THE YEAR
THAT CHANGED EVERYTHING

THE EXPERTISE THAT MET THE CHALLENGE

NETEC
NATIONAL EMERGING SPECIAL PATHOGENS TRAINING AND EDUCATION CENTER

ANNUAL REPORT FY2021

FUNDED BY THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE (ASPR)
Facing a Pandemic Head On

Not long after NETEC was founded, faculty leaders began to push to change its name—the National Ebola Treatment and Education Center—to send a message. They knew Ebola would not be the only infectious disease threat the U.S. would face. Federal partners advocated for a new name as well, but change was slow to come. Then COVID-19 occurred. “It took a pandemic for us to make it happen,” said ASPR’s Richard Hunt during the 2021 NETEC Virtual Summit. “But finally, NETEC’s name was changed appropriately to the National Emerging Special Pathogens Training and Education Center.”

The name change is fitting. During the past 20 years, infectious disease outbreaks have occurred more frequently, raising concerns that a pandemic could happen, and that health care and other experts must be ready to respond.

“Long before the pandemic, NETEC foresaw the need to pivot quickly to prepare for respiratory pathogens,” said Hunt. “They saw that frontline health care facilities and EMS were not just vulnerable, but were indeed our first line of defense. They realized that NETEC alone couldn’t train an entire nation of health care providers. They had to scale up and engage the U.S. Regional Emerging Special Pathogen Treatment Centers to expand their capability and capacity to educate and train.”

During the pandemic, NETEC and the RESPTCs have played pivotal roles in a number of ways. Isolating the first patients with COVID-19 and returning them safely to their families. Quickly activating the Special Pathogens Research Network to launch a clinical trial resulting in emergency use approval of a drug to treat hospitalized patients. Providing virtual and on-site training and education. In short, NETEC has been a force to be reckoned with in the face of the pandemic.”

NETEC works closely with the 10 U.S. Regional Emerging Special Pathogen Treatment Centers (RESPTCs),* the U.S. Department of Health and Human Services (HHS) Assistant Secretary for Preparedness and Response (ASPR), and the Centers for Disease Control and Prevention (CDC) to advance special pathogen readiness.

* RESPTC is a designation of HHS.
MISSION
NETEC sets the gold standard for special pathogen preparedness and response across health systems in the U.S. with the goals of driving best practices, closing knowledge gaps, and developing innovative resources.

CONSULTATION
- Empower hospitals to gauge their readiness using Self-Assessment
- Measure facility and health care worker readiness using Metrics
- Provide direct feedback to hospitals via On-Site and Remote Consultations
- Provide On-Site and Remote Guidance
- Provide Emergency On-Call Mobilization

EDUCATION
- Deliver didactic and hands-on simulation training via In-Person Courses
- Provide self-paced education through Online Trainings
- Deliver education and training using virtual platforms (webinars, podcasts, etc.)
- Compile an Online Repository of tools and resources
- Develop customizable Exercise Templates that are based on the HSEEP* model

RESEARCH NETWORK
- Build a Central IRB** Process for rapid implementation of clinical research protocols
- Develop Policies, Procedures, and Data Capture Tools to facilitate research
- Create infrastructure for a Specimen Biorepository

*Homeland Security Exercise and Evaluation Program
**Institutional Review Board

FY2021 / APPROX. JULY 1, 2020 – JUNE 30, 2021

NETEC By the Numbers

FY21 ACCOMPLISHMENTS

42 READINESS AND RESPONSE CONSULTATIONS
- 11 TIERED FACILITIES (VIRTUAL)
- 31 LONG-TERM CARE CENTERS (VIRTUAL AND ON-SITE)

PARTICIPANTS FROM ALL 50 STATES, THE DISTRICT OF COLUMBIA, AND FOUR U.S. TERRITORIES
10,167 COVID-19 WEBINAR PARTICIPANTS

181,613 COVID-19 WEBINAR VIEWS
- 14,619 HOURS WATCHED
- 162 NEW SUBSCRIBERS

30 COVID-19 WEBINARS EDUCATED

NETEC.ORG UNIQUE PAGE VIEWS
250,463

UNIQUE RESOURCE LIBRARY PAGE VIEWS
61,889

10,167 COVID-19 WEBINAR PARTICIPANTS

11,794 ITEMS DOWNLOADED FROM THE NETEC RESOURCE LIBRARY

26% OF STUDY PARTICIPANTS WORLDWIDE ENROLLED IN ALL FOUR ACTT ARMS VIA SPRN

SPECIAL PATHOGENS RESEARCH NETWORK RAPID RESPONSE CLINICAL TRIALS

ALL 10 RESPTCS ACTIVATED THE NIH ADAPTIVE COVID-19 TREATMENT TRIAL (ACTT)
1.5 DAYS ON AVERAGE TO ACTIVATE CLINICAL TRIALS AT EACH SITE

NETEC SUPPORT ACCESS

DEDICATED PHONE LINE: 24/7/365 NETEC SUPPORT

76,050 NETEC.ORG UNIQUE PAGE VIEWS

422 REQUESTS FOR TECHNICAL ASSISTANCE

While recovery from COVID-19 has begun, the process will be difficult, as the recent surge of cases caused by the Delta variant shows. As the CDC’s Michael Bell said during the NETEC summit, “We do need to take care of ourselves. And now that we’re better at it, we need to take care of each other.”
OMAHA, NEBRASKA

Angela Hewlett, medical director of the biocontainment unit at the University of Nebraska Medical Center, was visiting family in Texas when she first read about a respiratory virus outbreak in Wuhan, China. Once back at UNMC, Hewlett and her colleagues began to consider how the virus could affect the U.S. and the world.

