scope of OPHPR impacts and value to public health preparedness nor demonstrating meaningful

evidence of progress towards outcomes. There's a need for a coordinated roadmap for leveraging OPHPR performance information that aligns partnerships, research, investment decisions, and communications, as well as, integration of outcomes thinking into ongoing strategic planning/evaluation efforts.

The illustration below shows the areas of focus for IMPACT Project (Figure 12).



Figure 12

OPHPR sought feedback and discussion on the following:

In a perfect world where 6-8 outcome measures exist for OPHPR, what would you recommend those measures be?

What information would be most useful for you to see to be able to make critical decisions?

In the past, what types of metrics / initiatives have you seen that work well in other organizations? Why?

Do you have any visual preferences for the platform to communicate our progress?

Other feedback and/or discussion?

BSC Recommendations:

SGE: *As much as we can, we should use assessment and measures of operational readiness. They will help us tremendously, particularly with funders.*

SGE: *I would look at where you spend all your money. What could you do if you had more money or less money? Think about the tradeoffs.*

SGE: *We also want to draw the impact of what happens if we did not have the capability or capacity.*

SGE: *Before and after stories of the impact of PPHR funding would be helpful.*

Liaison: *Ultimately what you're trying to do is convince the public. Conduct a focus group with regular everyday people and pose the question of what makes sense in a response.*

SGE: *Think about all the things we have not considered. It will provoke and prompt thinking. The outcome is usually somewhere in there you'll get an uh-oh response. Instill this practice into the culture to do these repeatedly.*

SGE: *People can't think in abstract but think well about concrete issues. Make scenarios and weigh the actions.*

SGE: *Articulate what you feel is the highest value of the different Divisions and programs in OPHPR and then figure out to measure and communicate that value.*

CDC Red Sky

James Tyson, MS; Chief, Situational Awareness Branch, Division of Emergency Operations, OPHPR

Jacqueline Burkholder, PhD; Epidemiologist, Situational Awareness Branch, Division of Emergency Operations, OPHPR

CDC's Red Sky, a situational awareness software application is intended to improve information sharing, unity of effort, and decision support. Red Sky was designed to improve the discovery, access to, and sharing of information. Some of its key capabilities are that it:

Provides a simple and common real-time web-enabled interface to monitor and share information for decision making

Possesses a robust Knowledge Management backend allowing user control and meta-tagging of data
Improves information sharing through non-proprietary software and open system standards and protocols

Supports user role-based security

Supports cloud/server-based architecture and secure server-to-server data-sharing

Several illustrations were provided to describe the Red Sky system, how the system is impacting public outcomes today and tomorrow, and the health information generating capabilities (Figures 13-15). The system utilizes bidirectional communication. The bottom line goal of Red Sky is to connect communities of practice by sharing and applying collective knowledge.

