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"Examining the Public Health Response to the Ebola Outbreak"

Before the House Committee on Energy and Commerce

Subcommittee on Oversight and Investigations

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Attachment 1- Additional Questions for the Record

The Honorable Michael C. Burgess

1. **We have learned a great deal about the difficulty of cleaning a room that has been utilized by an Ebola patient. What are the current standards for sterilizing a room in a health care or hospital facility?**

    a. **When were these regulations last updated?**

    b. **Will additional steps be taken to sterilize a room with an Ebola patient?**

    c. **Will you be updating these guidelines to better reflect the realities of an Ebola case?**

Response: CDC does not have regulatory authority over hospitals. CDC released guidance titled, "Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus" to provide information and recommendations to health care facilities. The guidance was last updated on October 3, 2014. Guidance for U.S. hospitals on environmental cleaning and disinfection was first released on August 1, 2014 in guidance *Infection Prevention and Control Recommendations for Hospitalized Patients with Known or Suspected Ebola Virus Disease in U.S. Hospitals*. On August 20, 2014, based on questions from facilities and external groups, CDC released expanded guidance on environmental infection cleaning and disinfection that provided additional detail to guide implementation titled, *Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus*. This guidance will be revised as additional scientific information about methods needed to clean and disinfect a hospital room that has been utilized by an Ebola patient becomes available.

Ebola viruses are transmitted through direct contact with blood or body fluids/substances (e.g., urine, feces, vomit) of an infected person with symptoms or through exposure to objects (such as needles) that have been contaminated with infected blood or body fluids. The role of the environment in transmission has not been clearly established. Limited laboratory studies under favorable conditions indicate that Ebola virus can remain viable on solid surfaces, with concentrations falling slowly over several days. However, in a study to assess contamination of the patient care environment during an outbreak, virus

was not detected in any of 31 samples collected from sites that were not visibly bloody. Virus was detected on a blood-stained glove and bloody intravenous insertion site. There is insufficient epidemiologic evidence of Ebola virus transmission via the environment to strongly implicate surfaces that are not visibly soiled or fomites that could become contaminated during patient care (e.g., bed rails, door knobs, laundry) as sources of environmental exposure.

Nonetheless, given the apparent low infectious dose, potential of a high concentration of virus in the blood of ill patients, and disease severity, higher levels of precaution are currently recommended for cleaning and disinfection of potentially contaminated surfaces in the patient care environment.

As part of the care of patients who are persons under investigation, or confirmed to have Ebola virus infections, it is currently recommended that hospitals:

- Be sure environmental services staff wear and are trained in the use of recommended personal protective equipment (PPE) to protect against direct skin and mucous membrane exposure of cleaning chemicals, contamination, and splashes during environmental cleaning and disinfection activities. If reusable heavy-duty gloves are used for cleaning and disinfecting, they should be disinfected immediately after use and kept in the room or anteroom. Be sure staff are supervised in the proper use of personal protective equipment including safe removal to prevent contaminating themselves or others in the process, and that contaminated equipment is disposed of appropriately.

- Use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for a non-enveloped virus (e.g., norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces in rooms of patients with suspected or confirmed Ebola virus infection. Although there are no products with specific label claims against the Ebola virus, enveloped viruses such as Ebola are very susceptible to a broad range of hospital disinfectants used to disinfect hard, non-porous surfaces. In contrast, non-enveloped viruses are more resistant to disinfectants. As an extreme precaution, disinfectants with a much higher potency than what is actually required for an enveloped virus are being recommended at this time.

- Avoid contamination of reusable porous surfaces that cannot be made single use. Use only a mattress and pillow with plastic or other covering that fluids cannot get through. Do not place patients with suspected or confirmed Ebola virus infection in carpeted rooms and remove all upholstered furniture and decorative curtains from patient rooms before use.

- Maintain constant cleaning and disinfection of the PPE doffing area. Routine cleaning of the PPE doffing area should be performed at least once per day and after each doffing of grossly contaminated PPE. Cleaning should be performed by a health care worker (HCW) wearing clean PPE. An EPA-registered hospital disinfectant with label claims against non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) should be used for disinfection. When cleaning and disinfection are complete, the HCW should carefully doff PPE and perform hand hygiene.

- To reduce opportunities for exposure of staff to potentially contaminated textiles (cloth

products), linens, non-fluid-impermeable pillows or mattresses, and textile privacy curtains should be discarded after use in accordance with state and local waste management regulations, or packaged and transported in accordance with Department of Transportation/Pipline and Hazardous Materials Safety Administration's Hazardous Materials Regulations (49 CFR 100-185) and the Department of Labor (DOL)/Occupational Safety and Health Administration (OSHA)'s Bloodborne Pathogens standard (29 CFR 1910.1030).

For cleaning and disinfecting the room of a patient with suspected or confirmed Ebola virus infection, CDC recommends daily cleaning and disinfection of hard, non-porous surfaces (e.g., high-touch surfaces such as bed rails and over bed tables, housekeeping surfaces such as floors and counters). Before disinfecting a surface, cleaning should be performed. In contrast to disinfection where products with specific claims are used, any cleaning product can be used for cleaning tasks. Use cleaning and disinfecting products according to label instructions. Check the disinfectant's label for specific instructions for inactivation of any of the non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) and follow label instructions for use of the product that are specific for inactivation of these non-enveloped viruses. Use disposable cleaning cloths, mop cloths, and wipes and dispose of these in leak-proof bags. Use a rigid waste receptacle designed to support the bag to help minimize contamination of the bag's exterior.

Additional guidance on cleaning and decontamination can be found on the CDC website and is updated as new information or recommendations emerge.

d. Some Veterans Affairs facilities and other hospitals are currently using pulsing xenon UV light to disinfect rooms--are any of you familiar with this technology?

i. If yes, do you believe this may have a higher success rate in disinfecting rooms and preventing further infection?
ii. Do you believe that this technology could be useful if deployed more widely in the United States?
iii. What about in combating the outbreak in Africa--would it be possible to utilize this technology to fight the outbreak?
iv. Will you please have someone on your staff review the regulations on sterilizing rooms in regards to this method?

Response: CDC is aware of this technology and has had direct demonstrations from several manufacturers.

CDC is aware of these newer technologies that are being investigated for room decontamination (e.g., UV light, ozone mists, vaporized hydrogen peroxide). CDC is staying abreast of this evolving clinical research that will clarify effectiveness and reliability, and limitations of these new technologies, for making future recommendations. UV devices may be part of an integrated approach to use in the terminal cleaning of rooms in conjunction with physical cleaning. Existing UV technologies still require that organic material be cleaned from surfaces to ensure optimal effectiveness. At this time there are insufficient data to inform national or international recommendations for these technologies. CDC continues to consider several automated and non-contact approaches to environmental decontamination, including UV devices.

2. **Is CDC concerned about potential infection among janitors, city employees, or waste disposal employees who come in contact with Ebola medical waste?**

Response: CDC is focused on reducing the risk of transmission for all potential infections and to interrupt transmission at the sources of the outbreak in West Africa. CDC issued guidance titled, "Ebola-Associated Waste Management" to provide key information about the safe handling, transport, and disposal of waste generated from the care of persons diagnosed with or suspected of having Ebola Virus Disease. CDC is also evaluating the need to provide additional guidance for these groups.

3. **Mr. Duncan's family was forced to stay in their apartment because officials had no way to quarantine the area or dispose of medical waste--did CDC provide any information or guidance on the dangers of this? If not, why?**

Response: State and local health agencies have authority over public health quarantine and isolation issues. In the days following the case in Dallas, CDC developed Interim Guidance for the U.S. Residence Decontamination for Ebola Virus Disease (Ebola) and Removal of Contaminated Waste to provide **recommendations** for public health, state and/or local authorities who may have to decontaminate or arrange for a contract company to decontaminate a U.S. residence and remove contaminated waste because someone living there was confirmed to have Ebola. These recommendations list effective disinfectant products, procedures, and guidance for contract companies to follow in dealing with contaminated wastes, and guidance on how to use personal protective equipment (PPE).