UNMC, Emory University, and NYC Health + Hospitals/Bellevue—the consortium behind NETEC—also began sharing information about the virus with the Regional Emerging Special Pathogen Treatment Centers and partner agencies around the country. In early January 2020, no one knew for certain what would happen with the virus.

“At the time, we were more concerned about influenza,” says Hewlett. “We were having a difficult flu season with a lot of sick people coming in for treatment.”

Like Hewlett, Michael Wadman, medical director of the National Quarantine Unit, had been following the outbreak in China. While driving to Iowa City for a high school basketball game, he got a call: the U.S. government had asked if UNMC could monitor a group of Americans who had been working in Wuhan. He dropped off his family at their destination and drove back to UNMC to learn that 57 Americans would arrive in Omaha two days later.

Because the number of people far exceeded the NQU’s 20-bed capacity, a decision was made to house them at Camp Ashland, a local Army National Guard facility. “That experience was an eye-opener for me,” says Wadman. “I had participated in a couple of quarantine exercises for U.S. citizens exposed to Ebola, but the scale of quarantining the Americans from Wuhan was unprecedented.”

UNMC worked with NETEC, ASPR, the CDC, the U.S. State Department, and state and local agencies to iron out logistics to keep the Americans safe.

“We reached out constantly to our NETEC partners and other institutions, here in the U.S. and internationally, to talk about how long people should be quarantined and other factors,” says Hewlett. “Having our federal partners from the CDC and ASPR on campus also helped in figuring things out.”

Those partnerships came into play once again when UNMC agreed to repatriate several American passengers from the Diamond Princess cruise ship docked off the coast of Japan. Many of the passengers on board had become infected with COVID-19 during their voyage.

Of the 13 passengers taken to the NQU in Omaha, 11 tested positive for COVID-19. Most had mild symptoms and did not require medical care. When three passengers became more ill, they were transferred to the Nebraska Biocontainment Unit. All improved and returned to the NQU for monitoring.

The clinicians who staff the NQU and NBU are part of the HHS Region 7 RESPTC team, which provided them added flexibility. “We were able to shift from quarantine to isolation care almost seamlessly,” says Wadman. Their efforts succeeded. All of the cruise ship passengers, after testing negative for coronavirus, headed home. At Camp Ashland, none of the Americans tested positive for COVID-19. All went home after their 14-day quarantine period ended.

SPOKANE, WASHINGTON

A thousand-plus miles from Omaha, four more Americans from the Diamond Princess were quarantined at Providence Sacred Heart Medical Center, the HHS Region 10 RESPTC in Spokane, Washington. The hospital’s 10-bed Special Pathogen Unit, or SPU, was ready for their arrival.

Because the number of people far exceeded the NQU’s 20-bed capacity, a decision was made to house them at Camp Ashland, a local Army National Guard facility.

“THAT EXPERIENCE WAS AN EYE-OPENER FOR ME,” SAYS WADMAN. “I HAD PARTICIPATED IN A COUPLE OF QUARANTINE EXERCISES FOR U.S. CITIZENS EXPOSED TO EBOLA, BUT THE SCALE OF QUARANTINING THE AMERICANS FROM WUHAN WAS UNPRECEDENTED.”

—MICHAEL WADMAN, NATIONAL QUARANTINE UNIT
LOS ANGELES

Jonathan Grein, director of epidemiology at Cedars-Sinai Medical Center, fully expected SARS-CoV-2 to arrive in Los Angeles, a gateway for travelers flying to and from China. In January 2020, Grein treats LA’s first COVID-19 patient at Cedars-Sinai, the HHS Region 9 RESP'TC for the area. His patient was a man from Wuhan who became ill while vacationing with his wife and young son in Mexico. During a return layover at the LA airport, the man’s symptoms worsened, and the family was admitted to Cedars-Sinai’s special pathogens isolation unit. Although the man’s wife and son had mild symptoms, they tested negative for coronavirus. But the father’s condition worsened, and he was placed on oxygen. Grein had little information to go on to help his patient, since few treatment protocols existed. He turned to Special Pathogens Research Network colleague Tim Dyeki, leader of the CDC’s COVID-19 response team, for guidance.

Dyeki advised Grein to try compassionate use of remdesivir, an experimental antiviral drug for critically ill patients. The man soon recovered and returned to Wuhan with his family.

Grein has no doubt that Cedars-Sinai’s Special Pathogens Response Team played a role in his recovery. The team’s readiness, coupled with guidance from NETEC, also helped them confront community transmission of COVID-19 in LA. The first case turned out to be a personal trainer in West Hollywood. He was diagnosed in the emergency room at Cedars-Sinai.

“That was a turning point for us,” says Grein. “He was the first evidence that there was more widespread transmission of COVID-19 in LA than we suspected.”

For Grein and other staff, time began to blur as COVID-19 cases surged.

While testing procedures improved, keeping adequate supplies of N95 masks, isolation gowns, and testing supplies on hand grew difficult. The hospital resorted to making hand sanitizer and face shields for its Powered Air Purifying Respirators, or PAPRs, because of limited supply.

NETEC’s library of online courses and webinars helped hospital staff stay current on COVID-19 guidelines and innovations. In a webinar on health care workers and masks, nurse Jennifer Garland shared how Cedars-Sinai used improvised hydrogen peroxide to disinfect N95 masks for reuse by staff if needed.

“When things are changing fast, it’s important to know what other institutions are doing,” says Garland, special pathogens clinical program manager. “Through NETEC, we’ve been able to share what we’ve learned with our colleagues across the country.”

NEW YORK CITY

At Bellevue Hospital in New York City, the first two COVID-19 patients treated in the special pathogens unit didn’t present at a clinic or in the emergency room. They were referred to the hospital by the city’s health department.

“We leveraged our close working relationship with the department to bring small numbers of patients to us quickly and safely,” says Vikramjit Mukherjee, director of the medical ICU at Bellevue, the HHS Region 2 RESP'TC.

