Nancy Gathany: On behalf of my colleagues, Dr. Douglas Hamilton, Dr. Kathy Towers-Solis, and Valerie Morelli, welcome to this webinar, Ebola Training Toolkit Overview. I am Dr. Nancy Gathany, an instructional designer with CDC, and I’m the moderator for our webinar today.

To participate in today’s program you need a phone connection and a separate Internet connection.
Our goal today is to provide an overview of the new Ebola Training Toolkit, *Preparing Healthcare Workers to Work in Ebola Treatment Units (ETUs) in Africa*. The intended audience for the toolkit is organizations that plan to provide in-person training for healthcare workers preparing to work in ETUs in Africa in response to the Ebola epidemic. Throughout the rest of today’s webinar, we will refer to Ebola Treatment Units as ETUs.
To introduce you to this new toolkit, we will hear from three experts who had key roles in the development of the toolkit.
First, Dr. Hamilton will provide a brief overview and history of the course. Dr. Hamilton has served as a Director for CDC’s ETU Safety Training Course and as a subject matter expert with the team developing the toolkit.
Dr. Towers-Solis will then introduce the components of the toolkit and show how it is structured. Dr. Towers-Solis served as the Course Manager for CDC’s ETU Safety Training Course and as the Co-Lead for the toolkit development.
For a closer look at the toolkit, Valerie Morelli will describe the lecture and table top exercises. And she will walk us through the Ebola Treatment Unit Practical Exercise component. Valerie served as the content and clearance manager for the toolkit.
Lastly, Dr. Hamilton will review the Administration component and the steps you can take now towards replicating this in-person training for your organization.
These presentations will take approximately 30 minutes in total. At that point, we will open the lines for the question and answer session.
Dr. Hamilton will now provide an overview of the history and events that led up to the creation of the Ebola Training Toolkit.
Douglas Hamilton: The 2014 Ebola epidemic is the most widespread in history and the first in West Africa. CDC is working with other U.S. government agencies, Médecins Sans Frontières, the World Health Organization, and other domestic and international partners in an unprecedented international response to the outbreak.

In the early days of the response, health authorities noted that in the countries most affected by the Ebola outbreak, the impact on healthcare workers was severe; the mortality rate among
There was an obvious need for training for the healthcare workers going into ETUs to ensure they understood the type of protective equipment and gear to use, how to use it and how to stay safe as they administered care to patients with Ebola.

Although there have been courses to prepare ETU workers, such as the courses offered by Doctors without Borders, that is Médecins Sans Frontières or MSF, in Belgium, there were no similar courses in the United States to meet this training need. As the epidemic progressed, more and more workers from the United States were going to Africa to work in the ETUs. CDC recognized that we needed to offer a training program in the United States that would essentially duplicate the course MSF offered in Belgium.
A CDC task force was formed to rapidly create a course for healthcare workers going to work in ETUs in Africa. The task force consisted of medical officers, epidemiologists, health educators, and instructional designers. To get a sense of what the curriculum should include, members of the task force traveled to Belgium to take the MSF course. With full collaboration of MSF and WHO, CDC used their materials that served as the basis for the curriculum.
As we developed the curriculum, we noted slight differences in the type of personal protective equipment or PPE, the various responding organizations used. For example, some organizations use goggles while others use face masks for eye protection. Some use Tyvex suits while other use TyChem suits. Therefore, we decided not to teach one specific protocol but rather to focus on the principles of why you use the various elements of PPE. Our training is not the same as the MSF or WHO versions, it is more like an amalgamation of the two.
In our training, students learn the principles of high-risk PPE, such as why it is important to protect mucous membranes and your face and how to do that safely. We also emphasize the need to doff (or remove) your PPE in a certain sequence.
Once the initial curriculum was designed and implemented, CDC offered the 3-day, in-person training course at the training facilities of the U.S. Federal Emergency Management Agency (or FEMA’s) Center for Domestic Preparedness. Since the launch of this course, titled, *Preparing Healthcare Workers to Work in Ebola Treatment Units (ETUs) in Africa,* we have trained more than 540 healthcare workers on the principles of infection prevention and control needed to work safely in an ETU setting.