4. **What have CDC efforts been in developing a diagnostic test that provides early detection, possibly before the development of symptoms? Financially, what role is BARDA playing in fostering this development of new technologies? How are you ensuring all diagnostic options are being considered?**

    a. **Please describe all efforts in this area to date.**

Response: CDC is working to establish material transfer agreements (MTAs) with 7 companies for the production of improved Ebola diagnostic tests. The MTA enables the exchange of proprietary material for research purposes and dictates the terms of the exchange. The goal is to collaborate on the development of assays which can be used to test for the presence of Ebola in multiple types of specimens, including saliva, whole blood, and blood spots. CDC will test the prototypes compared to CDC's validated assays. CDC will analyze the effectiveness of various measures of functionality, including the sensitivity, specificity and end-point dilution curves of the prototypes. If a prototype is shown to have greater effectiveness and/or ease of use than current diagnostic tests, CDC plans to test the most promising candidate/s in West African pilot studies. CDC is eager to work with any company having promising diagnostic test prototypes.

5. **Can you provide a timeline that describes the variability of the PPE being used at Texas Health Dallas in the time period from when Mr. Duncan was admitted, to his death? Please provide the rational (sic) or impetus behind these changes.**

Response: Since the time of the first patient with Ebola in the United States, CDC expanded previous infection control guidance for health care workers caring for patients with Ebola, to ensure there is no ambiguity and provide an increased margin of safety. We may never know exactly how two health care workers became infected. The Dallas experience showed that taking care of a patient with Ebola is challenging.

The revised guidance focuses on improving the consistency with which personal protective equipment (PPE) is used and offers detailed step by step instructions for how to put the equipment on and take it off safely. Recent experience from safely treating patients with Ebola at Emory University Hospital, Nebraska Medical Center and National Institutes of Health Clinical Center are reflected in the guidance. The enhanced guidance is centered on three principles:

- All health care workers undergo rigorous training and are practiced and competent with PPE, including putting it on and taking it off in a systematic manner
- PPE covers the wearer completely and prevents unrecognized self-contamination
- All workers are supervised by a trained monitor who watches each worker putting PPE on and taking it off.

All patients treated at Emory University Hospital, Nebraska Medical Center and the National Institutes of Health Clinical Center have followed similar principles. None of the workers at these facilities have contracted the illness.

6. **Where is the PPE that our hospitals are using being manufactured? Are they American companies or companies from overseas? Please outline to the best of your ability these sources of PPE.**

Response: The types of PPE used in U.S. hospitals are manufactured in various locations across the world, including the United States. CDC's understanding is that product manufacturing varies greatly depending on the product and the manufacturer. Products may range from 100% production in one country, to partial manufacturing in multiple countries. For example, three components of a respirator produced in one country could be fully assembled in another. The selection of specific PPE brands and models for hospital procurement is made at the discretion of the individual hospital to meet facility requirements and preferences. Employers, including hospitals, are required under the Occupational Safety and Health Act of 1970 and OSHA standards promulgated under authority of the act to select and provide PPE for workers to protect them from recognized occupational safety and health hazards. While CDC does not recommend or endorse specific brands or manufacturers of PPE broadly, CDC through its National Institute for Occupational Safety and Health (NIOSH), certifies respirators recommended in the guidance (i.e., NIOSH certified powered air purifying respirators (PAPRs) or NIOSH-certified N95 filtering facepiece respirators), and maintains a list of those meeting the preferred Ebola configuration. NIOSH worked closely with OSHA both to develop recommendations for PPE ensembles, including respirators, and ensure recommendations met the requirements of OSHA standards.

7. **We realize the focus is on Ebola at present, and rightly so. But CDC has other public health**

responsibilities, and as we enter the flu season I am curious how CDC is managing these other responsibilities while meeting the considerable demands imposed by the Ebola response.

Response: CDC is actively prioritizing the work allocation to critical, non-Ebola related public health issues in the midst of an evolving situation. Efforts on non-critical activities have been shifted to provide greater support to essential operations. Challenges exist around the sustainability of a large-scale response.

8. **Why aren't other patients also cured with ZMapp not donating their plasma?**

   a) **Are they and is it not being publicized?**

   b) **If so, is this a result of patient privacy laws?**

Response: Some survivors of Ebola virus disease in the U.S., including recipients of ZMapp, have donated convalescent plasma that has been used to treat other patients. Details have not been publicized due to privacy laws. Individually-identifiable information about patients with Ebola virus disease, as for all other patients, is confidential. In addition, it is not clear whether ZMapp (and/or other treatment received) affected either the survival of the plasma donors or the potential value of the donated plasma as treatment for others.

9. **Is there a way to encourage donation so that if future cases arise we can have a small reserve of convalescent serum to use for infected individuals?**

Response: InIn addition to donor plasma discussed in the previous answer, further donations are being encouraged. Several patients who have survived Ebola virus disease in the United States are still recovering at home and are likely to donate their plasma in the months to come. However, it is unknown whether convalescent plasma treatment is beneficial. The only way to know is for controlled clinical trials to be conducted. Such studies are planned to be implemented in West Africa.

10. **What is the reason for the transfusions being so successful? Is it because the blood or serum donated has both immune response created antibodies and the antibodies from ZMapp?**

Response: There are no FDA-licensed or -approved vaccines or therapeutics available for prevention, post-exposure, or treatment for Ebola virus infection. Clinical management of EVD should focus on supportive care of complications. Several investigational drugs and convalescent plasma from recovered Ebola virus disease patients have been used to treat patients with EVD during the current outbreak, but no controlled clinical trials have been conducted to date. Therefore, there are no data on the safety, efficacy or effectiveness of any experimental drugs or convalescent plasma for treatment of patients with EVD. Since these investigational treatments are still at early stages of development and production, the availability of these products varies. This holds true for the experimental drug known as ZMapp. A recent scientific article published in the New England Journal of Medicine posits that survival of EVD patients likely was due to effective supportive clinical management with intravenous fluids and electrolyte

replacement.

We do not know whether convalescent plasma treatment is successful or not. Convalescent plasma collected from survivors of Ebola virus disease is expected to contain antibodies to Ebola virus that may help to reduce the amount of Ebola virus in the blood of an infected patient when used as treatment. Seven patients with Ebola virus disease in the U.S. have received convalescent plasma, but they have also received other experimental treatments and excellent clinical care. Although only one of these EVD patients who received convalescent plasma died, it is impossible to know the benefit of convalescent plasma treatment in these patients without a controlled clinical trial. Two survivors who received ZMapp have donated plasma approximately 1-2 months after their hospital discharge for treatment of other EVD patients in the U.S. Although it is unknown whether their plasma contains any residual ZMapp antibodies, it is unlikely as such antibodies are expected to decay over several weeks. Controlled clinical trials in relevant settings including West Africa are needed to determine the benefit of convalescent plasma treatment for Ebola virus disease.

11. **We understand the guidance and protocols for health professionals are shifting in light of the recent infections of two health care workers in Dallas. How, and how quickly, are the changes being communicated to local health care providers? Do the local providers have an opportunity to provide input and feedback or ask questions?**

Response: CDC is actively working to bring updated recommendations and information to U.S. health care workers. We provide these through regular outreach via the website, industry calls and meetings, trainings, and social media communication. Opportunities for feedback and questions are provided. CDC efforts to reach health care workers in the United States include:

- Educating and answering questions from clinical partners. CDC has reached over 326,700 individuals through conference calls to provide training and updates on CDC guidance.
- Hosting live events to educate health care workers and others about infection control principles and demonstrate appropriate use of PPE.
    - NYC event on October 21st with over 5,400 people in-person, 53 media outlets, and at least 20,000 people on livestream in 10 countries. The event was co-hosted by the Partnership for Quality Care (PQC) and the 1199SEIU/Greater New York Hospital Association Healthcare Education Project.
    - Los Angeles Event on November 7th with over 1,000 people in-person, a dozen media outlets, and thousands of people on live stream in hundreds of health care facilities across the country. The event was co-hosted by Kaiser Permanente, the Coalition of Kaiser Permanente Unions, the Partnership for Quality Care, and United Nurses Associations of California/Union of Health Care Professionals, Service Employees International Union (SEIU) – United Healthcare Workers West, SEIU Local 721 and Los Angeles County Department of Health.
    - American Medical Association meeting on November 9th that was live streamed to thousands of individuals.
- Collaborating with online clinical communities (e.g., Medscape) to provide education and tools directly to health care workers. Medscape has also streamed CDC live events. Through

Medscape training alone CDC has been able to reach 298,000 health care professional with online health care training resources.

