NETEC

NATIONAL EBOLA TRAINING & EDUCATION CENTER



Annual Report FY2018

Funded by the U.S. Department of Health and Human Services Assistant Secretary for Preparedness and Response (ASPR) and the Centers for Disease Control and Prevention (CDC)

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INTRODUCTION

The National Ebola Training and Education Center (NETEC), funded by the Assistant Secretary for Preparedness and Response (ASPR) and the Centers for Disease Control and Prevention (CDC), was established as a consortium of three healthcare institutions that successfully treated patients with Ebola virus disease: Emory University, the University of Nebraska Medical Center/Nebraska Medicine, and New York City Health + Hospitals/Bellevue. NETEC leverages the unique expertise, resources, and experience of the three institutions to assess and assist healthcare facility readiness, educate and train providers, provide real-time technical assistance, and build a research infrastructure in the U.S. Combined with strong existing and new partnerships with federal agencies, NETEC ultimately strengthens our nation's health care and public health systems for the next emerging infectious disease threat.

Mission

To increase the capability of United States public health and health care systems to safely and effectively manage individuals with suspected and confirmed special pathogens.

Assessment

Empower hospitals to gauge their readiness using **Self-Assessment**

Measure facility and healthcare worker readiness using **Metrics**

Provide direct feedback to hospitals via **On-Site Assessment**

Education

Deliver didactic and hands-on simulation training via **In-Person Courses**

Provide self-paced education through **Online Trainings**

Technical Assistance

Provide **Onsite and Remote Guidance**

Compile **Online Repository** of tools and resources

Develop customizable **Exercise Templates** that are customizable and based on the HSEEP model

Provide **Emergency On-Call Mobilization**

Research Network

Build **Central IRB Process** for rapid implementation of clinical research protocols

Develop Policies, Procedures, and Data Capture Tools to facilitate research

Create infrastucture for a **Specimen Biorepository**

Cross-Cutting, Supportive Activities →

Develop Partnerships

Build and Expand Expertise and Program Infrastructure

NETEC BY THE NUMBERS THROUGH FY18

ACHIEVEMENTS

57 facility readiness consultation visits

46 states, the District of Columbia and five U.S. territories represented at in-person trainings

79 educational activities held, including didactic and skills training courses, simulation courses, webinars, technical assistance sessions and conference presentations

8,286 healthcare professionals have participated in NETEC educational activities

59% of in-person course participants were RNs. Other participant credentials included MPH, MD, Paramedic, and EMT.

84,634 NETEC.org page views

44 exercise templates to test healthcare readiness

1,281 technical assistance requests were answered by NETEC on topics such as staffing, patient transport, personal protective equipment and environmental hygiene.

1ST Special Pathogens Research Network simulation of an emergency clinical trial for the treatment of patients with Ebolavirus infection

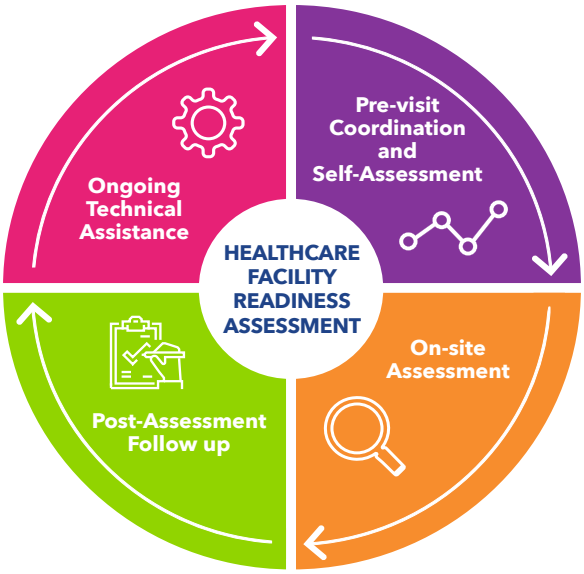
17 countries convened for the International Workshop on High-Level Isolation Units

24 | 7 | 365 phone line established for emergency consultation with federal partners and healthcare facilities requiring assistance with patients suspected of or proven to have infections with special pathogens

READINESS CONSULTATIONS

What is a Readiness Consultation?

NETEC's subject matter experts (SMEs) provide on-site evaluation and guidance for facilities to provide care to patients with Ebola virus disease and other special pathogens. Prior to the NETEC visit, facilities conduct and submit a comprehensive self-assessment. On-site NETEC consultations are conducted by a diverse team of experts who validate the self-assessment, review operational readiness, and provide in-depth feedback across twelve domains. Targeted training, education and protocol assistance is then provided following on-site visits (figure right).



EVOLUTION OF READINESS CONSULTATIONS

FY 16

CDC Assessment Tool for Ebola Treatment Centers and Assessment Hospitals form the foundation for NETEC site visits

FY 17

NETEC revision and enhancement of original CDC Domains

Development of facility and self-assessment survey

Evolution of on-site evaluation tool based on a capability maturity model

Regional Ebola and other Special Pathogen Treatment Centers (RESPTC) representatives participated in Emory, UNMC | Nebraska Medicine & Bellevue readiness consultations

FY 18

Refinement and expansion of the readiness consultation process

Enhancement of the operational readiness scale for on-site evaluation

Expansion of Domains and Capabilities to include Research

RESPTC representatives invited to intra-regional readiness consultations

3-month follow-up call process implemented

9-month standarized follow-up survey developed and implemented

FY 19

Train personnel from each RESPTC to participate in readiness consultations

Develop Respiratory Pathogens domain to be included in the facility capabilities assessment for readiness consultations

Leverage data gained at each interaction to tailor NETEC activities to better address national needs in an agile way

Continue to expand the total number of readiness consultations conducted

Develop EMS-centric self-assessment tool and complementary on -site readiness consultation process

Integrate exercises into all readiness consultations conducted at RESPTC, State Ebola Treatment Center (ETC) and Assessment Facilities

READINESS CONSULTATIONS

Having the opportunity to participate in NETEC technical assistance visits and readiness consultations in region 10 has provided a valuable avenue for us to develop relationships with key partners within our region. It has also given us an awareness of the capabilities in our region, where the strengths are and where there are gaps which provides us direction in prioritizing what needs to be addressed collectively in Region 10 and how we as the regional treatment center can better support the other facilities in our region.

Christa Arguinchona, BSN, RN
Providence Sacred Heart Medical Center and Children's Hospital, Region 10 RESPTC

Participating in the NETEC Readiness Consultations provides the opportunity to obtain a detailed perspective on the success and challenges that other RESPTCs are experiencing, in a manner that is much more informative and in depth than can be obtained from an annual summit. It provided a tremendous networking opportunity both with the site staff, as well as other NETEC observers. Overall, I found attending these site visits to be a highly effective tool to expand our collaboration and learn from each centers successes and challenges.