But this course is not the final stage of ETU training for these healthcare workers. No matter how life-like we make our exercises, our training is not the same as training in a real ETU where there is live virus present.

Our 3-day in-person course serves as an *introduction* to safe use of high-risk PPE. Graduates of the course are not prepared to work in an actual ETU until they have a mentored experience in an ETU with an experienced ETU worker.
To ensure the sustainability of this effort to support this outbreak and potential future outbreaks, we created a toolkit so other organizations could use to replicate the training. As you will see in this webinar, a great deal of effort has gone into the development of this toolkit which will be available for download from this website.

The toolkit is a complete guide with training materials, templates, and videos to help you offer an ETU safety course. However, it is not designed to serve as a self-study course for an individual responder to learn how to properly use PPE.

As you will see in this webinar, the toolkit is comprehensive and provides all of the information required to replicate this three-day in-person course.
Nancy Gathany: Thank you, Dr. Hamilton. Next Dr. Towers-Solis will introduce you to the components of the toolkit and show you how it is structured.

Kathy Towers-Solis: Thank you, Nancy. This training toolkit is designed to help organizations replicate the 3-day, in-person training course to prepare healthcare workers to work in ETUs. The goal of the training course is to teach healthcare workers principles of infection prevention and control to work safely in an ETU setting.
Course Goals

- Provide information on the epidemiology and transmission of Ebola virus disease and the current Ebola epidemic
- Describe infection prevention and control principles as they pertain to working in ETUs in Africa
- Demonstrate the skills needed to work safely and efficiently in a well-designed ETU
- Describe how to evaluate personal and environmental safety within an ETU
- Describe the basic principles of clinical care and management of a patient with Ebola
- Describe patient and community assessment and intervention strategies for Ebola treatment and control

The specific goals of the course are to
Provide information on the epidemiology and transmission of Ebola virus disease and the current Ebola epidemic
Describe infection prevention and control principles as they pertain to working in ETUs in Africa
Demonstrate the skills needed to work safely and efficiently in a well-designed ETU
Describe how to evaluate personal and environmental safety within an ETU
Describe the basic principles of clinical care and management of a patient with Ebola
Describe patient and community assessment and intervention strategies for Ebola treatment and control
To accomplish our course goals, we use blended learning methods to ensure students learn and retain critical knowledge and are able to apply what they have learned to real-life situations. The blended learning methods used include lectures, tabletop exercises, and hands-on interactive exercises in a mock ETU environment.

The toolkit has three components.
Course Lectures and Tabletop Exercises
Ebola Treatment Unit Practical Exercise and Administration
First, the “Course Lectures and Tabletop Exercises” component contains the instructional materials needed to deliver the course lectures and tabletop exercises. A brief summary of each lecture and a link to an electronic delivery of the lecture are also provided. Instructors will lead lectures on topics such as Ebola transmission and epidemiology, clinical care, and infection prevention and control.