- Contracting with Johns Hopkins University to create additional training videos for donning and doffing PPE guidance, including videos tailored to emergency departments (ED) and outpatient staff.
- Disseminating guidance through CDC's website and promoting it through CDC email distribution lists, plus additional partner outreach. For example, the PPE videos have been viewed over 225,000 times. Viewers logged more than 150,000 minutes (or 2500 hours) watching the videos
- Working with state and local health departments, public health partners, and professional organizations to improve and accelerate implementation of effective infection control measures for emergency departments and outpatient settings.

CDC is working to ensure that health care workers are receiving information about Ebola in a manner that raises their level of awareness.

12. What have you learned about failures of isolation and personnel protection from the experience at Texas Health Resources' Presbyterian hospital and what have you shared with other hospitals about how to avoid the same errors? Have you provided other hospitals with specific information about the failure of the procedures at THR?

Response: Enhanced guidance is based on the breadth of existing knowledge including patients who have been cared for at Texas Health Presbyterian Hospital, Emory University Hospital, NIH, and Nebraska Medical Center. CDC continues to work closely with hospitals and health care facilities to update guidance and recommendations, including expanding previous infection control guidance for health care workers caring for patients with Ebola to ensure there is no ambiguity and to better emphasize the importance of training, practice, competence, and observation of health care workers in correct donning and doffing of PPE selected by the facility.

CDC has formed Rapid Ebola Preparedness (REP) and Infection Control Assessment and Response (ICAR) teams that deploy to pre-identified facilities to work with local health officials and hospitals in assessing their readiness for caring for patients with Ebola. REP teams are composed of CDC experts in infection control, occupational health, and laboratory issues; other HHS personnel including National Hospital Preparedness Program Field Project Officers and other regional staff; federal and state OSHA staff; and external local experts. State health officials and candidate hospitals determine the hospitals in their state or region where patients suspected of having Ebola will be transported for treatment for the full course of illness. During the visit, the REP team identifies areas that pose challenges and provide technical assistance and support to gain readiness in the areas identified. While implementation and adherence to CDC recommendations lies with individual hospitals, a positive corollary of the intensive training and preparation at these facilities may be increased readiness for other disease outbreaks in the future.

In the event of a confirmed Ebola case, CDC will immediately deploy a CDC Ebola Response Team (CERT) to provide on the ground technical assistance and clinical support to the treatment hospital and the health care community.

13. Will the temperature screeners be maintaining the recommended distance barrier (3ft) for evaluation and if so, how will they use the infrared devices effectively?

Response: Use of the noncontact thermometers correctly requires that the screener be briefly less than three feet from the person being screened. Screening staff are wearing personal protective equipment that protects their hands and mucous membranes.

NOTE: CONTENT ACCURATE AS OF NOVEMBER 17, 2014

The Honorable Marsha Blackburn

1. **Dr. Frieden, are you aware of a detection system called Canary made by Isomark?**

   It is my understanding that this test can detect infections up to two days before current practices. It is a non-invasive and inexpensive breath test. Preclinical and clinical work has demonstrated proof of concept. The company has been awarded a $1.7 million from NIH and is launching a human subject study.

   When you speak of looking at all options to stop the Ebola epidemic, is this one of the options that you have looked at?

Response: At this time, work on development of this technology is appropriately on investigating its efficacy. CDC would become engaged later in the process.

2. **Dr. Frieden, are you aware of a kit called Film Array, produced by a company called BioFire, subsidiary of bioMerieux?**

Response: It is my understanding that this kit is currently used by the military to screen for Ebola in Africa, as well as other respiratory and gastrointestinal illnesses with a 90-percent sensitivity.

3. **When you speak of looking at a11 options to stop the Ebola epidemic, is this one of the options that you have looked at?**

Response: CDC submitted a material transfer agreement (MTA) to work with BioFire, which is currently under review. The MTA enables the exchange of proprietary material for research purposes and dictates the terms of the exchange. CDC is planning to procure one of their instruments to establish sensitivity and specificity data to provide evidence for the potential effectiveness of their test in the field.

The Honorable Morgan Griffith

1. **Dr. Frieden, we realize the focus is on Ebola at present, and rightly so. But CDC has other public health responsibilities, and as we enter the flu season and with enterovirus cases continuing to grow, I am curious how CDC is managing these other responsibilities while meeting the considerable demands imposed by the Ebola response.**

    a. **How strained are CDC's resources right now?**

Response: CDC received $30 million to support Ebola response activities in the FY 2015 Continuing Resolution (CR). The CR funding was a stop-gap amount to keep CDC engaged in the first 11 weeks of FY 2015. The $30 million will not provide the necessary public health support to contain the spread of the disease in West Africa or scale preparedness efforts here in the United States. CDC work needs to include the countries with active epidemics as well as those most at risk for imported cases that could become outbreaks. CDC also needs to ensure that Ebola and other emerging infectious disease outbreaks do not go undetected in the future.

CDC has undertaken the largest global response in the agency's history, with over 160 staff deployed in West Africa, and more than 1,000 staff involved in the Emergency Operations Center (EOC) to help coordinate technical assistance and control activities with partners. On August 6, CDC elevated the EOC to a Level 1 activation, its highest level, because of the significance of the outbreak. Hundreds of CDC staff members have provided logistics, staffing, communication, analytics, management, and other support functions for the response. CDC staff are deployed to Guinea, Liberia, Nigeria, Senegal, Sierra Leone, and Mali to assist with response efforts, including surveillance, contact tracing, data management, laboratory testing, and health education.

The Administration's Emergency Request for Ebola funding included $1.83 billion for CDC to fight Ebola on all fronts, with the goals of stopping the Ebola epidemic at its source; supporting immediate and decisive response to any domestic case; and preparing for & responding to disease threats around the world – to prevent the next Ebola or other emerging health threat and implement the Global Health Security Agenda.

b. Will the new Ebola SWAT teams and everything else you now have to activate detract from keeping track of enterovirus and other public health threats?

Response: CDC is continuing our work in critical areas other than Ebola including enterovirus D68 (EV-D68). Every year, enteroviruses and rhinoviruses cause millions of respiratory illnesses in children. This year, EV-D68 has been the most common type of enterovirus identified, leading to increases in illnesses among children and affecting those with asthma most severely.

CDC continues to collect information from states and assess the situation to better understand EV-D68 and the illness caused by this virus and how widespread EV-D68 infections may be within states and the populations affected. We are also helping states with diagnostic and molecular typing for EV-D68. A huge increase in testing for enterovirus meant that some of our laboratory staff worked weekends and nights for nearly two months without a break. We are working with state and local health departments and clinical and state laboratories to enhance their capacity to identify and investigate outbreaks and perform diagnostic and molecular typing tests to improve detection of enteroviruses and enhance surveillance.

Even as they were testing specimens, the CDC laboratory staff developed, and started using on October 14, a new, faster lab test that can detect EV-D68. The new test has fewer and shorter steps than the test that CDC and some states were using previously during this EV-D68 outbreak. CDC has made the protocols publically available on its website (http://www.cdc.gov/non-polio-enterovirus/hcp/EV-D68-hcp.html) and is exploring options for providing test kits to state public health labs. In addition, we are providing information to health care professionals, policymakers, the general public, and partners in numerous formats, including Morbidity and Mortality Weekly Reports (MMWRs), health alerts, websites, social media, podcasts, infographics, and presentations. Other CDC activities include obtaining one complete genomic sequence and six nearly complete genomic sequences from viruses representing the three known strains of EV-D68 that are causing infection at this time and posting these sequences on Gen Bank. Comparison of these sequences to sequences from previous years shows they are genetically related to strains of EV-D68 that were detected in previous years in the United States, Europe, and Asia.

c. With EV-D68, what can we do to protect kids who seem to be the most vulnerable to this virus?

Response: The same measures that are used to prevent other infections are important for preventing EV-D68:

- Wash hands often with soap and water for 20 seconds
- Avoid touching eyes, nose and mouth with unwashed hands
- Avoid close contact such as kissing, hugging, and sharing cups or eating utensils with people who are sick, or when you are sick
- Cover your coughs and sneezes with a tissue or shirt sleeve, not your hands
- Clean and disinfect frequently touched surfaces, such as toys and doorknobs, especially if someone is sick
- Stay home when you are sick
- There is no vaccine for EV-D68, but it is important to stay up to date on other vaccinations including flu vaccine.