Jonathan Grein, MD
Cedars-Sinai Medical Center, Region 9 RESPTC

Regional Ebola and Special Pathogens Treatment Centers (RESPTCs)

NETEC collaborated with the ten RESPTCs in 2017-2018 to foster relationship building and to advance U.S. readiness across all ten regions. RESPTCs participated in on-site NETEC readiness consultations conducted within their respective regions.

Readiness Consultation Findings

The Facility Self-Assessment (FSA) captures infrastructure, protocols, resources and preparedness efforts to manage Ebola and other special pathogen (ESP) care. The self-assessment documents critical elements that a facility has in place to manage ESP care but does not measure the operational readiness of infrastructure, protocols and resources. NETEC experts validate readiness and identify areas of improvement while on-site. As such, NETEC readiness consultation reports demonstrate the distinction between self-reported protocols and NETEC evaluation of the operationally readiness of protocols.

Contributing Factors for Differences between Self-Assessment and On-site Consultation Findings

Processes are in place but have not been exercised

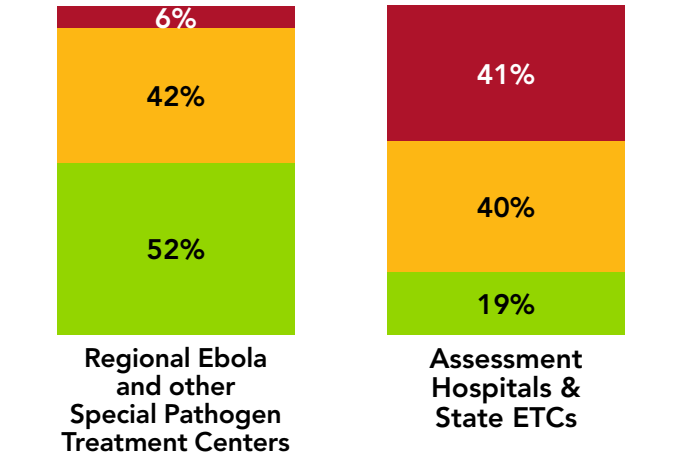
Processes are in place and have been exercised but do not align with recommended best practices

Processes are in place, have been exercised, align with best practice but are not executed well

The contrast between a protocol being in place and that same protocol resulting in operational readiness aligns with the cycle of preparedness: planning, training, exercising and revision of plans. Through readiness consultations NETEC is able to serve as a resource with individualized support and guidance for hospitals across the nation.

Designated Ebola Facilities Operational Readiness of all Domains

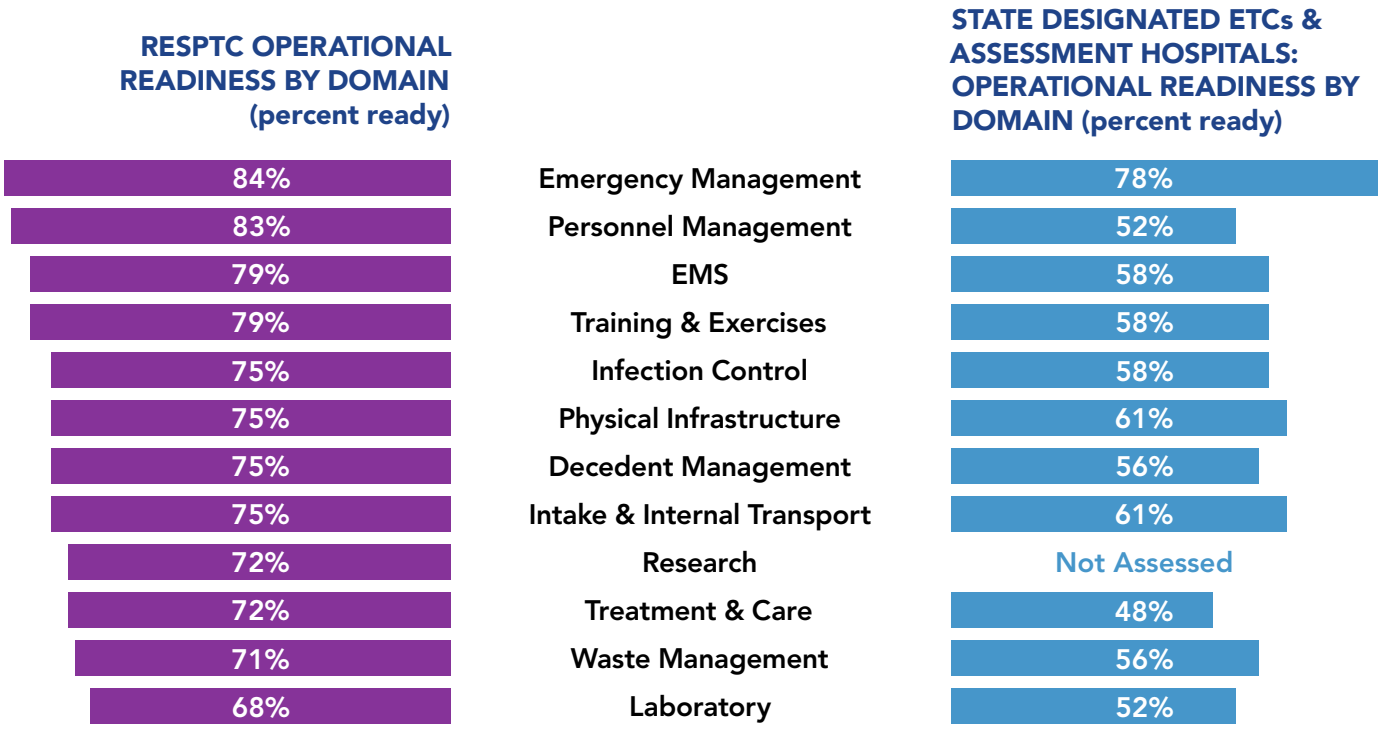
OPERATIONAL READINESS OF ALL DOMAINS BY TIER OF FACILITY



2017-2018 on-site readiness consultation data demonstrates a higher level of operational readiness for the ten RESPTCs when compared to state designated ETCs and Assessment Hospitals. Innovative approaches to develop and sustain this level of preparedness noted this year include:

- Implementation of statewide monitoring systems for Ebola and other special pathogens
- Development and dissemination of bio-isolation transport protocol cards for EMS transport agencies
- Design and acquisition of purpose built ambulances for infectious disease transport

The positive impact of integrating the RESPTC hospitals into regional NETEC activities is evident in the preparedness of these centers. Further engagement of the RESPTC network and state health departments will significantly expand statewide, regional and national readiness efforts for ESP.