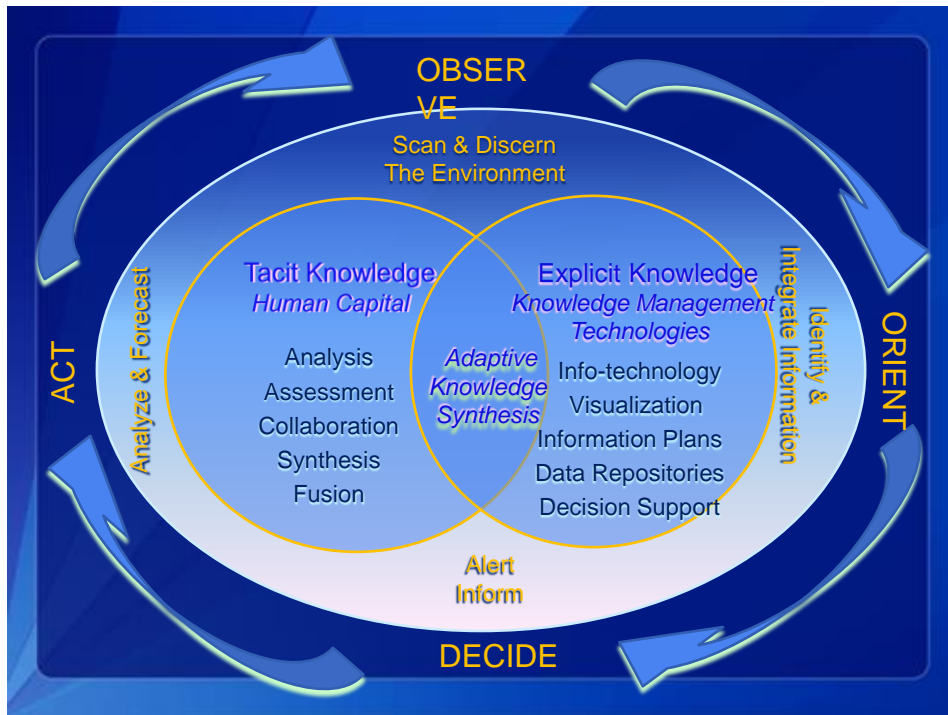


Figure 13

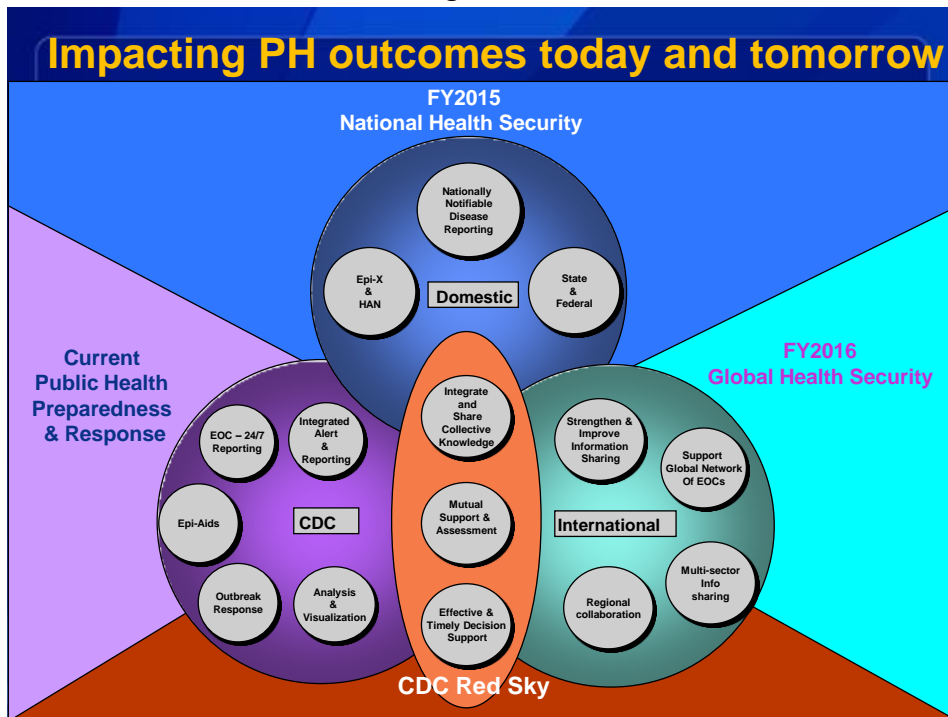


Figure 14

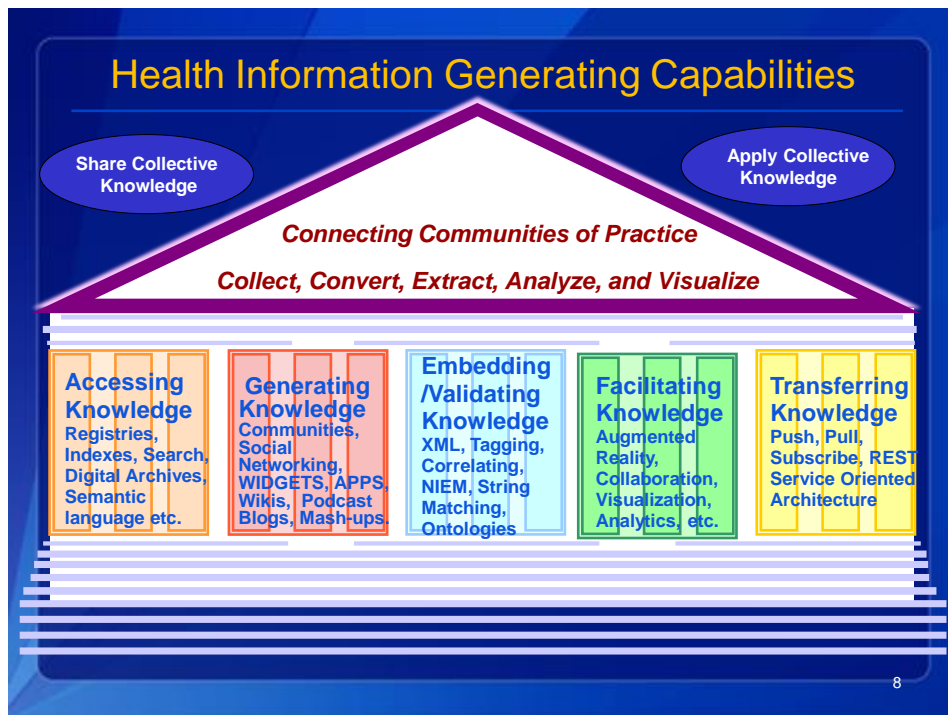


Figure 15

Red Sky has several capabilities such as aggregating data, and immediate alerting of leadership on current conditions, deployment information, etc. Information can be exported, printed or saved, and data can be compared from a domestic or international perspective. It also allows for customization of data and the importation of pictures from responders on the ground during a response.