Children with asthma are at risk for severe symptoms from EV-D68 and other respiratory illnesses. Parents should follow CDC's guidance to maintain control of their children's illness:

- Discuss and update their child's asthma action plan with their primary care provider.
- Provide prescribed asthma medications as directed, especially long term control medication(s).
- Be sure to keep their reliever medication with the child.
- Parents and children should receive flu vaccine.
    - If a child develops new or worsening asthma symptoms, follow the steps of their asthma action plan. If the symptoms do not go away, call the doctor right away.
    - Parents should make sure the child's caregiver and/or teacher is aware of his/her condition, and that they know how to help if the child experiences any symptoms related to asthma.

d. Has CDC figured out if there is a link between the virus and the cases of paralysis that have occurred?

Response: Every year, children in the United States develop this type of neurologic illness, and often the

causes are not identified. CDC is working with health care professionals and state and local health departments to investigate all the reported cases since August. The investigation of these cases is allowing us to better understand the illness, who is affected, how often the illness occurs, and potential causes; such investigations take time to conduct thoroughly.

Among other possible causes, CDC is investigating whether the cases of neurologic illness may be linked to the outbreak of severe respiratory illness caused by enterovirus D68 (EV-D68) that the United States experienced this year. Enteroviruses most commonly cause mild illness, sometimes aseptic meningitis, less commonly encephalitis, and rarely, acute myelitis and paralysis. We are aware of only two published reports of children with neurologic illnesses confirmed as EV-D68 infection from cerebrospinal fluid testing. Historically, it has been challenging to identify causes of illness with muscle weakness.

CDC understands that Americans may be concerned about these illnesses. Severe illness is always a concern to us, especially when children are affected. We will continue to share information as soon as we have it, and post updates at http://www.cdc.gov/ncird/investigation/viral/sep2014.html.

NOTE: CONTENT ACCURATE AS OF NOVEMBER 17, 2014

The Honorable Ben Ray Lujan

1. **As you know, we have a responsibility to ensure that our hospitals and our front-line health care professionals are capable of safely handling a potential Ebola case. Recently, I heard from a constituent whose daughter had worked in a state public health lab and had experience training lab workers how to properly respond if they found dangerous biohazard threats, such as Ebola. She conveyed to my office that, in her experience, it was difficult to find protective gear that fit certain body types, particularly smaller individuals. Ill-fitting gear exacerbated the challenges associated with conducting activities that, even in properly fitting safety gear can be difficult for those with limited experience wearing such gear in the first place.**

   In addition, after a recent scare at the Christus St. Vincent Regional Medical Center in Santa Fe, the hospital's nurses expressed concerns with the adequacy of their training and preparation. Before this incident, the hospital had not held a drill simulating a biological or chemical disaster or provided training to emergency staff on using their protective gear since April.

   Dr. Frieden, can you detail the steps the CDC is taking to ensure that our nation's hospitals and front-line health care workers are prepared and have the proper resources, included adequate protective gear? What lessons have you learned from the mistakes made at Texas Health Presbyterian Hospital? And, do you believe the CDC needs any additional authorities or resources?

Response: Enhanced guidance is based on the breadth of existing knowledge including patients who have been cared for at Texas Health Presbyterian Hospital, Emory University Hospital, NIH, and Nebraska Medical Center. CDC continues to work closely with hospitals and health care facilities to update guidance and recommendations, including expanding previous infection control guidance for health care workers caring for patients with Ebola. CDC is actively working to educate U.S. state and local health departments on CDC guidelines for Ebola applicable to public health preparedness national standards for state and local planning.

CDC has formed Rapid Ebola Preparedness (REP) and Infection Control Assessment and Response (ICAR) teams that deploy to pre-identified facilities to work with local health officials and hospitals in assessing their readiness for caring for patients with Ebola. REP teams are composed of CDC experts in infection control, occupational health, and laboratory issues; other HHS personnel including National Hospital Preparedness Program Field Project Officers and other regional staff; federal and state OSHA staff; and external local experts. State health officials and candidate hospitals determine the hospitals in their state or region where patients suspected of having Ebola will be transported for treatment for the full course of illness. During the visit, the REP team identifies areas that pose challenges and provide technical assistance and support to gain readiness in the areas identified. Implementation and adherence to CDC recommendations lies with individual hospitals. A positive corollary of the intensive training and preparation at these facilities may be increased readiness for other disease outbreaks in the future. In the event of a confirmed Ebola case, CDC will immediately deploy a CDC Ebola Response Team (CERT) to provide on the ground technical assistance and clinical support to the treatment hospital and the health care community.

With the magnitude of this unprecedented response, the Administration's Emergency Request for Ebola funding included $1.83 billion for CDC to fight Ebola on all fronts, with the goals of stopping the Ebola epidemic at its source; supporting immediate and decisive response to any domestic case; and preparing for and responding to disease threats around the world and implement the Global Health Security Agenda. In addition to resources, the Emergency Funding Request contains several authorities important to CDC's domestic and overseas response:

1) **Funding transfer authority**: Transfer authority would allow CDC to move these funds across CDC accounts to be able to more quickly respond to health security issues. The authority requires CDC to notify Congress promptly of any transfers made.

2) **Adding to the Strategic National Stockpile**: The proposed Ebola funding specifically authorizes that "products purchased with these [ebola] funds may… be deposited in the Strategic National Stockpile."

3) **Personal service contract authority**: This authority would authorize CDC to use personal service contracts for Ebola response staffing domestically

4) **Expanded overseas facilities authority**: This proposal would allow CDC to "acquire, lease, construct, alter, renovate, equip, furnish, or manage facilities" overseas.

5) **Overseas auto purchase and insurance authority** was added to the CDC-Wide Ebola response proposal to allow Ebola funds to be used overseas for car purchase and usage (CDC's global health account already has this authority).

2. Recently, the Liberian government published a list of supplies that it believes it needs to address the Ebola outbreak. That list included a request for nearly 85,000 additional body bags.

Clearly, the Ebola outbreak in West Africa represents a major humanitarian crisis-one that we have a moral obligation to forcefully address. And, as you said in your testimony, "the most effective step we can take to protect the United States is to stop the epidemic where it is occurring."

Can you provide us with an update on what CDC is seeing on the ground in West Africa? Considering the state of these countries' health infrastructure, what challenges are you facing? And are there any additional steps that Congress should be considering to address this crisis?

Response: The situation in West Africa continues to be of significant concern. EVD transmission remains widespread in Sierra Leone and Liberia, and in several critical areas of Guinea, as well as new cases emerging in Mali. CDC staff is actively working with local authorities and United States Government and non-governmental organization partners to respond by supporting the coordination of the response by local authorities, supporting surveillance, laboratory and infection control activities, conducting contact tracing, and developing risk reduction messages and communication strategies. There is evidence that the activities we have undertaken to respond to the outbreak have had a positive impact as two counties in Liberia have seen decreasing rates of EVD. Despite the positive movement, new and often more remote

areas continue to be heavily affected. As such, we must continue to mount a response that is both fast and flexible in order to respond to the response as it evolves. As of November 17, 2014, there continue to be a number of challenges in combatting the EVD outbreak, including:

- A shortage of health care workers and epidemiologists;
- Need for infection control procedures to be improved, especially in non-Ebola Treatment Unit (ETU) health care facilities;
- Need to maintain supplies of personal protective equipment (PPE) in ETUs;
- A lack of PPE in appropriate quantities in non-ETU health facilities;
- Few health care facilities outside of major population areas;
- Too few vehicles are available for contact tracing, safe burials and patient transport,
- Little road infrastructure limiting access to remote communities;
- Lengthy timeframes in transporting specimens to laboratories from remote areas,
- Unreliable communications networks;
- Few non-governmental organizations with the ability to implement public health or medical response activities to augment existing Ministry of Health-run facilities;
- Partner organizations with needed skills are interested but underutilized: they either do not have existing presence in West Africa, or if they have a presence, are unable to take on additional activities; and
- Need to balance health needs in the region, i.e., deploying CDC to respond to the Ebola outbreak while or instead of maintaining other important health projects such as on malaria or immunizations.