READINESS CONSULTATIONS

Detailed Assessment Factors

DOMAINS	SUB-DOMAIN CAPABILITIES
Physical Infrastructure	ESP Isolation Unit ED and other points of entry
Infection Control	Environmental infection control Personal protective equipment (PPE) PPE utilization
Training & Exercises	Rostered staff training Personnel training Just-In-Time training Exercises
Emergency Management	Emergency management
Pre-Hospital Domain	Internal processes External processes
Intake and Internal Transport	Identify Isolate Inform Internal transport

DOMAINS	SUB-DOMAIN CAPABILITIES
Treatment & Care	Adult care Labor & delivery care Neonatal Care Pediatric Care
Personnel Management	Staffing Occupational health
Laboratory	Testing and Biosafety Specimen collection, handling, storage and transport
Waste Management	ED and other points of entry ESP isolation unit Laboratory Waste processing and storage
Decedent Management	Internal processes External processes
Research	Investigational therapeutics

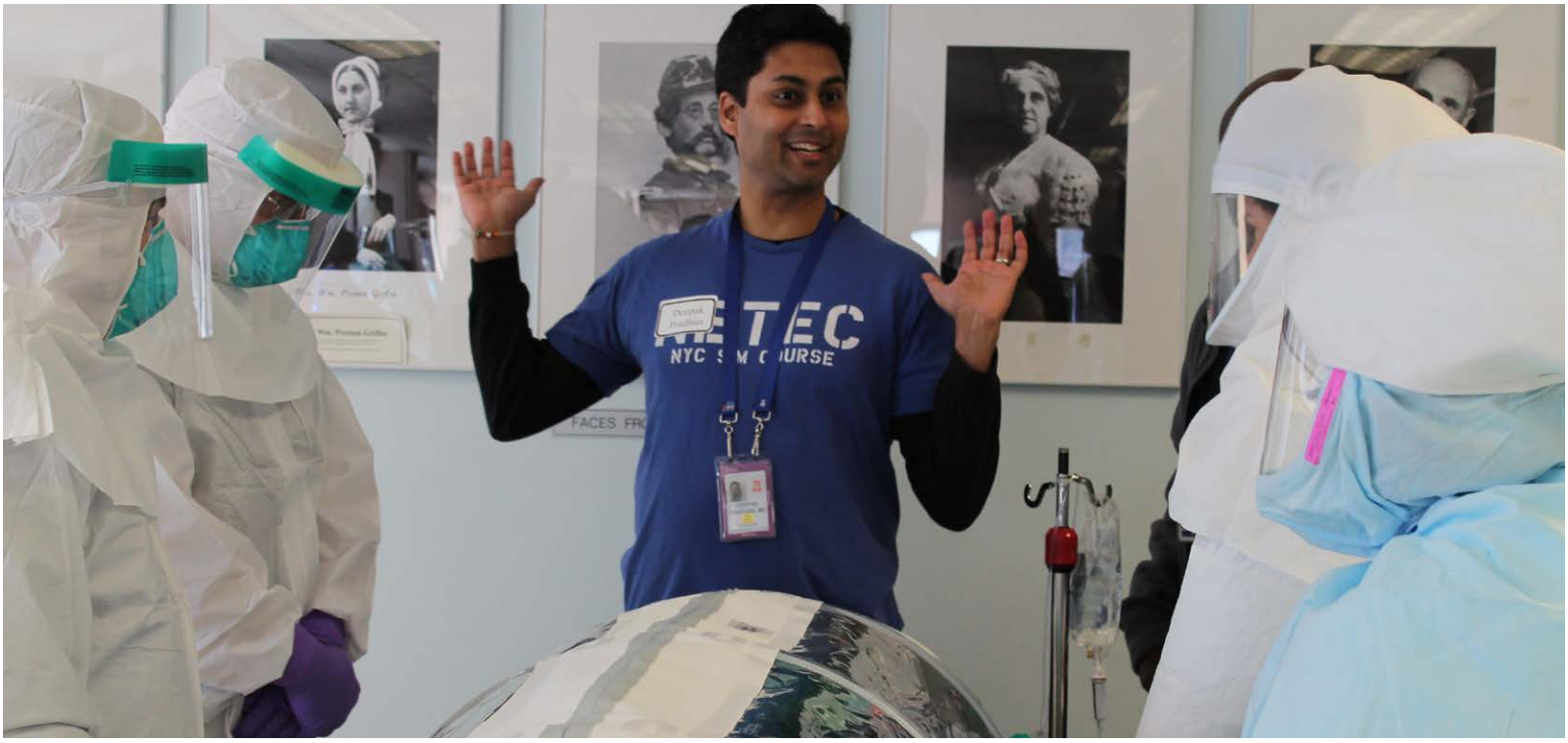


Emergency Management was consistently assessed as the most operationally ready area across all facilities. Key themes included:

Emergency Management

- Incorporation of infectious disease response into existing hospital incident command structure
- Use of emergency management principles to facilitate an efficient response
- Development of strong working relationships with key internal and external stakeholders

The ability of facilities across the spectrum to integrate infectious disease response into existing emergency management infrastructure was noted to facilitate effective communications both internally and externally.



RESPTC hospitals were observed to be the most prepared in the following domains:

» Personnel Management

- Incorporation of advanced technology in staff monitoring and tracking processes
- Implementation of successful strategies for rostered staff recruitment and retention including financial compensation and professional development opportunities.

» EMS

- Established relationships with EMS agencies; involved in planning, SOP development and training initiatives
- Clearly defined roles and responsibilities between facilities and EMS agencies

» Training and Exercise

- Comprehensive training programs that include skills and functional components involving both internal and external partners
- Incorporation of complex full-scale exercises including multiple patients, other special pathogens and activation of regional transportation plans
- Structured orientation processes for onboarding new rostered staff

Domains that represent the top priorities for advancement across RESPTCs are:

Treatment & Care

- While NETEC observed progress in overall capability to provide comprehensive care for adult patients, it was noted that limitations exist in the number of trained staff from pediatric, neonatal and obstetrics specialties.

Laboratory

- National challenges remain in the ability of RESPTCs to transport laboratory specimens to the CDC or reference laboratories
- Opportunities noted for enhancement of the decontamination and reprocessing procedures for laboratory equipment

Waste Management

- RESPTCs advanced in their ability to establish self-sustaining waste management plans. Federal funding enabled the addition of autoclaves across multiple RESPTCs.
- Opportunities for advancement were noted in validating autoclave operation; identifying adequate space for waste holding in a multi-patient admission scenario and enhancement of protocols related to the movement of this waste within facilities.