The interactive tabletop exercises provide opportunities for students to discuss lecture content and how to apply it in ETUs. You will get a closer look at the lectures and tabletop exercises in a moment from Valerie Morelli.
The second component of the toolkit is the Ebola Treatment Unit Practical Exercise. This section contains the needed information to create an ETU simulation. Trainer guides, instructional videos, and supporting administrative documentation are included. In the mock ETU, students apply the concepts they learned in the lectures and in tabletop exercises. They practice donning and doffing (putting on and taking off) PPE and perform simulated patient care activities while wearing PPE. Valerie Morelli will review this component of the toolkit later in this webinar.
The final component of the toolkit is “Administration,” which provides the details you will need to conduct the programmatic and administrative requirements needed to plan, develop, manage, and evaluate the course. Dr. Hamilton will review key aspects of this component at the conclusion of the webinar.
We have packaged all of these components in digital formats that you can access from the ETU Training Toolkit Website once you complete the registration process. The majority of the guidance is contained in one large PDF file. We will show you how to access the toolkit at the conclusion of the webinar.
Nancy Gathany: Thank you, Dr. Towers-Solis. Next Valerie Morelli will provide an overview of the first two components of the toolkit, course lectures and table top exercises AND the ETU Practical Exercise component.
Valerie Morelli: Thank you, Nancy. This component of the toolkit contains the instructional materials you will need to deliver the lectures and tabletop exercises necessary for the course. It includes presentations and slides for the course lectures and the trainer guides and student worksheets for the tabletop exercises.
There are nine lectures that provide the basic knowledge needed to understand the current Ebola epidemic and response. This includes background information on this epidemic, information on Ebola disease epidemiology and transmission, and key infection prevention and control principles for working safely in ETUs.
Specifically, the toolkit provides the lecture materials in three formats, a thumbnail description in the toolkit, a PowerPoint format and an e-lecture. Let’s take a minute to review each of these.
The toolkit provides a thumbnail image of each slide and the corresponding script for reference for each lecture. Here we see the lecture and script for the first course lecture, “Overview of the 2014 Ebola Epidemic and Response.”

Of note, as the epidemic evolves, you will need to update the slides to reflect the latest case counts and developments. The lectures provide information through December 31, 2014. Therefore, some content presented in the lectures may have changed. We provide information in the written script on where to get the latest updates. As you can see in the notes here, several websites are provided as reference for updates. The appendices also provide many links and references that may also be useful.
The PowerPoint files include detailed speaker notes that are identical to the text found in the toolkit. We recommend your instructors have subject matter expertise in the topic areas; therefore, they may choose to rely on the slides but modify the script to meet the needs of your organization. At a minimum, all of your presenters should be able to answer student questions and provide real-life examples to facilitate discussion in the classroom.
The last format I want to share with you is the e-lecture. Here you see the first screen of the “Overview of the 2014 Ebola Epidemic and Response” e-lecture. The e-lectures include the entire content of the lecture including both the slide and the audio of the speaker notes. The e-lectures are not designed to serve as self-study lessons. Instructors should play the e-lecture file from a laptop or desktop computer for the students in the classroom.
The toolkit includes two tabletop exercises, “Designing a Safe Ebola Treatment Unit” and “Triage of Persons Presenting to an ETU.”

These exercises build on the knowledge gained from the course lectures and provide students an opportunity to practice applying that knowledge in a classroom setting. The tabletop exercise information in the toolkit includes both a trainer guide and student worksheets.
I also want to point out this section’s appendices. The appendices include extensive resource links that provide updated information on the current Ebola epidemic as well as links to health protocols, practices, and guidelines used by CDC and other international organizations including MSF and WHO. It also includes knowledge assessment questions instructors should use in conjunction with the lectures.
What I have shared with you today is just a glimpse of what is included in the Course Lectures and Tabletop Exercises.

The goal is that by using the lectures, your students will gain the knowledge they need to work safely in ETUs. And through the tabletop exercises, they apply that knowledge through practice in the classroom. The lectures and tabletop exercises are designed to provide students with the fundamental knowledge they need to work safely in the course ETU practical exercise, and ultimately in a real ETU setting.
Next, I will describe the component of the toolkit that provides the information you need to conduct the ETU practical exercise.

This section describes the seven ETU stations and activities. It also provides information on exercise management, timing, safety, staff roles, preparation for trainers and students, and daily trainer guides.
To be most effective, students should move through the exercise in small groups. The size of the groups should be based on the facility size and how best to maximize the flow of students through the exercise while ensuring high performance.

In CDC’s mock ETU, seen in these photos, groups are typically four students. Students work with a buddy as they would in a real ETU.
Personal safety is the top priority when working in an ETU, whether in a mock-ETU or in a real ETU. By rigorously adhering to infection prevention and control principles taught in the lectures and applying them systematically in the simulation, students learn to provide care safely and avoid exposure.