The hospital’s special pathogens team was ready for the patients when they arrived. The physicians and nurses who staff the unit every quarter on the proper use of PPE, how to intubate a patient, put in a central line, and more. The team was experienced, having cared for an Ebola patient in 2014.

“They were ready to hit the road,” says Mukherjee. “Their training took away a lot of the anxiety around another new disease coming to our shores.”

In time, the number of COVID-19 patients far surpassed the four–bed capacity in the SPU. Hospital and physician leaders implemented a plan B, working with facility and engineering staff to convert a floor of ICU rooms into negative pressure rooms to contain airborne pathogens. Fifty-six rooms were converted, two to five at a time each day.

“The plan we devised focused on co-locating patients and keeping nurses stations together,” says Andrea Echeverri, associate director of infection control. “In need of more space, she scouted out two decommissioned units, which were also refitted with negative pressure systems. At the peak of the surge in April 2020, the hospital ramped up to nine ICU teams to care for 120 critically ill patients. Another 300 COVID-19 patients were admitted to designated floors in the hospital.

The crushing number of COVID-19 patients stretched health care providers to the limit. Former staff returned to work voluntarily, and agency nurses were hired. Initially, two core trainers on the special pathogens team helped onboard the newcomers to ensure consistency in PPE and clinical protocols. NETEC partners also stepped in to help. “Because we were leading our local response, we had to curtail how much we could support core NETEC educational activities,” says Echeverri. “Our colleagues at Nebraska and Emory picked up a lot of the work to ensure that COVID-19 lessons and findings were being shared.”

The pandemic provided many lessons. “Being a regional treatment center and a NETEC partner was hugely beneficial to us,” says Mukherjee. “We had the infrastructure, and more importantly, the people skills in place. So something we could never have imagined on our shores a year ago.”

COVID-19 also exposed weaknesses that Bellevue plans to address: health care worker wellness, health disparities in ethnic and minority communities, and the need for greater collaboration across the city and the state.

“One of the main takeaways for me this past year is how interconnected we are,” says Echeverri. “For things to work well, we need to seek out more interdisciplinary approaches to the incredibly complex problems we’ve faced in the past year. It involves more than health care. It involves IT, facilities, supplies. We need to build those connections now so we can get ahead of things before the next crisis occurs.”
Assessing Pandemic Readiness

Each year, NETEC conducts operational readiness consultations with each of the 10 Regional Emerging Special Pathogen Treatment Centers across the U.S. It also leads consultations and provides training and education at other facilities within a tiered network of state and jurisdictional special pathogen treatment centers, assessment hospitals, and frontline hospitals.

**RESPTC HOSPITALS**

In 2021, NETEC conducted virtual consultations to assess COVID-19 response at the 10 designated as Regional Emerging Special Pathogen Treatment Centers by the federal government. Key results from the RESPTC consultations follow:

**CHALLENGES TO EMERGING SPECIAL PATHOGEN**

**INITIATIVES**

100% of RESPTCs faced significant challenges regarding ESP preparedness.

- Limited access to designated biocontainment unit space during COVID-19 surge
- Ongoing response to COVID-19 affected rostered staff and unit leadership, resulting in staffing constraints and burnout
- Supply chain fragility and lack of timely access to PPE supplies to replenish inventory for hospital response to COVID-19

70% of RESPTCs were concerned about new issues.

- More coordination among and across the RESPTC network to serve as “NETEC force amplifiers”
- Earlier and more in-depth engagement in NETEC strategic planning and work plan development
- Additional focus on regional coordination and alignment of local, state, regional, and federal plans for ESP patient movement
- Sustainable and expanded funding for ESP preparedness

**COVID-19 RESPONSE AND FOLLOW UP**

80% of RESPTCs increased their capacity for COVID-19 patients; capacity remained the same for 20%.

- 50% evaluated or incorporated novel products or PPE inventory.
- 90% used supplies and equipment purchased to support their ESP programs to sustain COVID-19 response.
- 100% leveraged their BCU teams, training, and processes to support COVID-19 response.
- 100% reported that activating their BCUs for VHF during local COVID-19 surge would have been challenging or even impossible.

**FACILITY READINESS**

80% of RESPTCs maintained overall response capacity; 20% increased overall response capacity.

- 100% of BCU teams anticipated their facilities would use them to care for patients with novel respiratory pathogens in the future.

**ACTIVATION**

90% of RESPTCs were able to accept a patient within 2 hours of notification.

**SPACE**

40% of RESPTCs reported space for Ebola virus disease patients was occupied by COVID-19 patients.

**SUPPLIES**

50% of RESPTCs had PPE on back order; 70% had alternate PPE items if restocking was not feasible.

- 50% deployed BCU PAPRs** for ongoing COVID-19 response.
- 100% had lab equipment available for ESP diagnostic testing.
- 70% did not anticipate having limited access to patient care supplies.

**SPECIAL ACTIVATION**

6-110 days

PPE supplies on hand for Ebola virus disease ranged from 6 days to 110 days (for 2 critical EVD patients) with a mean of 28 days.

**NON-RESPTC HOSPITALS**

In August 2020, NETEC surveyed 39 state/jurisdictional facilities and frontline hospitals to assess their response to COVID-19. Specifically, the survey gauged the impact of NETEC consultations and training conducted over the past five years on facilities’ readiness. A partial list of survey results follows.