READINESS CONSULTATIONS

State designated facilities were noted to have the highest levels of operational readiness in the following domains:

Physical Infrastructure

- Enhanced air handling systems to improve airborne infection isolation capacity
- Identification of appropriate existing space to utilize for care of patients suspected or confirmed to have ESP
- Application of infection prevention and control principles to include differentiation of work zones

Intake & Internal Transport

- Integration of electronic health record and technological advancements into screening and identification processes
- Internal routes for patient transport defined and exercised
- Established communication and notification structures with integration of technology
- Strong collaboration with public health partners

Domains that represent the top priorities for advancement across State designated facilities are:

Treatment & Care

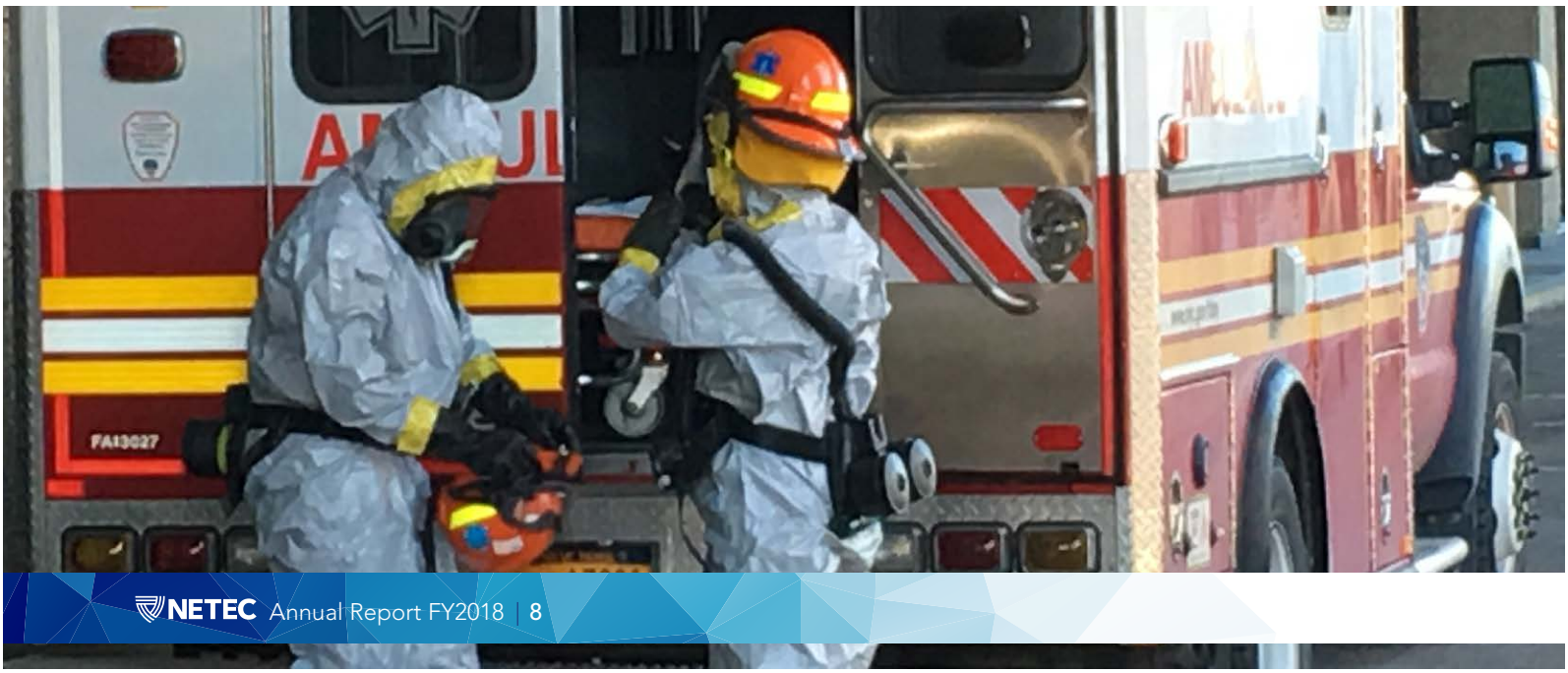
- Limited availability of clinical staff for adult, pediatric, neonatal and labor and delivery isolation care
- Opportunity to more clearly define required capability by state for Non-RESPTC facilities to provide care for the full spectrum of ages

Laboratory

- Laboratory test availability does not consistently include all the CDC minimum testing recommendations within designated units
- Gaps noted on practices for specimen collection, processing, tracking and transport
- Clarification needed to define the roles and responsibilities of facility team and health department

Personnel Management

- Opportunities to expand the number of rostered team members
- Limited development of plans for team scheduling, rotation, and backfill of personnel
- Further consideration for behavioral health support of staff and family warranted
- Roles and responsibilities for staff monitoring require clarification between facilities and public health partners



EDUCATION AND TRAINING



NETEC's In-Person Emerging Infectious Disease Preparedness Courses

NETEC led eight in-person courses in FY18, providing 547 participants from across the country with information, resources, networking opportunities, and hands-on practice.

Didactic Sklls and Training Workshop

A total of four didactic and skills training workshops were held-two in Atlanta, GA. and two in Omaha, NE These workshops offered participants a combination of lecture, discussion-based learning, and hands-on skills to prepare participants to manage patients with Ebola and other special pathogens. Topics covered included pathogens of concern, personal protective equipment (PPE), handling of persons under investigation, laboratory, clinical skills, leadership strategies, emergency management, and pediatrics, allowing participants to choose sessions specific to their roles.

Pediatric Skills and Training Workshop

Two pediatric courses were held-one in Houston, TX and one in Denver, CO These courses focused on special considerations when caring for pediatric patients with Ebola and other special pathogens, and offered participants a combination of lecture, discussion-based learning, and hands-on skills. Topics covered included handling of persons under investigation, ethical considerations, managing a deteriorating patient, and clinical skills like intravenous insertion and obtaining specimens, spill cleanup, urinary catheter insertion, and nasopharyngeal swabbing.

> *Upon leaving the conference, I truly felt more at ease thinking of taking care of a highly infectious patient... When it comes down to saving your own life when trying to save others, practice and peace of mind are priceless.*
> **– RN**

> *I really loved the instructors and the NETEC team. Everyone was prepared, knowledgeable and engaging.*
> **– Paramedic**

> *I can now say with confidence to my team that it can be done and done safely.*
> **– RN**

> *I loved that there was such an open atmosphere, and discussion was encouraged throughout... Being able to talk with other that have actual experience, as well as hearing different approaches is so helpful.*
> **– RN**

COLLABORATION WITH THE TEXAS INFECTIOUS DISEASE RESPONSE UNIT

A regional program for transport and augmentation of clinical care for patients with Ebola and other special pathogens.

Texas Emergency Medical Task Force (TX EMTF) is the state emergency medical response capability. In 2016, the EMTF program was selected to develop an Infectious Disease Response Unit (IDRU) capability to cover High Consequence Infectious Disease patients. The NETEC has participated on our Advisory Group and provided critical information and leadership as we have developed the IDRU. Simply put, Texas would not be as far along, nor at the same level of expertise without NETEC, they are incredibly valuable resource. It is rare in our worlds of governmental programs to find this level of sophistication and functionality but NETEC's key leaders have made it an invaluable resource for the nation.

– Eric Epley, Executive Director, Southwest Texas Regional Advisory Council (STRAC))

Now, more than any time in recent memory, our epidemiological threats are rapidly evolving at unprecedented rates with vectors previously unknown. The assistance of NETEC was instrumental in our efforts to develop a statewide systems based approach to managing High Consequence Infectious Disease patients. With the help of national subject matter experts assembled by NETEC, we were able to build a cutting edge consensus guided program that meets the unique challenges of our state. NETEC's expertise is unparalleled and they have proven to be an exceptional partner in our efforts to prepare for an uncertain future.