To emphasize safety, we recommend that you:
- Ensure all students have received prior medical clearance that focuses on assessment of fitness and ability to safely and effectively deploy on an Ebola response.
- Ensure compliance with all elements of the OSHA Respiratory Protection Standard if your organization is located in the United States and will be using N95 respirators. This includes fit testing, medical evaluation, and healthcare worker training. If your organization is not in the U.S., we still encourage you to follow this standard.
As you can see by this list, a number of staff members are needed for various roles in preparing for and conducting the exercise.

The exercise manager is responsible for overseeing the ETU exercise and the students’ health and safety.

A logistics manager secures and prepares the facility for the ETU exercise.

Station trainers are responsible for delivering the station scenario and reinforcing safety principles during the ETU exercise.

Also, support staff assist with the exercise as needed, for example, by setting up or moving props, or guiding students from one station or activity to another.
Training and student preparation is important for the success of the exercise. For trainers, we held a pre-course conference call describing course logistics, their role, and expectation. We also held an on-site train-the-trainer session before the course began as well as a daily debriefing session for all trainers with the course and exercise managers.

For students, we held daily meetings before the exercise to promote consistency and readiness.
In the ETU Practical Exercise component you will find a trainer guide containing links to videos of the ETU practical exercise. The videos illustrate the mock ETU learning environment and supplement the detailed information in the written materials. There are links for:

- an opening (or introductory) video,
- videos for all seven stations,
- a low-risk PPE Donning and Doffing Video,
- a closing video.

We’ve also include a link to a video that illustrates the donning and doffing process for low-risk PPE.
As I noted earlier, the ETU practical exercise has seven stations and multiple activities aimed at helping students to:

- Apply the concepts they learn in the lectures and discuss in tabletop exercises,
- Practice donning (putting on) and doffing (taking off) personal protective equipment (PPE),
- Perform simulated patient care activities while wearing PPE.
The exercise is designed to be an open, no-fault, non-judgmental environment in which diverse viewpoints can be expressed.

Students will respond to various scenarios by using their knowledge and insights and following directions from the trainers.
The toolkit includes this Three-Day Practical Exercise At-A-Glance. This succinct one-page summary will help you visualize the movement through the seven stations and the various activities over the three days.
I will quickly review the major activities of the ETU practical exercise.
The theme for Day 1 is Blood and Breach. While wearing high-risk PPE, students will draw blood, transport the specimen to the lab, and experience a breach in PPE.

On Day 2, the theme is Clean and Corpse. While wearing high-risk PPE, students will clean up a vomit and dispose of it safely. They will also prepare a corpse for transport to the morgue.

And on Day 3, the theme is Triage and Transport. While wearing low-risk PPE, students will triage new patients and determine whether they should be admitted to the ETU. After changing into high-risk PPE, they will transport a patient suspected to have Ebola into the ETU.

The activities are carried out in the seven ETU stations. Let’s walk through each of those.
Station 1 is the Entrance to ETU Low-risk Zone.

The purpose of this station is to prepare students for entering the ETU; here, the trainer sprays their shoes and the students wash their hands.
In Station 2, students change into scrubs and put on rubber boots. Although students are instructed to leave personal belongings outside the ETU, they may leave any remaining items here for retrieval after the exercise.
Station 3 is the Briefing; in a real ETU, this would be the daily report to prepare healthcare workers for their shift. The purpose of the daily briefing is to prepare students to perform the day’s activities in the high-risk zone. As I shared earlier, there is a different theme each day. For example, on Day 1 for the theme Blood and Breach, the trainer covers information about drawing blood from patients in the suspect and confirmed areas and transporting the specimens to the lab.
For each of the three days of the exercise, students will need to don high-risk PPE. Therefore, the purpose of Station 4 is for students to practice supervised donning of high-risk PPE and learn principles of donning PPE correctly.