**CONSULTATIONS AND TRAINING**

- 85% of facilities reported that previous interactions/readiness consultations with NETEC helped them prepare and respond to COVID-19
- 65% used NETEC training and educational resources to support facility response
- 75% of those surveyed used NETEC training and educational resources to support COVID-19 training needs
- 42% had health care worker resilience training
- 70% received and used NETEC training and educational resources to support COVID-19 response

**STAFFING AND PATIENT CARE**

53% of facilities reported using their BCU to care for patients with confirmed or suspected cases of SARS-CoV-2

- 74% said they had an adequate staffing plan in place to support a surge of patients; challenges included patient acuity and demand for critical care nurses

**TECHNICAL ASSISTANCE**

NETEC received 422 requests for technical assistance during 2021. Requests were submitted by RESPTC and non-RESPTC hospitals, EMS, local and state health departments, and long-term care facilities. Areas of interest included:

- **Virtual consultations**
- **Online courses**
- **Webinars**
- **CEU credits**
- **Information/expertise on multiple topics.**
  - Among them: PPE, COVID-19 pathophysiology, COVID-19 testing strategies, ambulance transport, and autopsies.

**SUPPLIES**

- 95% of facilities reported shortages of PPE and other supplies
- 100% implemented strategies to reuse PPE
- 57% used vaporized hydrogen peroxide and
- 47% used ultraviolet germicidal irradiation to disinfect respirators, face shields, and other PPE for reuse

**GOING FORWARD**

In a post-virtual consultation survey, RESPTCs agreed that readiness consultations added value to the RESPTC program and that future readiness consultations should be offered on-site or as a hybrid model. The top finding from the survey: RESPTCs recommended returning to in-person consultations. Virtual consultations, they said, cannot replace the value of having teams on-site engaging in review and discussion of critical operational elements.

Also, state/jurisdictional-designated facilities would welcome the opportunity to improve collaboration with the RESPTC in their region. NETEC will continue to foster networking among non-RESPTC facilities to establish and strengthen intra-regional relationships.

*Includes viral hemorrhagic fever and respiratory pathogens

** Powered Air Purifying Respirators

---

**ANGELA VASA**

“We asked (non-RESPTC facilities) if and how any NETEC services added value to their special pathogen program’s ability to respond. The majority said that either consultation services or education/training helped them feel more prepared to respond to COVID-19. It gave them the knowledge to implement zoning of hospital patients, safe donning and doffing of PPE, and other necessary protocols.”

--Angela Vasa, director of readiness consultations and metrics development, NETEC

---
In the months before the COVID-19 pandemic began, NETEC’s Special Pathogens Research Network held a series of tabletop exercises that would soon prove their worth. The premise of the exercises: streamlining the activation of SPRN’s central Institutional Review Board to quickly launch a clinical trial during a major disease outbreak.

The scenario played out for real when, early in the pandemic, SPRN activated its central IRB to launch the Adaptive COVID-19 Treatment Trial, or ACTT, at the 10 U.S. Regional Emerging Special Pathogen Treatment Centers that comprise it.

Sponsored by the National Institute of Allergy and Infectious Diseases, ACTT was the first clinical trial in the United States to evaluate drug treatments for patients hospitalized with COVID-19. The first arm of the trial, ACTT-1, tested the experimental antiviral drug remdesivir at 45 sites in the United States and 15 sites in Europe and Asia.

The first person to enroll in ACTT-1 was a patient at the University of Nebraska Medical Center, the HHS Region 7 RESPTC where the central IRB was developed. It serves as the IRB of record for all 10 SPRN sites, saving valuable time. As a result, initiation of ACTT-1 occurred in just 48 hours.

“Before the pandemic, we conducted tabletop exercises to work out the processes and procedures, and we felt that we were 90% there,” says Bruce Gordon, executive chair of the UNMC Institutional Review Board. “All that was left was to conduct one more full-scale exercise, which we did—in real life.”

**BORN OF NECESSITY**

Formed by NETEC in 2016, SPRN helps fill a void that arose during the Ebola outbreak in West Africa in 2014–2016. At the time, effective treatments for Ebola were nonexistent. Clinicians tried using different drugs to save lives. But their efforts were fragmented.

“We didn’t learn a lot from our Ebola experiences because we weren’t collecting data in a regimented scientific way like in a clinical trial,” says Aneesh Mehta, ACTT principal investigator at Emory University Hospital, the SPRN site in Atlanta.

SPRN has since brought rigor and speed to multisite clinical research of emerging special pathogens like SARS-CoV-2. After scientists in China identified the virus that causes COVID-19, the National Institutes of Health convened a group of experts to look at development of clinical trials and potential medications that could be used to treat the disease. NETEC and other partners assisted NIH by looking at potential medications to study. Among them: remdesivir, which had been part of PALM, a drug treatment study for Ebola during an outbreak in 2018–2020.

“We knew from the PALM trial that remdesivir was very safe in patients with little in the way of side effects,” says Mehta.

LuAnn Larson, director of clinical research operations at UNMC, helped lay the groundwork for ACTT by working with NIH to write the research protocol and other documents needed for central IRB approval.

“That was a really big deal,” says Larson. “NIH was excited to have the 10 SPRN study sites immediately at their disposal. We were in the middle of a pandemic, and we needed to answer research questions quickly.”

The central IRB proved advantageous in other ways. “We provided experiential knowledge to other sites.”

**How Research Shapes COVID-19 Response and Care Delivery**

By quickly launching the ACTT trial, NETEC partners helped find a safe drug to treat hospitalized patients.

“We were all desperately looking for something else to help our patients, and we found it in ACTT-1.”

—ANEESH MEHTA, EMMORY UNIVERSITY
in the study about how the process was going and the mechanics of the trial,” says Mehta. “We helped NIH refine the process so that other sites were able to onboard ACTT-1 more easily.”

The trial moved swiftly as intended. In a span of 59 days, ACTT-1 enrolled 1,062 patients worldwide. Of those, 309 patients, or 29%, enrolled at SPRN sites. Emory enrolled 103 patients in the trial, more than any other site in the world.

ACTT-1 proved highly successful. Final results showed that treating hospital patients with remdesivir resulted in faster recovery time, fewer days on oxygen, and lower progression to ventilation compared with placebo.