– Josh Todd, Commander, Austin Travis County EMS

The training, guidance, and subject matter expertise provided by the NETEC is unrivaled. Without the help of the NETEC, we would have never bridged the gap between the ideal and real.

– Jordan Ghawi, IDRU State Coordinator, Texas Emergency Medical Task Force

The NETEC courses and staff were paramount to the development of base knowledge and implementation of our IDRU Program. We are exceptionally privileged to have had the opportunity to work so closely with this group of experienced base professionals.

– Josh Frandsen,Lieutenant, San Antonio Fire Department Medical Special Operations Unit

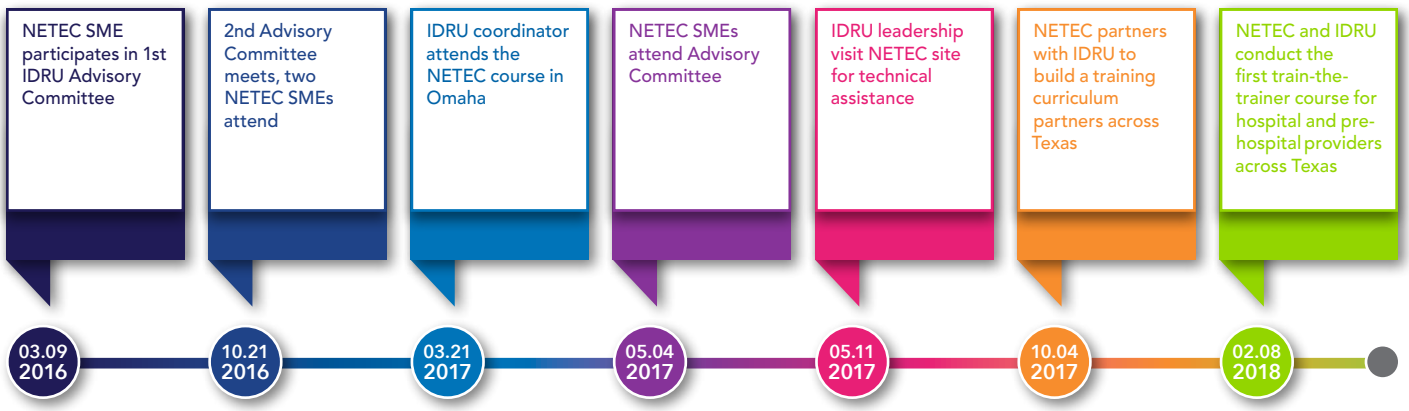
Learning material from experts in caring for patients with high consequence infectious diseases made me feel confident and prepared for this situation. These experts were the doctors and nurses who actually provided direct care for these patients, and learning from their experience empowered me to take care of my patients, my coworkers, and myself.

– Annie Steinhauser, RN, Ascension Texas

NETEC has been essential for the success of the Texas IDRU program. NETEC already had the framework for information delivery in addition to peer reviewed content and expert instructors. Texas IDRU was able to build on this great infrastructure and customize training for IDRU members without re-inventing the wheel. Also the partnership with NETEC healthcare providers has provided a large pool of expertise to access when questions or unusual circumstances arise.

– Dr. Taylor Ratcliff, Physician, Baylor Scott & White

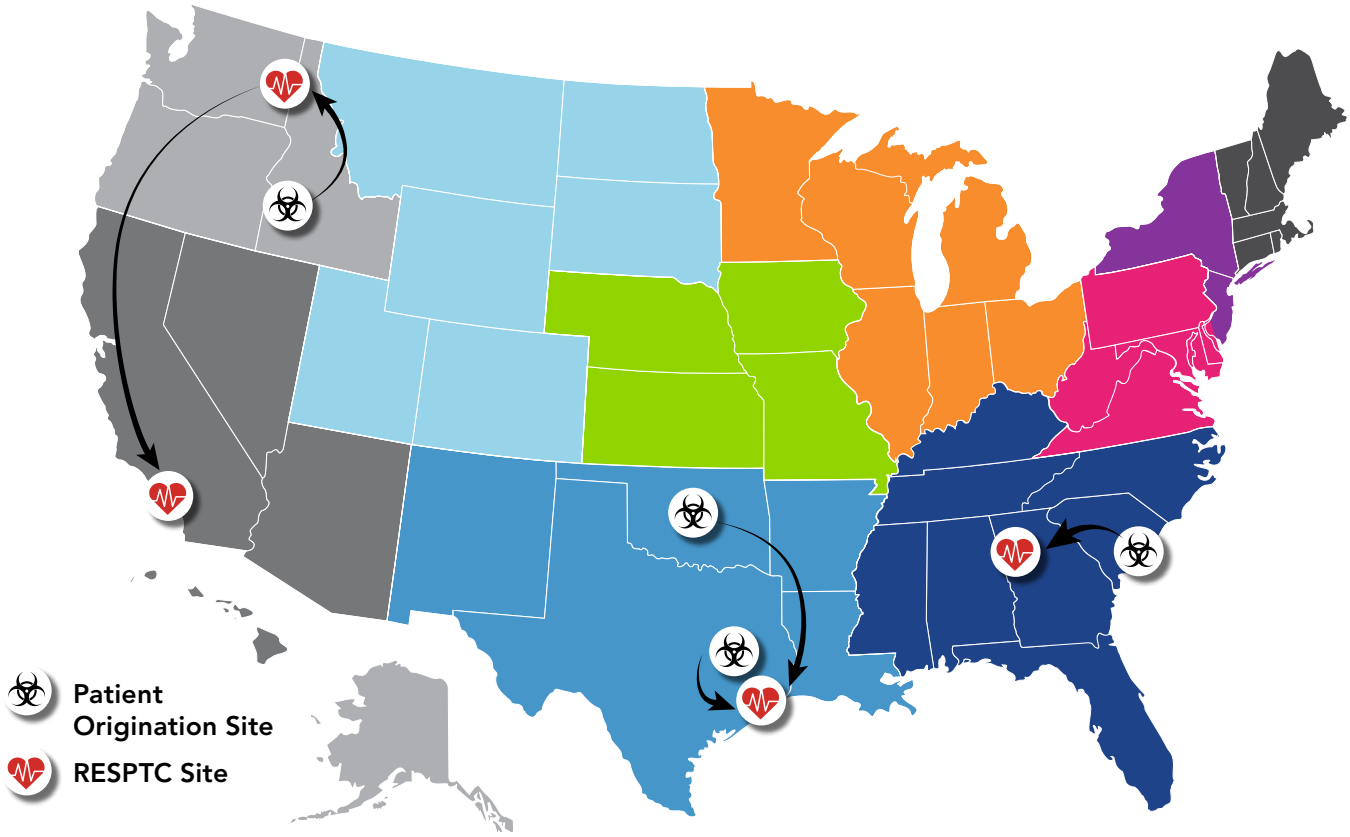
COLLABORATION WITH TEXAS INFECTIOUS DISEASE RESPONSE UNIT (IDRU)



NETEC PARTICIPATION IN TRANQUIL TERMINUS

Tranquil Terminus

Four-day, multi-state exercise co-sponsored by Georgia, South Carolina, Oklahoma, Texas, California, Idaho, Washington State, as well as HHS/ASPR, CDC and the U.S. Department of State. In April 2018, Tranquil Terminus tested intra- and interstate movement of multiple highly infectious disease (HID) patients and focused on the processes for requesting, coordinating, and employing resources at the local, state, and federal level.