As a result, supplies and staff have to be brought in from outside of the affected countries and staff in country must be trained. This is often complicated by lengthy hiring processes; lacking medevac assurances for foreign medical providers; and the small number of partners in West Africa with absorptive capacity or partners with the ability to start new operations in the near future to take on some of the additional public health activities needed to support the response.

As future trends in the outbreak cannot be predicted with certainty, it is important that the United States Government remain committed to fighting the outbreak until the last case has been treated and released. The United States Government must also remain committed to assembling a nimble, flexible response that includes, but is not limited to, funding with availability for longer time horizons, special hiring authorities to ensure that needed staff can be quickly hired, support for medevac for health care providers back to their home country, and other future needs. As responses in Nigeria and Senegal have shown, a fast and flexible effort can contain EVD. A consistent long term commitment must be made to the highly impacted countries and neighboring countries to help them prepare and respond. Our global health security depends on it.

3. **The appearance of a handful of Ebola cases in the United States demonstrates the importance of robust investments in our nation's public health infrastructure. Unfortunately, the National Institutes of Health's budget has been largely flat for years. In addition, we've seen cuts to the Center for Disease Control and the Department of Health and Human Services' Hospital Preparedness program. Can each of you discuss if budget cuts have had any impact on our response to the Ebola outbreak in West Africa or impacted the handling of the cases here in the United States?**

Response: Even before the Ebola epidemic, CDC recognized the need to expand the Global Health Security Agenda, and proposed an increase in resources in the FY 2015 President's Budget. The Ebola epidemic made the need for global health security an urgent need. This epidemic starkly demonstrated the difference between nations with and without public health capacity—Nigeria was able to halt its epidemic, while Liberia and the other two nations did not. We recognize that the United States cannot wait years to begin efforts that can prevent the next outbreak that will threaten the nation and the world.

The United States significantly enhanced its preparedness in the years following the September 11th attacks, when funds were provided for enhancing public health preparedness. State and local health departments have greatly increased their capacity to respond to an array of hazards, which is evidenced through states' proven success in responding to critical events without requesting direct federal financial support for public health. Ebola virus disease response requires additional equipment, facilities, and specialized training beyond what is typically required for all hazards preparedness. The unique nature of this disease requires additional steps to enhance our response measures to ensure whole community preparedness.

The Honorable Paul Tonko

1. **Protecting the United States population from Ebola outbreak should be the number one priority of the CDC. In light of this, many have called for a travel ban for those traveling into or out of the affected countries. In your opinion, at this time would a travel ban increase or decrease the risk of the United States being exposed to an Ebola outbreak?**

Response: The Administration does not recommend stopping travel from countries with Ebola outbreaks. Travel restrictions balance the public health risk to others, the rights of individuals, and the impact of the recommendations on the welfare of the countries with Ebola outbreaks. They are based on the least restrictive means necessary to protect the public's health. The key to controlling this epidemic is to focus on stopping the spread at its source, and international humanitarian assistance must continue.

Every day, CDC works closely with partners at U.S. international airports and other ports of entry to look for sick travelers with possible contagious diseases. From August 2014 (as of November 17, 2014), CDC has deployed 45 staff members to five West African countries including: Guinea, Liberia, Nigeria, Senegal and Sierra Leone to develop and implement exit screening of all departing international travelers. Currently, there are six CDC staff deployed internationally supporting airport exit screening programs, and CDC has recently added staff to assist with exit screening in Mali.

CDC and the Department of Homeland Security (DHS) are conducting enhanced entry screening at five U.S. airports (New York's JFK International, Washington-Dulles, Newark, Chicago-O'Hare, and Atlanta) for all U.S.-bound air travelers who have been in Liberia, Sierra Leone, Guinea, and Mali. Entry screening helps prevent further spread of Ebola and protect the health of all Americans by identifying travelers who may be sick with Ebola or may have had an exposure to Ebola, and to ensure that these travelers are directed to appropriate care, if needed.

Active post-arrival monitoring is occurring in all states. Active post-arrival monitoring means that health officials maintain daily contact with travelers from Guinea, Liberia, Sierra Leone, and Mali for 21 days following their last date of exposure to Ebola. Post-arrival monitoring is an added safeguard that complements existing exit screening protocols, which require all outbound passengers from the affected West African countries to be screened for fever.

On October 27, CDC released Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure to protect Americans from Ebola. This updated guidance focuses on strengthening monitoring of people potentially exposed to Ebola and for evaluating their intended travel, including the application of movement restrictions when indicated. This interim guidance has been updated by establishing a "low (but not zero) risk" category; adding a "no identifiable risk" category; modifying the recommended public health actions in the high, some, and low (but not zero) risk categories; and adding recommendations for specific groups and settings.

Through these changes, CDC and state and local health departments seek to support people who may have been exposed to Ebola, while also continuing to stop Ebola at its source in West Africa through the valor of our health care workers who serve. These changes will help systematize monitoring of any symptoms they might develop and quick referral when they need to be routed to care. These actions will better protect potentially exposed individuals and the American public as a whole.

2. **How does the Ebola response compare to U.S. efforts to prevent other highly infectious diseases from entering the U.S., such as SARS or H1N1? Did we rely on a multi-layered approach to screen for those viruses? Was travel restricted?**

Response: CDC relies on multi-layered, proven strategies for responding to public health emergencies. It is important to note that the circumstances, including epidemiologic, geographic, social and cultural, among others, of each emergency play key roles in how CDC responds. The outbreak of Severe Acute Respiratory Syndrome (SARS), pandemic (H1N1) 2009 influenza, and Ebola Virus Disease (EVD) differ in key ways, including method of transmission, incubation period, infection rates, and affected areas. CDC's response to EVD is the largest global response in the agency's history with over 160 staff deployed in West Africa, more than 1,000 staff involved in the Emergency Operations Center (EOC) to help coordinate technical assistance and control activities with partners.

CDC travel recommendations and procedures in response to EVD are different than those employed during the response to SARS and pandemic (H1N1) 2009 influenza. All air travelers entering the United States who have been in Guinea, Liberia, Sierra Leone, and Mali are being routed through five U.S. airports (New York's JFK International, Washington-Dulles, Newark, Chicago-O'Hare, and Atlanta) for enhanced entry screening as described above. These inbound travelers receive Check and Report Ebola (CARE) Kits that contain further information about Ebola. This kit includes a health advisory infographic about monitoring for Ebola symptoms for 21 days, pictorial description of symptoms, a thermometer with instructions for how to use it, a symptom log, and a wallet-sized card that reminds travelers to monitor their health and provides information about who to call if they have symptoms.

In the United States, SARS was a travel-associated illness. During the investigation into the SARS outbreak, CDC's public health staff at United States ports of entry:

- Provided information to returning travelers arriving in the United States either directly or indirectly from Hong Kong, Guangdong Province, People's Republic of China and Hanoi, Vietnam on airplanes, cargo ships or cruise ships;
- Distributed health alert notices to those travelers advising them that they may have been exposed to people who had SARS and recommending they monitor their health for at least 7 days and to contact their physicians if they become ill with a fever accompanied by a cough or difficulty breathing;
- Boarded airplanes and ships with travelers reported to be ill to assess whether their symptoms match the case definition of SARS;
- Provided timely updates to government agencies partnering in these activities as well as to travel industry organizations; and
- Worked with CDC's SARS investigation team and local and state health departments to assist in the investigation of suspected cases of SARS.

In response to pandemic (H1N1) 2009 influenza, CDC issued a travel health warning recommending that United States travelers postpone all non-essential travel to Mexico. This issuance was based on reports of widespread influenza-like-illness and many severe illnesses and deaths in Mexico. CDC provided information to the traveling public and travel industry partners. As in past influenza seasons, CDC urged the public and especially those people at highest risk of influenza-related complications, to protect themselves by taking antiviral drugs early in their illness when recommended by their doctor; CDC also advised that everyone take every day preventive actions like covering coughs and sneezes and staying

home from work and school when ill to help reduce the spread of illness.

3. **What are the CDC's recommended procedures on the protective measures to be taken when a potential Ebola case is diagnosed? Is the patient put into isolation at this time? Is the hospital staff alerted to wear full body personal protective equipment?**

Response: CDC has provided guidance on the protective measures to be taken when a potential Ebola case is identified. Details can be found in the document "Emergency Department Evaluation and Management of Patients with Possible Ebola Virus Disease" on the CDC website. Early recognition is critical to controlling the spread of Ebola virus. Health care providers should evaluate the patient's epidemiologic risk, including a history of travel to a country with widespread Ebola virus transmission or contact with a person with symptomatic Ebola within the previous 21 days. CDC developed an evaluation algorithm to determine if testing for Ebola is indicated.