Remdesivir thus became the standard of care in the U.S. for hospital patients requiring oxygen. “It’s the only FDA-approved drug for COVID-19,” says Mehta.

In the three subsequent study arms of ACTT, remdesivir was tested in combination with different drugs to determine if treatment was more effective than remdesivir alone. ACTT-2 also was impactful. Results showed that the drug baricitinib, when given in combination with remdesivir, can speed recovery and provide clinical benefits, such as less oxygen use and fewer days on a ventilator.

But it was ACTT-1 that swiftly provided clinicians with a scientifically proven drug treatment to help save lives.

“ACTT-1 was conducted at a time when we really had nothing else besides wonderful clinical care to help patients with COVID-19,” says Mehta. “We were all desperately looking for something else to help our patients, and we found it in ACTT-1.”

As successful as ACTT-1 proved to be, it required clinical and research staff to adjust to conducting research during a pandemic. For instance, to keep patients and health care providers safe, each SPRN site had to work out a process for consenting patients who volunteered for the study.

“One of the difficulties in doing trials of this sort is being able to talk to patients,” says Emory’s Aneesh Mehta. “Before a patient or one of their family members consents to a study, we want to make sure they understand what the study is about, what the benefits and risks are, that they can choose to opt out of study down the road, and that we will still care for them in the same way regardless. Talking to patients in isolation when you are wearing full PPE makes it that much harder.”

Each SPRN site came up with a process for consenting patients safely. Andre Kalil, ACTT principal investigator at UNMC, suited up in full PPE to talk to patients about the study. An added plus: he is fluent in Spanish. For patients who spoke other languages, the lag time in getting an interpreter was long. In such cases, consenting a patient could take hours, given that the consent form was 20-plus pages long.

Talking to patients in isolation while wearing full PPE made planning consent a major challenge during the COVID-19 pandemic.

At Emory, Mehta’s study team swelled from five members to more than 50 to enroll patients at several Emory hospitals. For ACTT-1, clinical and research staff merged together to handle the heavy workload.

“Oftentimes, our research teams and clinical teams are separate, and that usually works fine,” says Mehta. “We all learned we are part of the care team, and it’s a much better experience for everyone, including the patient, when we all work together. That’s another big success of ACTT.”
The Power of Teaching Virtually

During the pandemic, more than 40,000 users relied on NETEC e-learning to keep patients safe.

In January 2020, when the World Health Organization declared COVID-19 a public health emergency, NETEC put in-person training and education on hold and quickly built a virtual platform for teaching U.S. health care workers how to safely and effectively care for patients with COVID-19.

Since then, more than 40,000 users have taken advantage of the free webinars and online courses that NETEC offers on various aspects of COVID-19 and other special pathogens.

“People knew us for our in-person courses and pivoting to a virtual format was outside our comfort zone at first,” says Sharon Vanairsdale, director of education and resources for NETEC. “Now we’re much more at home with the format as we continue to grow education in a virtual world.”

As the coronavirus pandemic evolved, so did NETEC’s Resource Library of e-learning offerings: webinars (live presentations and recorded sessions on YouTube), skill videos, online courses (many of which offer continuing education credit), and reference materials and guides for clinical, EMS, and public health personnel around the country. The top draws: the YouTube video Personal Protective Equipment for COVID-19, with more than 181,000 views.

During 2021, NETEC reorganized its e-learning content to make it more user friendly and easier to search. The reorganization is a sneak preview of more changes to come. NETEC hired the firm SweetRush to create a roadmap for making e-learning more engaging and meaningful. The roadmap is based on feedback elicited from NETEC’s virtual audience. Plans call for live-action demonstration webinars and workshops, podcasts, blogs, and more interactive digital tools.

GUIDE MY PPE APP

One of the biggest success stories of the past year is the launch of Guide My PPE, a web-based, phone-friendly app that allows users to develop PPE protocols based on practices in their respective facilities. NETEC worked with Emory’s visual medical education team to brand the app based on PPE protocols developed at Emory University Hospital (the HHS Region 4 RESPIC in Atlanta) and based on CDC guidance.

NETEC VIRTUAL EDUCATION AND TRAINING
(July 1, 2020 – June 30, 2021)

30 COVID-19 WEBINARS 10,167 COVID-19 WEBINAR PARTICIPANTS

YOUTUBE VIDEOS (RECORDED WEBINARS)

250,463 VIEWS

• 31,916 HOURS WATCHED
• 659+ NEW SUBSCRIBERS
• 2,468 TOTAL SUBSCRIBERS

MOST-VIEWED YOUTUBE VIDEO:
PPE FOR COVID-19

181,613 VIEWS

14,619 HOURS WATCHED
162 NEW SUBSCRIBERS

11,794 ITEMS DOWNLOADED FROM THE NETEC RESOURCE LIBRARY

TOP DOWNLOADS:
• COVID-19 PPE GUIDANCE FLYER
• PRACTICE PPE SAFELY FLYER
• 2019 NOVEL CORONAVIRUS NASOPHARYNGEAL SWAB COMPETENCY VALIDATION CHECKLIST
• NETEC: PERSONAL PROTECTIVE EQUIPMENT FOR 2019 NOVEL CORONAVIRUS (COVID-19)
• NETEC COVID-19 WEBINAR SERIES/ONLINE COURSE: ENVIRONMENTAL CLEANING AND INFECTION CONTROL
• KNOW YOUR PPE GUIDE

76,050 NETEC.ORG UNIQUE PAGE VIEWS

61,889 UNIQUE RESOURCE LIBRARY PAGE VIEWS
Protecting Health in Long-Term Care Centers

NETEC helps curb COVID-19 infection in facilities across Nebraska

It began with a phone call. When a Nebraska long-term care center needed guidance to stop COVID-19 transmission among residents, a staff member would contact the Infection Control Assessment and Promotion Program, or ICAP, at the University of Nebraska Medical Center. In response, ICAP provided virtual technical assistance immediately.