Movement of seven Ebola patients from different originating facilities within the U.S. to designated Regional Ebola and Special Pathogens Treatment Centers (RESPTCS)

28 NETEC subject matter experts functioned as controllers/evaluators at all key exercise nodes

NETEC provided EMS, patient transport, infection prevention, emergency management adult and pediatric patient care, biocontainment unit operations and clinical research evaluators

NETEC collaborated with the Biomedical Advanced Research and Development Agency (BARDA) and industry partners, such as MappBio, to incorporate accessing and utilizing investigational therapies as part of the exercise

NETEC spearheaded incorporation of research and delivery of investigational therapies into Tranquil Terminus Exercise

EDUCATION AND TRAINING

Immersive Simulation Courses

55 participants

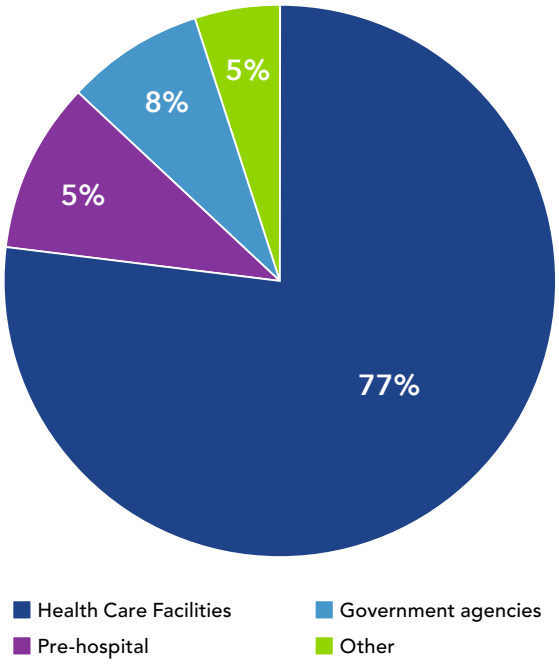
Two simulation courses held in New York, NY These courses gave participants hands-on practice of skills essential to safely care for patients with Ebola and other special pathogens. Simulation courses offered participants the opportunity to practice in full PPE for three to four hours at a time. Participants rotated between skills stations and immersive scenarios. Among the scenarios and skills practiced were patient transfer, healthcare provider emergency, intravenous line insertion and obtaining specimens, spill cleanup, urinary catheter insertion, nasopharyngeal swabbing, and the use of portable patient isolation units.

Participants represented a variety of professional disciplines.

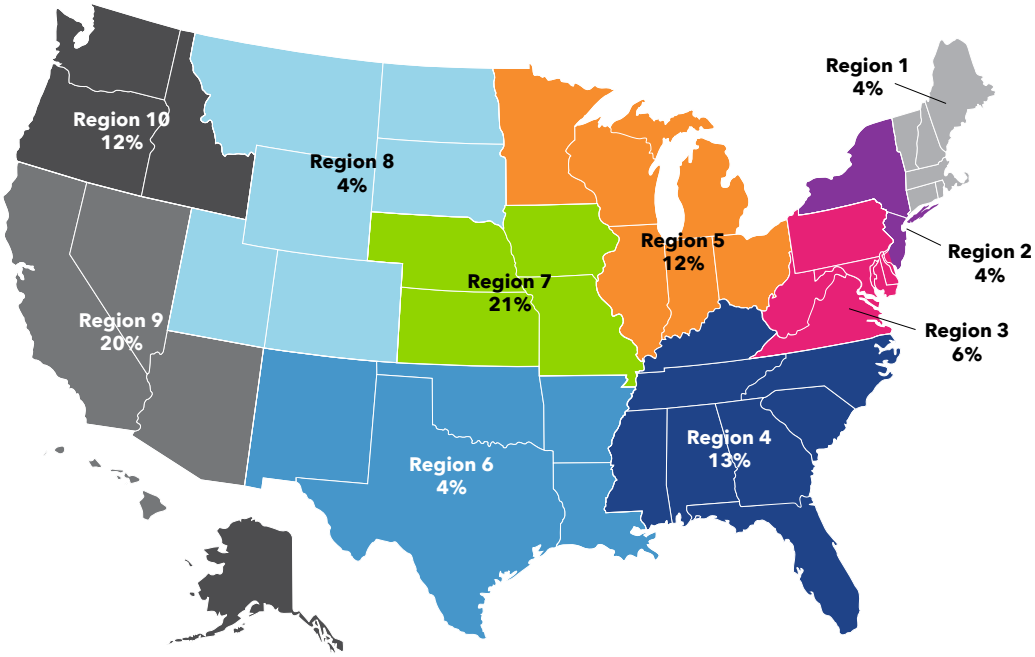
- 59% of in-person course participants were RNs. Other common credentials included Paramedic, MD, MPH, and EMT.
- The most common participant role was direct clinical care. Other roles include infection prevention, management/administration, emergency management, laboratory, and prehospital/EMS.

PARTICIPANTS CAME FROM ALL TEN HHS REGIONS

A majority of participants were from health care facilities.



IN-PERSON TRAINING PARTICIPANTS BY HHS REGION (N=547)





Training Outcomes

Course participants report making changes as a result of attending a NETEC training six months prior, including adjustments related to:

- Infection control practices
- Patient treatment and care protocols and procedures
- Training and drills across the continuum of patient care
- Physical infrastructure of the unit or facility

> *We have developed new protocols and SOPs based upon the best practices shared by NETEC and designed specific drills and exercises to test them, specifically decedent care, healthcare worker down, lab draw and transport, waste management, and skills for training development so that our Special Pathogens Response Team can practice skills and maintain their competency outside of exercises.*
>
> **– Administrator, Regional Ebola and Special Pathogen Treatment Center Attended Didactic and Skills Training Course**

> *Probably the most significant change was implementing a quarterly training curriculum for our Special Pathogen care team. Our Infectious Disease Nurse Manager & Educator attended the NETEC training, then returned to our facility with renewed skills and motivation to recruit more team members & initiate quarterly training.*
>
> **– Infection Preventionist, State Ebola Treatment Center Attended Didactic and SkillsTraining Course**

> *[We are] re-evaluating what PPE we utilize, as well as planning for infrastructure in our new expansion.*
>
> **– RN, Assessment Hospital Attended Pediatric Course**

EDUCATION AND TRAINING

ASPR TRACIE

ASPR TRACIE has collaborated with NETEC on webinars and other projects over the last couple of years.Funded by ASPR and CDC, their exceptional expertise and critical insights on the management of patients infected with Ebola or other special pathogens continues to enhance the readiness of our nation's entire healthcare system.