There are some challenges to overcome related to data and information sharing, including the need for a culture change from “Need-to-Know” to “Need-to-Share”, and a lack of interoperability/standardization among the common case definitions and data elements. But there are also opportunities such as:

- Knowledge Management and Automated Analytics and Reporting
- Serving our stakeholders and partners information needs
- Defining Metrics to determine effective products and services
- Adopting and applying non-traditional methods
- Social media and crowd-sourcing
- Semantic Analysis
- Dynamic Analytics and Risk Assessment

BSC Recommendations:

Liaison: *Can Red Sky provide a status report of where all the levels of the public health system are in a response. This would give a picture of readiness and preparedness in the states*

SGE: *It is important to be able to tailor the information provided by Red Sky to states and localities.*

Meeting Recap and Evaluations, Action Items and Future Agenda

Samuel Groseclose, DVM, MPH; Associate Director for Science, OPHPR

The BSC will have an interim teleconference in approximately 2 to 3 months to provide any further comments, recommendations or insights on topics presented during this meeting.

He closed by thanking the BSC Members, Ex-Officio Members, Liaison Representatives, presenters, support staff and CDC observers for their participation and feedback. Dr. Groseclose also asked the Board for suggestions and ideas on how to further engage members and take advantage of their expertise.

RADM Stephen C. Redd, MD, Director, OPHPR

Dr. Redd echoed Dr. Groseclose's sentiments to those who participated in the meeting. He indicated that he learned a lot from the meeting and enjoyed the lively discussions. OPHPR strives to show changes in its activities based on the advice provided by the Board. If we are not able to actively engage the BSC and be responsive to their recommendations and guidance, then Dr. Redd felt that OPHPR should focus its energy elsewhere. However, Dr. Redd values the input of the BSC and intends to work to improve OPHPR's use of the Board.

Thomas Inglesby, MD; Chair, OPHPR BSC

Dr. Inglesby said it has been one of the most valuable meetings he's attended. He reviewed the agenda from the past two days and felt there was very high yield accomplished and hoped that it was valuable for the CDC.

Meeting Adjournment

With no other comments, the meeting was adjourned by the Board Chair.

CERTIFICATION

I hereby certify that to the best of my knowledge, the foregoing minutes of the March 25-26, 2015 meeting of the OPHPR BSC are accurate and complete.

X

Thomas V. Inglesby, MD
Chair, Board of Scientific Counselors, OPHPR

APPENDIX A: OPHPR BSC MEMBERSHIP ROSTER

Designated Federal Official

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Associate Director for Science, OPHPR
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Chair

Thomas Inglesby, M.D.

Director and CEO, UPMC Center for Health Security
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and William Hobson Associate Professor of
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Margaret L. Brandeau, Ph.D.

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(Vacant)

National Association of County and

City Health Officials (NACCHO)

APPENDIX B

BSC Meeting Attendance Roster Atlanta, GA – March 25-26, 2015

NAME	AFFILIATION	DAY 1 (MARCH 25, 2015)	DAY 2 (MARCH 26, 2015)
Inglesby, Thomas	Chair and SGE	In person	In person
Bernheim, Ruth	SGE	Absent	Absent
Brandeau, Margaret	SGE	In person	In person
Burkle, Frederick (Skip)	SGE	Absent	Absent
MacKenzie, Ellen	SGE	Absent	Absent
Mitroff, Ian	SGE	In person	In person
McKinney, Suzet	SGE	In person	In person
North, Carol	SGE	In person	In person
Reed, Richard	SGE	In person	In person
Smith, Richard	SGE	In person	In person
Viswanath, Kasisomayajula	SGE	In person	In person
Dickerson, Bradley, DHS	Ex Officio	In person	In person
Kaplowitz, Lisa, HHS	Ex Officio	In person	In person
Sergienko, Eric, DoD	Ex Officio	In person	In person
Curran, James (ASPPH)	Liaison	Absent	Absent
Egan, Christina (APHL)	Liaison	In person	In person
Hill, Kristin (TEC)	Liaison	In person	In person
Levine, Marissa (ASTHO)	Liaison	In person	Absent
Quinlisk, Patricia (CSTE)	Liaison	In person	In person

APPENDIX C 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
ASPPH Association of Schools and Programs 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 Epidemiologists
DEO Division of Emergency Operations (CDC)
DHS US Department of Homeland Security
DoD Department of Defense
DSAT Division of Select Agents and Toxins (CDC)
DSLIR Division of State and Local Readiness (CDC)
DSNS Division of Strategic National Stockpile (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)
HPA Healthcare Preparedness Activity (CDC)
HPP Hospital Preparedness Program
HHS US 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
SGE Special Government Employee
SLTT State, Local, Tribal, and Territorial