“Every time a long-term care center had a case, we would pair them with an infection preventionist like me,” says Kate Tyner, a nurse coordinator with ICAP. Tyner and her colleagues advised the facilities on various aspects of COVID-19 prevention and control: screening and testing, contact tracing, proper PPE protocols, dividing a facility into zones to separate infected and uninfected residents, setting up a COVID-19 treatment unit, and more.

When a facility was in desperate need of more PPE, Tyner would call the Nebraska Department of Health and Human Services to speed up delivery. “We would get long-term care centers through their outbreak until they stopped having new cases,” says Tyner. “But if a facility was having difficulty controlling an outbreak, we would reach out to NETEC to make a site visit.”

Established with CDC/Health-Associated Infections support in 2015, ICAP experts routinely visit long-term care and other health facilities across Nebraska to provide infection control assessments, recommendations, and training. Early in the pandemic, ICAP medical director Salman Ashraf made it a goal to partner with every one of Nebraska’s 397 long-term care centers with a case of COVID-19.

“We decided to step back and use our resources to guide facilities remotely to save time,” says Ashraf. “When a team of two or three people travel to a facility, they may be away for two or three days, depending on the location. That would delay us helping other facilities. Having a NETEC team in our state is important. The team is specially trained to go on site to mitigate the risks of highly infectious pathogens.”

Partnering together enabled ICAP and NETEC to use resources and expertise more effectively during the pandemic. Ultimately, the NETEC team made more than 100 long-term care site visits in 2020 and 2021.

“We’ve been doing on-site assessments and education in hospitals since Ebola,” notes Kate Boulter, nurse manager of the Nebraska Biocontainment Unit at UNMC. “We were able to use our experience and knowledge and adapt them to long-term care.”

Before making a site visit, the NETEC team consulted remotely with long-term care leaders to assess their situation, answer questions, and offer reassurance. After arriving on site and donning their PPE, the NETEC team went over a checklist with facility staff. The team then toured the facility to assess work flows and how infection prevention and control practices were implemented to care for residents. They observed where and how staff used masks, gloves, and PPE, cleaned surfaces and floors; and served and retrieved residents’ meals and beverages. The NETEC team also assessed air flow generated by fans and room air conditioners, open windows, and doorways—factors that can contribute to COVID-19 transmission.

“We saw a lot of gaps in long-term care. We talked with leaders about what we found and what they really did well,” says Boulter. “We assured them that we weren’t there to judge them. We were there to help.”

To close gaps in care, the NETEC team instructed staff based on a facility’s specific needs. By far, the most common need was training staff how to safely use PPE. After completing a site visit to one large facility, the administrator asked the NETEC team to come back to instruct every staff member on PPE.

“We know from conversations afterward that the staff appreciated having that knowledge,” says Boulter. “They talked about how the people with NETEC cared and wanted to make things better.”

Additional training and guidance continued. When Boulter realized that all long-term care residents were being given bed baths because of COVID-19, she wrote a protocol so they could bathe and shower safely. NETEC webinars and online courses were developed for long-term care staff across the country. Just recently, Boulter became NETEC’s team lead for long-term care education and metrics.

“Before the pandemic, I had never worked in a long-term care facility. It’s very different from working in a hospital, and we at NETEC have much to learn,” she says. “I am going to advocate for long-term care centers as much as I can.”
The 2021 Virtual Summit

Making sense of a striking moment in history

As conferences go, the three-day summit hosted by NETEC in June 2021 was markedly different from past years. The event was completely virtual. Attendance was higher than ever, with more than 200 participants from the 10 U.S. RESPTCs and federal agencies. And it was held 18 months into a pandemic that had claimed more than 600,000 lives nationally.

Notably, the summit brought NETEC partners together not only to share experiences and lessons learned but to also remember the more than 3,600 U.S. health care workers who had died from COVID-19. Reflecting on those experiences proved to be inspiring and poignant as well as educational.

"The cost of the stress and trauma on our health care workers and health care system is incalculable," noted Michael Bell, deputy director of the CDC’s Division of Health Care Quality and Promotion. "We are in a position to make use of a striking moment in history."

Going forward, the challenge lies in sustaining preparedness momentum to respond more swiftly and do more harm than ever before."

Hatchett and Bell were among a host of plenary speakers featured during the 2021 Virtual Summit. Plenary sessions included COVID-19 updates from ASPR, CDC, and NETEC leaders; surveillance data and the effect of COVID-19 on health care personnel; preventing outbreaks before they start; assessing COVID-19 response through the lens of the movie Titanic; and NETEC’s efforts to contain the virus.

Featured speakers had much to offer. Here’s a sampling of their ideas:

Preparedness must remain a top priority. "Prior to the pandemic, the ups and downs of interest and support for health care readiness has been a scary roller coaster ride. Yet NETEC has been a constant persevering force in health care readiness. "NETEC helped our nation’s health care organizations be better prepared for this pandemic. Because of NETEC’s efforts, lives have been saved, and health care workers were better protected."

—Richard Hunt, senior medical advisor for national health care preparedness, ASPR

Having a strong public health workforce is critical. "People have traditionally underestimated what a good public health workforce means. It’s not just about doctors, nurses, or hospital administrators. It involves a cadre of people from contact tracers to epidemiologists to biostatisticians to hospital clinicians. This network (NETEC) is about that."

—Anne Remoin, epidemiology professor, UCLA

COVID-19 highlighted the inter-relationship of various sectors of the global economy. "When industries fail or transportation shuts down, it puts people at risk. Meeting demand for personal protective equipment and laboratory supplies continues to be an issue that we need to troubleshoot. This will not be the last pandemic. We don’t know what’s going to happen in the next 10 to 20 years."