– Shayne Brannman, MS, MA, Director, ASPR TRACIE

EMERGENCY NURSES ASSOCIATION

The Emergency Nurses Association partnered with NETEC to facilitate a infection control workshop, 'Staying Safe in the ED: PPE and You,' at our 2017 annual conference. ENA and NETEC staff collaborated in preparing materials and reviewing content for the workshop, which included valuable training for emergency nurses in attendance. We maintain a relationship with the highly trained experts at NETEC to assist in providing infectious disease preparedness education for our members.

– Suzanne Montella, MBA, Chief Learning Officer



Additional Educational Offerings

In addition to in-person trainings, NETEC offered:

- **Webinars.** ASPR TRACIE and NETEC co-hosted three educational webinars. 1,179 people attended the webinars, which have been archived online and have been viewed 345 times since being posted.
- **Presentations at professional conferences.** NETEC faculty delivered 15 presentations at conferences, reaching an additional 1,331 people. These conferences were hosted by national and state-level professional organizations, such as the Emergency Nurses Association, Society for Healthcare Epidemiology of America, Tennessee Hospital Association and more. Topics covered included facility preparedness, infection control, and patient care.
- **Targeted technical assistance.** NETEC faculty delivered 15 sessions at 12 sites, impacting 656 people. These technical assistance sessions were tailored to the needs of states and individual facilities, and most were delivered in person. For example, NETEC led two sessions in Ohio focused on safely donning and doffing PPE and practicing skills in PPE. In another session in California, NETEC delivered lectures on topics like pathogens of concern and leadership, as well as clinical skills practice in PPE. NETEC responded to more than 500 new requests for electronic technical assistance.

- **Online courses.** NETEC continues to expand the menu of online courses, with three courses currently available and several more courses under development. The courses include just-in-time-trainings that allow participants to easily access and review content in the moment if a patient with Ebola or other special pathogen presents to their healthcare facility.

AVAILABLE NOW
Behavioral Health Considerations for patients and Healthcare Workers
Identify, Isolate, Inform: Assessment, Management, and Placement of a Person Under Investigation
Special Pathogens of Concern: Understanding Ebola and Other Special Pathogens of Concern and Implications for Healthcare Delivery in a Biocontainment Unit
COMING SOON
Care of the Deceased Patient Infected with Ebola virus or Other Selected VHFs
Developing Infection Control Procedures for Biocontainment Care in High Level Isolation Environments
Elements of Safe Autoclaving Processes in the Management of Category A Waste
Emergency Management: Elements of Discussion-based and Operations-based Exercises
Internal Communications
Overview of Clinical Research
Pediatric Considerations in the Care of Ebola or Other Special Pathogen
PPE 101: protecting our Frontline Healthcare Workers
Public Health Coordination in the Care of Patients with Ebola and Other Special Pathogens of Concern
Special Pathogens of Concern: Ebola Virus Disease
Waste Management
NETEC Just-In-Time Training Videos: Containment/Burrito Wrap, Portable Isolation Unit (PIU), Peripheral IV Insertion, Endotracheal and Urinary Catheter Insertion and Removal

- **Collaboration with Federal Partners and Professional Organizations.** NETEC supports multiple federal agencies on educational opportunities, including CDC, USAMRIID, FEMA-Center for Domestic Preparedness, as well as national organizations such as the American Hospital Association. NETEC will continue to support these groups to provide accurate and up to date training for healthcare and public health workers across the country.

CENTERS FOR DOMESTIC PREPAREDNESS, FEMA

"The partnership between the FEMA Center for Domestic Preparedness (CDP) and the National Ebola Training and Education Center has been invaluable. The ongoing collaboration in revising the Barrier Precautions and Controls for Highly Infectious Disease Course has provided FEMA with unfettered access to recognized experts in the field with an unparalleled passion for improving the treatment and management of patients with highly infectious disease. The CDP counts itself extremely fortunate to have such an esteemed training partner."

– Amanda Stewart,
Lead Instructional Systems Specialist,
Center for Domestic Preparedness

USAMRIID

"NETEC's teamwork and dedication has been phenomenal in assisting USAMRIID in spear heading capability gaps not just across the Army, but also the Department of Defense and Health and Human Services. We greatly appreciate the hours of planning and execution that NETEC spent and always appreciate learning from our civilian healthcare partners."

– Captain Perry Wiseman,
Deputy Director of Training
& Education, USAMRIID

ELECTRONIC RESOURCES

Online Repository

In 2017, NETEC launched a resource repository of Ebola and other special pathogens (ESP) electronic resources. With over 200 carefully curated resources, the repository provided valuable information for ESP programs at any stage of development. NETEC.org delivered over 10,000 downloaded resources to facilities and health care workers throughout the United States, nearly double the previous year.

Exercise Resources continue to be the most popular downloads, with the Frontline Facility, Assessment Hospital, and Healthcare Coalition Tabletops at the top.

NETEC has developed and strengthened powerful partnerships with fellow repositories from the National Libraries of Medicine and ASPR TRACIE, and the site has garnered praise from across the spectrum of visitors.

NETEC Exercise Resources

NETEC continues to meet the exercise needs of the U.S. healthcare system that were identified by the 2014-2016 Ebola crisis. NETEC developed over three dozen exercises and has expanded the scope of exercise resources to address threats posed by airborne pathogens.

As NETEC's lead federal partners and funding agencies, ASPR and CDC have collaborated to ensure tools that draw from current Hospital Preparedness Program metrics and allow users to prepare in alignment with Homeland Security Exercise Evaluation Program. More than 50 percent of total unique downloads were for discussion-based templates on EVD among Frontline Facilities, Assessment Hospitals and Healthcare Coalitions. Through NETEC's close, ongoing partnership with ASPR TRACIE 1,726 participants attended the various NETEC Exercise Resource webinars, and more than 122 participants attended the four in-person NETEC Emergency Management Workshops.

24/7/365 On-Call Mobilization

NETEC's 24/7/365 on-call phone line was successfully tested during the national exercise, Tranquil Terminus, in April, 2018 (see page 18). The on-call line ensures federal agencies and frontline workers have timely, direct access to NETEC's experts at critical moments.



EMS Resources

The pre-hospital community is at the forefront of understanding, via experience, the frontline challenges that Ebola and other special pathogen incidents create. To that end, NETEC has grown its work in supporting the EMS community broadly in education, technical consultation, and metrics development for on-site assessments.

- EMS SMEs have supported technical assistance requests in California, Idaho, Ohio and Minnesota. Support has included on-line education, in person presentations regarding EMS operational considerations for transport and management of HCID patients, and participation in tabletop exercises.
- NETEC incorporated EMS learning tracks within the didactic and skills training workshops. EMS operational considerations, donning and doffing of PPE as well as procedures to render ambulances easier to clean and disinfect were presented.
- A national biosafety transport forum listserv that includes RESPTCs and their partner EMS agencies was established to discuss challenges and topics relevant to transport and management of patients with HCID.