If a diagnosis of Ebola is being considered, the patient should be isolated in a single room, and health care personnel should follow standard, contact, and droplet precautions, including the use of appropriate personal protective equipment (PPE) as detailed in the guidance document. Infection control personnel and the health department should be contacted immediately. The need for Ebola virus testing and initiation of identification of contacts will be determined in consultation with health department officials. Health departments should immediately report any persons under investigation by calling CDC's Emergency Operations Center.

Detailed guidance, a checklist, an algorithm, and frequently asked questions can be found on the CDC website.

4. **What is the CDC doing to ensure that hospital staff is complying with best practices tor preventing infection? Will there be trained compliance staff on the ground at future outbreaks to ensure compliance with safety procedures?**

Response: CDC continues to work closely with hospitals and health care facilities to update guidance and recommendations, including expanding previous infection control guidance for health care workers caring for patients with Ebola. CDC is actively working to educate U.S. state and local health departments on CDC guidelines for Ebola applicable to public health preparedness national standards for state and local planning, and to bring updated recommendations and information to U.S. health care workers. CDC efforts to reach health care workers in the United States include:

- Educating and answering questions from clinical partners. CDC has reached over 326,700 individuals through conference calls to provide training and updates on CDC guidance.
- Hosting live events to educate health care workers and others about infection control principles and demonstrate appropriate use of PPE.
    - NYC event on October 21st with over 5,400 people in-person, 53 media outlets, and at least 20,000 people on livestream in 10 countries. The event was co-hosted by the Partnership for Quality Care (PQC) and the 1199SEIU/Greater New York Hospital Association Healthcare Education Project.

  - Los Angeles Event on November 7th with over 1,000 people in-person, a dozen media outlets, and thousands of people on live stream in hundreds of health care facilities across the country. The event was co-hosted by Kaiser Permanente, the Coalition of Kaiser Permanente Unions, the Partnership for Quality Care, and United Nurses Associations of California/Union of Health Care Professionals, Service Employees International Union (SEIU) – United Healthcare Workers West, SEIU Local 721 and Los Angeles County Department of Health.
  - American Medical Association meeting on November 9th that was live streamed to thousands of individuals.
- Collaborating with online clinical communities (e.g., Medscape) to provide education and tools directly to health care workers. Medscape has also streamed CDC live events. Through Medscape training alone CDC has been able to reach 298,000 health care professional with online health care training resources.
- Contracting with Johns Hopkins University to create additional training videos for donning and doffing PPE guidance, including videos tailored to emergency departments (ED) and outpatient staff.
- Disseminating guidance through CDC's website and promoting it through CDC email distribution lists, plus additional partner outreach. For example, the PPE videos have been viewed over 225,000 times. Viewers logged more than 150,000 minutes (or 2500 hours) watching the videos
- Working with state and local health departments, public health partners, and professional organizations to improve and accelerate implementation of effective infection control measures for emergency departments and outpatient settings.

CDC is working to ensure that health care workers are receiving information about Ebola in a manner that raises their level of awareness.

CDC has formed Rapid Ebola Preparedness (REP) teams that deploy to pre-identified facilities to work with local health officials and hospitals in assessing their readiness for caring for patients with Ebola. REP teams are composed of CDC experts in infection control, occupational health, and laboratory issues, other HHS personnel including National Hospital Preparedness Program Field Project Officers and other regional staff, and external local experts. State health officials and candidate hospitals determine the hospitals in their state or region where patients suspected of having Ebola will be transported for treatment for the full course of illness. During the visit, the REP team identifies areas that pose challenges and provide technical assistance and support to gain readiness in the areas identified. While implementation and adherence to CDC recommendations lies with individual hospitals, a positive corollary of the intensive training and preparation at these facilities may be increased readiness for other disease outbreaks in the future.

In the event of a confirmed Ebola case, CDC will immediately deploy a CDC Ebola Response Team (CERT) to provide on the ground technical assistance and clinical support to the treatment hospital and the health care community.

5. **Aid groups working in Africa, such as Samaritan's Purse and Doctors without Borders have criticized the CDC's guidelines for being too lax. Has the CDC consulted with these groups as to best practices and what can be done to improve CDC's guidelines so that no cases of Ebola**

are transmitted within the United States?

Response: CDC's Guidance for U.S. health care settings is similar to Doctors Without Borders guidance, and reflects lessons learned from the recent experiences of U.S. hospitals caring for Ebola patients and emphasizes the importance of training, practice, competence, and observation of health care workers in correct donning and doffing of PPE selected by the facility.

6. **Ebola is categorically different the type of airborne diseases that hospital isolation units were built to accommodate. Do we need to rethink our approach with Ebola isolation procedures and look to some of the practices on the ground in West Africa when treating these patients?**

Response: Ebola virus is not an airborne disease. It is transmitted by direct contact with blood or body fluids of a person who is sick with Ebola or with objects (like needles and syringes) that have been contaminated with the virus. The experience of the U.S. hospitals that have successfully treated patients with Ebola without further transmission supports that current guidance is an effective approach.

7. **Your testimony states that Nigeria and Senegal have implemented proven practices such as contact tracing, monitoring, and isolation to contain the spread of the virus. With these nations on the verge of being declared Ebola free, how similar are domestic protocols to the ones successfully implemented overseas? What lessons have we learned that can be incorporated to our domestic procedures?**

Response: CDC is incorporating lessons learned as the response evolves and has adjusted guidance, recommendations, and procedures based on developing information and knowledge. CDC's current guidance for domestic response reflects best practices in public health strategies as appropriate and feasible for the environment and settings in the United States. Effective approaches in the fundamental public health activities are in use domestically and internationally.

8. **Public health experts, including yourself, have testified that the only way we will ultimately be able to keep Americans safe from Ebola is eradicating the disease at its source in West Africa. What are the major challenges for getting ahead of this disease in West Africa, and is the current response adequate to meet the needs?**

Response: As of November 17, 2014, there continue to be a number of challenges in combatting the EVD outbreak, including:

- A shortage of health care workers and epidemiologists;
- Need for infection control procedures to be improved, especially in non-Ebola Treatment Unit (ETU) health care facilities;
- Need to maintain supplies of personal protective equipment (PPE) in ETUs;
- A lack of PPE in appropriate quantities in non-ETU health facilities;
- Few health care facilities outside of major population areas;
- Too few vehicles are available for contact tracing, safe burials and patient transport,
- Little road infrastructure limiting access to remote communities;
- Lengthy timeframes in transporting specimens to laboratories from remote areas,
- Unreliable communications networks;
- Few non-governmental organizations with the ability to implement public health or medical

response activities to augment existing Ministry of Health-run facilities;

- Partner organizations with needed skills are interested but underutilized: they either do not have existing presence in West Africa, or if they have a presence, are unable to take on additional activities; and
- Need to balance health needs in the region, i.e., deploying CDC to respond to the Ebola outbreak while or instead of maintaining other important health projects such as on malaria or immunizations.

In order to halt the outbreak, we must work with partners, local staff and governments in West Africa and United States Government agencies to continue contact tracing, surveillance and case identification, risk communication, infection control, Emergency Operations Center development, laboratory testing, care and treatment, exit screening, and in activities to mitigate second order impacts.

As future trends in the outbreak cannot be predicted with certainty it is important that the USG remain committed to fighting the outbreak until the last case has been treated and released and the health systems in these countries can identify future outbreaks. CDC is undertaking a response that is both fast and flexible. And as such, new needs will periodically be identified as the outbreak changes and new barriers to implementation are identified. As responses in Nigeria and Senegal have shown, it is possible to contain EVD. Our response (and the resources that it requires) needs to be thought of as a marathon and not a sprint. A consistent long term commitment must be made to the highly impacted countries and neighboring countries to help them prepare and respond.