—Jay Butler, deputy director for infectious diseases, CDC

Improving the use and flow of information across health care teams, organizations, and communities is essential. "Health care really does its best to respond to a crisis when it’s using the tools it uses every day. By weaving tools developed by organizations such as NETEC into routine practice, we can make sure our nation moves to where it needs to be in terms of preparedness."

—Michael Bell, deputy director for health care quality and promotion, CDC

Ending pandemics is possible. "What inspires me to think that we have a convergence of political focus and will coupled with a revolution in vaccinology. We have compressed decades’ worth of development of new platforms into the past 18 months, and we will emerge from the COVID-19 pandemic with at least a half dozen or more new rapid-response platforms."

—Richard Hatchett, CEO and director, CEPI

Health care personnel were three times more likely to contract COVID-19 than the public. The spread of COVID-19 among HCP was more likely at smaller hospitals and long-term care facilities than at resource-rich facilities. Nurses were especially susceptible. "Everybody in health care had to stand up and lean in to contain the virus."

—Tener Veenema, nursing and public health professor, Johns Hopkins

Prior to the pandemic, the ups and downs of interest and support for health care readiness has been a scary roller coaster ride. Yet NETEC has been a constant persevering force in health care readiness. "NETEC helped our nation’s health care organizations be better prepared for this pandemic. Because of NETEC’s efforts, lives have been saved, and health care workers were better protected."

—Richard Hunt, senior medical advisor for national health care preparedness, ASPR

-
FOR SOME TIME, EXPERTS HAVE WARNED THAT THE NATION must be better prepared to deal with the threat posed by infectious diseases. Recent experiences with H1N1 influenza and Ebola virus disease gave credence to their concerns. And then COVID-19 occurred, claiming more than 700,000 lives and exposing serious gaps in the U.S. health care system. The Office of the Assistant Secretary for Preparedness and Response tapped NETEC to tackle the problem. In response, NETEC is establishing the National Special Pathogen System of Care (NSPS). Its mission: to provide high-quality, equitable care for patients suspected of, or infected with, a special pathogen while protecting the health workforce.

More than 70 individuals and organizations in health care, public health, academia, government, and industry came together to develop the NSPS. It builds on the Regional Ebola Treatment Network, established by ASPR in 2015 in response to a heightened need for special pathogen preparedness. RETN was designed as a tiered system of care that includes regional and state/jurisdictional treatment centers. It’s a broad initiative about NETEC or the regional treatment centers. It’s a broad initiative about NETEC or the regional treatment centers.

The NSPS encompasses much more. It will serve patients at every entry point of care, including hospitals, doctor’s offices, urgent care clinics, and long-term care facilities.

"COVID-19 showed us we weren’t prepared to meet the totality of needs," says John Lowe, a principal investigator of NETEC. "The NSPS isn’t just about NETEC or the regional treatment centers. It’s a broad initiative that brings multiple stakeholders together to chart a better path forward."

To lead the way, NSPS will have two key components: a Care Delivery Network to provide patient care and a Central Body to manage network operations. Like RETN, the Care Delivery Network will have four hospital tiers—D, C, B, and A—with increasing levels of capacity and capabilities to care for patients infected by special pathogens. Tier A hospitals, which offer the highest level of isolation care, will serve as the hub for neighboring B, C, and D facilities.

The idea behind the four tiers is that special pathogen care will be accessible to all," says Paul Biddinger, director of disaster medicine at Massachusetts General Hospital and leader of the network planning team. "Special pathogen care will be safer because we will have a strong network, it will be more appropriately distributed according to population centers, and it will pay more attention to equity for underserved populations. It will make the best use of resources in a rational, structured way."

Overseeing the network is the Central Body. Its functions—leadership strategy and oversight; standards and guidance; monitoring and evaluation; research and data; communication and coordination; and funding—are well thought out. For instance, COVID-19 exposed a greater need for clear, consistent communication with hospitals, public health, communities, EMS, government agencies, and other partners.

"COVID taught us how important it is to have a trusted messenger," says Lauren Sauer, director of NETEC’s Special Pathogens Research Network and co-leader of the Central Body planning team. "Our goal is to open up the communication channels across the NSPS. It’s important to speak the same language in order to build partnerships, to share best practices, and communicate with government agencies and Congress about how best to meet the care needs of frontline providers and care delivery systems."

The Central Body also bears responsibility for financial sustainability. To achieve that goal, NSPS leaders must look beyond grants and other traditional funding sources. Ideas include participant fees for access to NSPS research data, monetary incentives for disaster preparedness, and fee-based partnerships with suppliers.

"PPE and pharmaceutical devices are critical to our supply chain and understanding the supply chain itself," says financial team leader Brendan Carr, professor of emergency medicine for Mount Sinai Health System. "There is an opportunity for suppliers to participate in the NSPS at a cost to gain insight into what’s needed for surge supply planning and manufacturing."

Now that plans for NSPS are finalized, the system will grow over the next two to three years.

"It’s not going to happen overnight," says Lowe. "We’ve started down the path to ensure that our health care system is equipped and ready to handle the next special pathogen and keep everyone safe."
Going Global

Partnerships with Europe and Asia will help strengthen preparedness

Throughout the COVID-19 pandemic, case outbreaks in Asia and Europe have served as a bellwether of what U.S. health care systems can expect. The same holds true for nations looking to the U.S. for guidance.

NETEC has formalized that process by establishing partnerships with infectious disease networks in Germany, the United Kingdom, and Singapore. The new ties will help the U.S. and global partners learn from each other to better prepare for future disease outbreaks.