ONLINE REPOSITORY:

NETEC established a repository to increase accessibility of crucial guidance, protocols and educational materials

Discover
Learn more about Ebola and other special pathogens, clinically managing patient affected, and readying healthcare teams and systems to keep everyone safe

Develop
Containing a leadership toolbox, example protocols and procedures and more in-depth training resources to assist with developing ESP programs.

Implement
Containing exercise templates and advanced toolbox kits to aid in implementing and testing ESP programs.

NETEC SPECIAL PATHOGENS RESEARCH NETWORK



Building Infrastructure for Research

The Special Pathogens Research Network (SPRN) was first established in November 2016 with the purpose of leveraging the expertise of the ten Regional Ebola and Other Special Pathogen Treatment Centers (RESPTCs) in order to develop an organizational infrastructure to facilitate the conduction of clinical research in the United States. The SPRN enables the rapid activation and coordination of clinical research in the event of a future outbreak and also allows opportunities for multicenter research when the RESPTCs are not activated to care for patients within their biocontainment units. The main deliverables for the network fall into three categories: network engagement, infrastructure readiness, and training readiness.

KEY DELIVERABLES OF THE SPECIAL PATHOGENS RESEARCH NETWORK

Deliverables	Description
Network engagement	• Engage the ten regional centers in a research network. • Engage federal research partners to coordinate research initiatives. • Hold an annual investigators' meeting with the clinical research teams from regional treatment facilities and other domestic and, as able, international partners to develop protocols and research resources.
Infrastructure Readiness	• Create a master protocol for research. • Develop and operationalize a central Institutional Review Board. • Develop universal case report forms and questionnaires that include clinical, virologic, and immunologic data. • Develop a web-based clinical data capture tool and database with the capability of collecting and coordinating data from the research network and conducting rapid analyses to provide feedback that informs therapeutics and clinical management. • In collaboration with ASPR and CDC, create policies and procedures for a biorepository focused on special pathogens.
Training Readiness	• Develop and implement a training protocol for research staff at regional treatment centers, emphasizing special issues pertaining to emerging pathogens. • Develop model uniform policies and procedures for the conduct of clinical research in biocontainment units.

Network Engagement

The SPRN is comprised of the ten RESPTCs. The SPRN has maintained a close collaboration with federal and other external partners. The SPRN Partner Working Group, which includes the Biomedical Advanced Research Development Authority (BARDA), CDC, FDA, NIAID, DOD's Infectious Disease Clinical Research Program (IDCRP), and the United States Army Medical Research Institute of Infectious Diseases (USAMRIID) maintains an open dialogue with the federal government and shares resources and ideas related to research priorities.

Infrastructure Readiness

Learning the lessons from the 2014-16 Ebola outbreak, the main resources that the SPRN developed and refined in the past year have included a Medical Countermeasures Working Group, a central rapid response institutional review board (IRB) process, a standard master protocol for clinical research, and a specimen biorepository.

The Medical Countermeasures (MCM) Working Group assesses the evolving landscape of investigational products that may be used in the event of an outbreak of a special pathogen. The working group is developing up to date, public guidance on pathogen-specific prophylaxis or therapeutics based on the available supporting scientific evidence and from unpublished findings from federal, academic, and industry partners. These guidance documents will be updated routinely as new therapeutics emerge, and will be made available as a resource.

The SPRN is finalizing reliance agreements between the other RESPTCs and the UNMC Rapid Response IRB. This central, rapid IRB review process was utilized as part of the Department of Health and Human Services Tranquil Terminus exercise, where for the first time the deployment of an investigational product (ZMapp by Mapp Biopharmaceutical) was incorporated into the design and evaluation of a national exercise related to a special pathogen outbreak.

The ability to collect and store the clinical specimens obtained from patients cared for within the network, as well as potentially the staff who cared for them in a biorepository, will provide a significant resource for understanding disease pathogenesis and optimal patient management.





The SPRN continues to develop Standard Operating Procedures (SOPs) for processing and storage of specimens from these patients. In addition, SPRN has created a governance structure responsible for the prioritization of specimen use by potential collaborators to ensure a fair, transparent, and safe process for providing access to specimens.

Training Readiness

SPRN has begun to address a gap in personnel training for appropriate data collection in the specialized biocontainment environment. The SPRN has developed online training including an overview of clinical research procedures, the process of obtaining patient consent, and documentation in clinical research. These tools are available publically at NETEC.org

INTERNATIONAL WORKSHOP ON HIGH LEVEL ISOLATION

NETEC convened leaders from high level isolation units around the U.S. and the world to advance global standards and capacity for high level isolation care. Facilitated by the Johns Hopkins Center for Health security, representatives from 11 U.S. and 14 international high level isolation units, along with ASPR, CDC, NIH, US Department of State, and WHO met for 2 days in Washington, DC. Attendees discussed criteria for high level isolation, high level isolation unit design, clinical capabilities, PPE & staffing models and future opportunities for international collaboration.

Workshop participants discussed successful models for high level isolation used throughout the world. They shared their collective experience in managing special pathogens outbreaks and best practices for safe and effective patient care, including larger scale outbreaks of respiratory viruses. The need for ongoing international collaboration and the value of establishing a global research infrastructure for isolation care was supported by broad consensus.



Increasing and Sustaining Preparedness

In the coming year, NETEC will continue to advance the national health security agenda. NETEC will work to improve readiness for Ebola and other special pathogens through NETEC activities as well as building and expanding upon relationships with our partners.

Pre-hospital providers and emergency medical systems are a vital part of this process, and NETEC will engage stakeholders to develop readiness metrics and assessment tools specific to the pre-hospital setting. In addition, the ability to add pre-hospital subject matter experts to readiness consultation visits addresses a critical need in the healthcare delivery system to ensure safe and effective patient care.

NETEC will continue to support the clinical network of Regional Ebola and Special Pathogen Treatment Centers (RESPTC) to ensure gains in readiness are sustained. NETEC will also increase and expand its engagement with assessment and frontline healthcare facilities with the goal of ensuring a patient with a special pathogen presenting anywhere in a healthcare system is promptly identified, isolation precautions are initiated, appropriate agencies are informed, and patient care is delivered safely. The network of RESPTC is essential to this effort to capitalize on established relationships within their regions and promote opportunities to build new partnerships.

The NETEC is a critical component of the national system working to strengthen the U.S. healthcare system for care of patients with Ebola and other special pathogens. NETEC continues to provide a dynamic and growing range of resources for the U.S. and will continue to build national frameworks to battle future communicable diseases that have not yet been encountered in the U.S. NETEC advances the readiness of all healthcare workers and healthcare facilities to ensure they stand ready to fight the next infectious disease outbreak with confidence in their training and safety.

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