9. **It is estimated that Liberia has only one doctor for every 100,000 people. What are the challenges CDC has faced in training health care workers in a country with poor public health and physical infrastructure? What efforts have been made to get more personnel and resources to rural and isolated communities?**

Response: There was a severe shortage of health care centers and health care providers before the Ebola outbreak. Health care workers have been especially ravaged by Ebola Virus Disease (EVD); over 300 have died as a result of providing care to EVD patients. The risk of Ebola and lack of personal protective equipment (PPE) for non-Ebola Treatment Unit (ETU) settings has further reduced the willingness of health care providers to provide health care for conditions other than EVD.

In coordination with USAID, Ministries of Health and non-governmental organization (NGO) partners, CDC has developed and is implementing infection control training programs in the affected countries.

In order to increase the personnel and resources for remote communities, CDC is working with organizations such as the African Union and Partners in Health to recruit and station personnel in West Africa. The African Union will support both epidemiologists and clinicians to participate in the response. CDC will also maintain a cadre of staff in country to address issues at the national and local level.

Transportation via helicopter is an urgent need for personnel and resources to arrive in remote communities and for specimens from these communities to be transferred to laboratories in a timely manner for testing. For example, while some treatment for health care workers who contract Ebola while treating patients is available in Monrovia and Freetown, few medevac and high-level treatment options are open to health care providers treating Ebola patients. This limits health care providers' willingness to

travel to the affected countries.

10. Can you please provide specific details about the work being done by U.S. personnel on the ground in West Africa? Is CDC directly monitoring exit screenings to identify potentially infected passengers before they attempt to leave the country?

Response: Hundreds of CDC staff members have provided logistics, staffing, communication, analytics, management, and other support functions for the response. CDC has deployed several teams of public health experts to the West Africa region. CDC staff are deployed to Guinea, Liberia, Nigeria, Senegal, and Sierra Leone to assist with response efforts, including surveillance, contact tracing, data management, laboratory testing, and health education. CDC supports countries with widespread Ebola transmission in establishing their own national and sub-national EOCs. All three West African countries at the center of the epidemic now have established an Incident Manager position, reporting to the presidents of the countries, to lead response efforts. Some specific activities include:

- CDC experts have been deployed to non-affected border countries in West Africa, including Cote d'Ivoire, to conduct assessments of Ebola preparedness in those countries.
- CDC staff are assisting with setting up an emergency response structure, contact tracing, providing advice on exit screening and infection control at major airports, and providing training and education in countries with widespread Ebola virus transmission.
- CDC's health promotion teams, consisting of health communicators and public health advisors deployed to Guinea, Liberia, and Sierra Leone, are working closely with country embassies, UNICEF, WHO, ministries of health, and nongovernment organizations to develop public health messages and implement social mobilization activities.
    - In all three countries, CDC health communicators are meeting with local community leaders beyond capital cities.
    - CDC is partnering with major telecommunications companies in the affected countries (ORANGE and Cellcom in Guinea; Africell in Sierra Leone; and Cellcom and Lonestar in Liberia).
    - CDC engaged with UNICEF and Focus 1000 in the development of a Knowledge, Attitudes, and Practices (KAP) study in Sierra Leone and is using the results to inform future message strategies.
    - In Liberia, CDC supports the Carter Center's trainings for chiefs in 15 counties to improve Ebola response activities.
    - CDC's Ebola radio spots for West African communities are broadcast throughout the day by UNICEF, the U.S. Embassy, and other distribution outlets for public dissemination on radio and megaphones in churches, trucks, and public buildings in Freetown and Kenema, Sierra Leone.
    - CDC is working with UNICEF and WHO in Sierra Leone and Liberia to develop national key messages.
    - CDC is working with USAID and UNICEF to prepare communication strategies to educate local populations on community care centers and home health and hygiene kits disseminated by other agencies.

  - CDC and the Carter Center developed PSAs recorded by President Jimmy Carter for audiences in West Africa.
  - CDC, the U.S. embassy, and UNFPA developed a distribution plan for messages by President Obama in Guinea, translated into French.
  - An Ebola Field Communications Site provides resources and information to support CDC staff working in West Africa. It serves as a knowledge management platform to inform and coordinate the development of communications content and strategies with CDC staff working in the Emergency Operations Center in Atlanta.
- CDC is working closely with U.S. Agency for International Development (USAID), Office of Foreign Disaster Assistance (OFDA), to support the deployment to Liberia of a Disaster Assistance Response Team (DART), which is coordinating the U.S. government's Ebola response in West Africa.
- CDC, in partnership with WHO's Global Outbreak Alert and Response Network and the U.S. National Institutes of Health (NIH), has provided a field laboratory to Liberia to increase the number of specimens being tested for Ebola.
- The DART continues to support the Government of Liberia (GoL) and U.N. agencies to plan, construct, and run Ebola Treatment Units throughout Liberia.
- USAID/OFDA contributed $2.2 million to UNICEF to procure and distribute 50,000 household protection kits in Liberia. An initial 9,000 of those kits have been delivered.

CDC also is working with airlines, airports, and ministries of health in West Africa to provide technical assistance for developing exit screening and travel restriction in countries with Ebola outbreaks. This includes:

- Assessing the capacity of countries and airports to conduct exit screening;
- Assisting with development of exit screening protocols;
- Training staff on exit screening protocols and appropriate PPE use; and
- CDC has issued a Warning, Level Three notice for U.S. citizens to avoid nonessential travel to the West African nations of Guinea, Liberia, and Sierra Leone. CDC has issued an Alert Level Two notice for U.S. citizens to practice enhanced precautions when traveling to Mali.

The Honorable Gene Green

1. **Dr. Frieden, what is the process and timeline for updating and communicated (sic) changes in protocols to local health care providers?**

Response: CDC continues to work closely with hospitals and health care facilities to update guidance and recommendations, including expanding previous infection control guidance for health care workers caring for patients with Ebola to ensure there is no ambiguity and to better emphasize the importance of training, practice, competence, and observation of health care workers in correct donning and doffing of PPE selected by the facility. Enhanced guidance is based on the breadth of existing knowledge including patients who have been cared for at Texas Health Presbyterian Hospital, Emory University Hospital, NIH, and Nebraska Medical Center.

CDC is actively working to bring updated recommendations and information to U.S. health care workers. We provide these through regular outreach via the website, industry calls and meetings, trainings, and social media communication, and notify partners through well-established communication channels as soon as guidance, recommendations or information is updated. CDC efforts to reach health care workers in the United States include:

- Educating and answering questions from clinical partners. CDC has reached over 326,700 individuals through conference calls to provide training and updates on CDC guidance.
- Hosting live events to educate health care workers and others about infection control principles and demonstrate appropriate use of PPE.
    - NYC event on October 21st with over 5,400 people in-person, 53 media outlets, and at least 20,000 people on livestream in 10 countries. The event was co-hosted by the Partnership for Quality Care (PQC) and the 1199SEIU/Greater New York Hospital Association Healthcare Education Project.
    - Los Angeles Event on November 7th with over 1,000 people in-person, a dozen media outlets, and thousands of people on live stream in hundreds of health care facilities across the country. The event was co-hosted by Kaiser Permanente, the Coalition of Kaiser Permanente Unions, the Partnership for Quality Care, and United Nurses Associations of California/Union of Health Care Professionals, Service Employees International Union (SEIU) – United Healthcare Workers West, SEIU Local 721 and Los Angeles County Department of Health.
    - American Medical Association meeting on November 9th that was live streamed to thousands of individuals.
- Collaborating with online clinical communities (e.g., Medscape) to provide education and tools directly to health care workers. Medscape has also streamed CDC live events. Through Medscape training alone CDC has been able to reach 298,000 health care professional with online health care training resources.
- Contracting with Johns Hopkins University to create additional training videos for donning and doffing PPE guidance, including videos tailored to emergency departments (ED) and outpatient staff.

- Disseminating guidance through CDC's website and promoting it through CDC email distribution lists, plus additional partner outreach. For example, the PPE videos have been viewed over 225,000 times. Viewers logged more than 150,000 minutes (or 2500 hours) watching the videos
- Working with state and local health departments, public health partners, and professional organizations to improve and accelerate implementation of effective infection control measures for emergency departments and outpatient settings.

CDC is working to ensure that health care workers are receiving information about Ebola in a manner that raises their level of awareness.

CDC is actively working to bring updated recommendations and information through regular outreach via the website, industry calls and meetings, trainings, and social media communication, and notify partners through well-established communication channels as soon as guidance, recommendations or information is updated.