The first step for global partners is understanding the priorities of the U.S. Regional Emerging Special Pathogen Treatment Centers, with whom they will collaborate. "We’re just beginning to scratch the surface," says Jocelyn Herstein, NETEC’s lead for international engagement and programs.

Herstein, a research assistant professor at the University of Nebraska Medical Center, is currently based in Switzerland, making it easier to work with NETEC partners across time zones in Europe and Asia. Those partners include:

- STAKOB, a network of seven treatment centers (with high-level isolation units or HLIUs) in Germany. Housed within the Robert Koch Institute, STAKOB is much like NETEC. It is part of a tiered special pathogens system that includes local hospitals (i.e., front-line facilities), regional hospitals (i.e., assessment hospitals), and treatment centers (i.e., RESPTCs).

- The UK HCID Network, part of the High Consequence Infectious Disease Program established by the National Health Service in England a few years ago. The UK network includes two HCID treatment centers and five airborne HCID centers. Each facility has a designated lead who is responsible for coordinating preparedness locally and linking HLIs.

- The Singapore National Center for Infectious Diseases, a 330-bed facility with a surge capacity up to 586 beds. The NCID includes a high-level isolation ward with four high-level isolation units and eight beds. It houses several functional units—clinical services, public health, research, training and education, and community engagement—that collaborate with other Singapore institutions.

Initially, NETEC and its global partners will focus on sharing lessons learned, mainly how facilities pivoted to deal with the COVID pandemic. The first training activity is being planned. Two biocontainment units in Germany will team up with two RESPTCs in the U.S. to share their experiences in training and education and evaluation of their biocontainment unit teams.

"Having these connections in different geographic regions will help us learn from what they’re doing to prepare for potential threats," says Herstein. "In a real emergency, they will help us know more about what’s happening on the ground so that NETEC hospitals will be ready to respond and know when and how best to pivot."

Like a good neighbor, Bruce Ribner is there. In 2001, he established the Serious Communicable Diseases Unit at Atlanta’s Emory University Hospital so that staff at the CDC, headquartered nearby, would have a place to quarantine safely if exposed to a deadly pathogen. In 2014, he quickly agreed to treating the first Ebola patient in the U.S. in the SCDU.

The following year, Ribner and his colleagues at the University of Nebraska Medical Center and NYC Health + Hospitals/Bellevue pooled their Ebola expertise to form NETEC.

Ribner, whom TIME magazine once described as ‘America’s top Ebola doctor,’ recently put his PPE aside to retire from Emory.

His influence is considerable. Through NETEC, Ribner has helped train thousands of health professionals in special pathogen preparedness.

When Emory built the SCDU in collaboration with the CDC, it was the first such civilian unit in the nation. The physicians and nurses who voluntarily staffed the unit drilled two to three times a year. The unit mostly sat empty until the first Ebola patient arrived, followed by three more.

By the time the crisis subsided, Emory, the University of Nebraska, Bellevue Hospital, and the National Institutes of Health had successfully treated nine Ebola patients. Ribner spent hours on the phone consulting with others about how best to treat patients and keep caregivers safe.

“We leaned on Bruce a lot because he had the first two Ebola patients in the U.S.,” recalls Phil Smith, former medical director of the Nebraska Biocontainment Unit. “There’s no substitute for experience. When the next two Ebola patients came to us, he was very generous about sharing his ideas.”

Though they didn’t realize it at the time, Ribner, Smith, and others were laying the foundation of NETEC as a resource for special pathogen preparedness and training.

COVID-19 dramatically underscored the need. During the Ebola crisis, clinicians treated one or two patients at a time. During COVID-19, patient surges overwhelmed hospitals’ capacity. NETEC-trained staff stepped up to assist.

“Our trainees became the trainers in their respective facilities,” says Ribner. “They provided a level of comfort and expertise in ICUs and on the floors to help staff learn how to care for patients with a special pathogen. That happened all over the U.S.”

Ribner’s impact was palpable during the 2021 NETEC Virtual Summit in June. On the last day of the summit, colleagues around the country thanked and wished him well in retirement.

“It’s been a phenomenal treat to work with everyone... I feel really good about what we’ve created over the past six years.”

NETEC NEWS

‘America’s Top Ebola Doctor’ Retires

‘America’s Top Ebola Doctor’ Retires
What Lies Ahead?

The battle continues. On June 30, 2021, the number of new COVID-19 cases reported in the U.S. stood at 15,973. Since then, every state has experienced a surge in the number of COVID-19 cases caused by the highly contagious Delta variant. Health and public health experts are also keeping a watchful eye on Africa, where cases of Ebola virus disease, Marburg virus, Lassa fever, monkeypox, and H5N1 avian influenza have emerged.

All are reminders that infectious disease outbreaks of great consequence continue to happen, and that the U.S. must be ready for any possibility. They also give credence to the recent development of NETEC’s National Special Pathogen System of Care. The NSPS is an ambitious roadmap for action that calls for providing coordinated and high-quality care for every patient infected by or suspected of being infected with a known or unknown special pathogen. In the coming year, NETEC will grow the NSPS by piloting its Care Delivery Network with a small group of health care facilities and expanding operations of its Central Body, which oversees the network. Additionally, NETEC members will begin to share best practices and conduct education and training exercises with international partners in Germany, the United Kingdom, and Singapore. Here at home, NETEC will build upon the success of its virtual training and education programs with an eye toward returning to on-site consultations and training across the country.

AS THE NEXT YEAR UNFOLDS, THE EXPERTISE, DEDICATION, AND COURAGE OF THE NATION’S HEALTH CARE, PUBLIC HEALTH, AND EMS WORKERS WILL NOT BE FORGOTTEN.

THANKS TO ALL FOR PROVIDING HOPE DURING THESE DIFFICULT TIMES AND MAINTAINING BELIEF IN HEALTHIER DAYS TO COME FOR EVERYONE.

—THE NETEC TEAM