As noted earlier, whether PPE is used for an exercise or in a real ETU, there will likely be differences in the PPE items and donning protocols. However, PPE must always be donned properly to provide adequate protection.
Station 5: ETU High-risk Zone

Station 5 includes 10 different activities during the three days. Keeping your one-page Exercise At-a-Glance handy will help you visualize the various activities and the movement from one activity to another within different areas of the ETU.

In the mock ETU high-risk zone which is similar to a real ETU, there are 2 patient areas: 1 for patients with suspected Ebola infection and another for patients with confirmed infection.

All of the Station 5 activities take place in the ETU high-risk zone except the triage activity on Day 3.

In Station 5, students learn to:
• Prioritize activities and bring needed supplies into the high-risk zone.
• Safely enter the high-risk zone and move from the suspect area to the confirmed area.
• Experience the challenges of performing procedures while wearing high-risk PPE.

As noted earlier, the specific activities for the high-risk zone vary each day. The theme for Day One is “Blood and Breach”, Day Two is “Clean and Corpse” and for day three, “Triage and Transport”.

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Station 5: High-Risk Zone Activities

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<td><strong>Triage and Transport</strong></td>
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**Exercises**

- **Writing in high-risk area:**
- **Safely entering high-risk area:**
- **Performing stomach perforations:**
- **Performing chest tubes:**
- **Performing intubations:**
- **Performing chest compressions:**
- **Performing intubations:**
- **Performing chest compressions:**
- **Performing intubations:**
- **Performing chest compressions:**

**Notes**

- **High-risk PPE:**
- **Low-risk PPE:**
- **Normal PPE:**
- **Regular activities:**
- **Surgical activities:**
- **Intubation training:**
- **Emotional support:**
- **Team communication:**
- **Safely transitioning:**
- **High-risk training:**
Station 6 is where students exit the high-risk zone and doff their high-risk PPE. The purpose of this station is for students to learn how to avoid self-contamination while doffing PPE correctly.

In this exercise, a trainer coaches and supervises the doffing process. Doffing PPE is a process that should not be done alone in training or in a real ETU.
At the final station of the exercise, Station 7, the students participate in a debriefing session with a facilitator. If possible, the facilitator should be a healthcare worker who has returned from working in an ETU in West Africa, who can share their real-life experiences and address student issues and concerns.
Nancy Gathany: Thank you. Now we’ll ask Dr. Hamilton to conclude the presentations by covering the Administration component and the Next Steps.
Douglas Hamilton: The Administration component of the toolkit provides critical information for course planning, course management, continuing education and course evaluation and more. It provides detailed instructions for the design and setup of the mock ETU, as well as signage and supply needs and information for student recruitment and staff requirements and skills.
And as a next step, you can start the planning process now. If you’ve not yet done so, you can download the planning materials.

The planning materials provide information to help your organization prepare to offer this 3-day in-person training. The planning materials describe the physical space, setup instructions, and supplies needed, as well as the staffing needs to be able to offer the training course.
Go to the Ebola Training Toolkit website to register to access the planning materials for the course.

At this time, the planning materials do not include the entire training toolkit. Once you register to access the planning materials, you will be notified by email when the entire toolkit is available in the next few weeks. You will then be able to download the toolkit and/or receive hard copy (including the DVDs) by postal mail.
Nancy Gathany: Thank you. That concludes the presentation portion of the webinar. Now I would like to invite our listeners to call in and ask questions. To do that please dial star one on your phone. Please tell us your first and last name and where you are from. I will now turn the mic over to our operator.
In closing, in our experience now having offered the course 15 times; with a total of 540 students so far, we’ve observed the positive impact this course has on students as well as the trainers. We sincerely hope this toolkit will benefit your organization as you answer the call to help countries care for patients and communities affected by Ebola.

With that I would like to thank everyone for joining us today with special thanks to our subject matter experts, Dr. Hamilton, Dr. Towers-Solis, and Ms. Morelli.
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And many thanks to the dedication of the original course designers for providing the foundation upon which this toolkit was built.
Thank you very much from Atlanta, and have a great day.