2. **What have we learned about failures of isolation and personnel protection from the experience at Texas Health Resources' Presbyterian hospital? And have these lessons been shared with other hospitals so we can avoid the same errors in the future?**

Response: Enhanced guidance is based on the breadth of existing knowledge including patients who have been cared for at Texas Health Presbyterian Hospital, Emory University Hospital, NIH, and Nebraska Medical Center. CDC continues to work closely with hospitals and health care facilities to update guidance and recommendations, including expanding previous infection control guidance for health care workers caring for patients with Ebola. CDC is actively working to educate U.S. state and local health departments on CDC guidelines for Ebola applicable to public health preparedness national standards for state and local planning.

CDC has formed Rapid Ebola Preparedness (REP) teams that deploy to pre-identified facilities to work with local health officials and hospitals in assessing their readiness for caring for patients with Ebola. REP teams are composed of CDC experts in infection control, occupational health, and laboratory issues, as well as external local experts. State health officials and candidate hospitals determine the hospitals in their state or region where patients suspected of having Ebola will be transported for treatment for the full course of illness. During the visit, the REP team identifies areas that pose challenges and provide technical assistance and support to gain readiness in the areas identified. While implementation and adherence to CDC recommendations lies with individual hospitals, a positive corollary of the intensive training and preparation at these facilities may be increased readiness for other disease outbreaks in the future.

In the event of a confirmed Ebola case, CDC will immediately deploy a CDC Ebola Response Team (CERT) to provide on the ground technical assistance and clinical support to the treatment hospital and the health care community.

3. **I understand CDC is not a regulatory agency. Can you provide clarity over CDC's authority and responsibilities in the setting and enforcement of protocols?**

Response: CDC's regulatory responsibilities are limited. For example, CDC administers and enforces the

quarantine and isolation regulations found at 42 CFR parts 70 and 71, as authorized by section 361 of the Public Health Service Act. In the context of health care settings, CDC does not administer regulations. CDC frequently publishes guidelines and recommendations for health care workers and related work forces on topics including Management of Hospitalized Ebola Patients, Personal Protective Equipment (PPE), Medical Transport, Specimen Collection and Testing, Handling Human Remains, and Environmental Infection Control.

Attachment 2-Member Requests for the Record

During the hearing, Members asked you to provide additional information for the record, and you indicated that you would provide that information. For your convenience, descriptions of the requested information are provided below.

The Honorable Tim Murphy

1. Who is subject to controlled movement and monitoring requirements under the August 1, 2014 guidelines?

a. How if at all, did this change under the October 22, 2014 guidelines?

Response: With the complex nature and seriousness of the outbreak, CDC has created interim guidance for monitoring people potentially exposed to Ebola and for evaluating their intended travel, including the application of movement restrictions when indicated, titled "Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure." It provides recommendations for monitoring people potentially exposed to Ebola. This interim guidance has been updated by establishing a "low (but not zero) risk" category; adding a "no identifiable risk" category; modifying the recommended public health actions in the high, some, and low (but not zero) risk categories; and adding recommendations for specific groups and settings.

2. Did Nurse Amber Vincent (sic) wear protective gear white treating Mr. Duncan during all stages of Mr. Duncan's treatment?

Response: Ms. Vinson reported that she wore PPE while caring for Mr. Duncan during all stages of his treatment. No other healthcare personnel who worked with Ms. Vinson have indicated otherwise. CDC personnel did not observe her interactions with Mr. Duncan or her use of PPE and therefore cannot determine exactly how she was exposed. However, we suspect the exposure occurred during the complex processes of putting on (donning) and removing (doffing) the PPE. To minimize the chance of any future exposures, CDC issued revised Guidance on "Personal Protective Equipment To Be Used by Health care Workers During Management of Patients with Ebola Virus Disease in U.S. Hospitals, Including Procedures for Putting On (Donning) and Removing (Doffing)" on October 20, 2014, shortly after the two health care worker cases were confirmed.

a. Was Amber Vincent (sic) told by a CDC official that she could travel on a commercial passenger plane?

Response: Ms. Vinson's risk status changed between her flight to Ohio on October 10 and her return on October 13, since during that period it was learned that another nurse performing similar work had become infected with the Ebola virus. This infection called into question the effective use of personal protective equipment by the caregiving staff. Ms. Vinson was monitoring her temperature and symptoms and was in contact with health officials in Dallas. Because of the change in her risk status, CDC could have – and should have – prevented her from flying on October 13. Unfortunately, that direction was not provided to Ms. Vinson. Since that time, CDC has issued revised written guidelines for monitoring and movement of individuals that makes clear that an individual with the same

circumstances as Ms. Vinson's should not fly on a commercial aircraft. Although the risk to other passengers on the return flight was very low, out of an abundance of caution, CDC worked with state health departments to track contacts of Nurse Vinson including those on her flight; none developed Ebola.

The Honorable Corv Gardner

1. **How many commercial flights, both passenger and cargo, fly to and from Liberia, Sierra Leone, and Guinea?**

Response: No data is available for cargo flights. None of the affected countries in West Africa have direct flights into the United States. During the November-January period, the average volume of monthly departing passenger flights from the affected countries with connections to the United States is:

- From Guinea: 69 departing flights per month
- From Liberia: 26 departing flights per month
- From Sierra Leone: 38 departing flights per month

2. **How many flights are required daily, every other day, or weekly to get supplies and personnel to the affected areas?**

Response: CDC is not aware of an estimate of the number of flights required to move personnel and supplies from all responding entities into and out of the affected countries. With respect to CDC's own logistical requirements, at this time, CDC is primarily relying on one commercial carrier, Brussels Air, which makes two flights per week between Brussels, Belgium, and each of the three affected countries (Guinea, Sierra Leone, and Liberia) to transport personnel. There are no United-States-based airlines currently flying into any of these countries. CDC is currently using six flights per week to get staff into the three countries. The number of staff deployed each week varies. The current level of commercial service is adequate to meet deployment needs.

CDC occasionally uses one additional commercial carrier, Royal Air Maroc (RAM), which flies from Casablanca to each of the affected countries. RAM is used mainly for CDC staff being deployed from other CDC international offices due to the challenges in making flight connections from those locations. This is sporadic use, averaging less than once per week.

For supply and equipment movement, CDC averages five shipments per week to the three affected countries. These are carried out through commercial shippers that either obtain space on Brussels Air or may have their own cargo flight going into the area.

The Honorable Morgan Griffith

1. **Has there been any discussion or consideration of the possibility of a travel restriction for dogs until we learn more about interspecies transmission?**

Response: CDC's current dog-import regulations require that all dogs appear to be healthy and show no

signs of carrying a communicable disease upon arrival in the United States. Any dog that appeared ill would be excluded from the United States unless the owner of the dog can present findings of a veterinary examination that indicate that the dog is not carrying a communicable disease.

At this time, there is no evidence that dogs that are not showing any signs of illness are capable of transmitting the Ebola virus. Also, there is currently no evidence that dogs play a significant role in the transmission of Ebola virus in this epidemic. Presently, CDC does not believe further restrictions on the import of dogs that appear healthy are warranted. If evidence were identified that suggests that dogs that appear healthy can transmit Ebola virus, CDC would have the authority to further restrict the importation of dogs from the affected region at that time. CDC has posted information related to dogs and Ebola on the CDC website.

The Honorable Jim Matheson

1. **How many people has CDC deployed for the purpose of conducting or supporting airport screenings in the United States and abroad?**

    a. **How has CDC's support of airport screenings in West Africa impacted CDC's limited resources, including workforce capacity?**

Response: As of November 17, 2014, CDC has deployed 110 total staff to support airport screening measures both domestically and abroad, including 65 staff deployed domestically to five U.S. airports in support entry screening of passengers from the Ebola affected region. Currently, there are 48 CDC staff supporting domestic entry screening. From August 2014 (as of November 17, 2014), CDC has deployed 45 staff members to five West African countries including: Guinea, Liberia, Nigeria, Senegal and Sierra Leone to develop and implement exit screening of all departing international travelers. Currently, there are six CDC staff deployed internationally supporting airport exit screening programs.

Significant support for these teams was provided domestically including the development of trainings, communication messages, guidance documents, and logistical support. In order to continue these robust efforts, as well as to support the other needs of the response, CDC will require additional resources and support for workforce capacity.