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Frontline Providers Use Lessons Learned During 2014 Ebola Crisis to Manage COVID-19

Public health authorities have confirmed cases of COVID-19, the name given to the novel coronavirus first identified in China, have broken out in several states.

Before these cases were reported, **Nancy Messonnier**, MD, director of the National Center for Immunization and Respiratory Diseases at the CDC, warned such outbreaks were all but inevitable.

“This new virus represents a tremendous public health threat,” she said during a Feb. 21 press briefing. “We don’t yet have a vaccine for this novel virus, nor do we have a medicine to treat it specifically.”

Messonnier said the CDC continues working with state, local, and territorial health departments to prepare the public health workforce to respond to local cases and the possibility the outbreak could become a pandemic.

She also noted the agency is working closely with healthcare systems across the country to reinforce infection control principles and to prepare plans in the event there are surges of patients seeking care.

As of March 5, the CDC says there are 100 U.S. cases (30 travel-related, 17 spread person-to-person, and 53 under further investigation).

In addition to these cases, dozens of U.S. citizens who have been diagnosed with the illness are receiving care. These individuals come from groups that have been repatriated to the United States from areas hard-hit by the virus. Most of these cases involve individuals from the Diamond Princess, a cruise ship that docked in Japan carrying more than 600 passengers diagnosed with the illness. There also are a handful of cases involving individuals repatriated from Wuhan City, where COVID-19 outbreaks were first reported.

Messonnier noted all individuals involved with these repatriation efforts must remain in quarantine for 14 days, the incubation period for the virus, before returning to their regular life. This is to ensure they are free of the disease and cannot transmit the virus to others. Most of these individuals are under quarantine at four Department of Defense installations across the United States.

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AUTHOR: Dorothy Brooks
EDITOR: Jonathan Springston
EDITOR: Jill Drachenberg
EDITORIAL GROUP MANAGER: Leslie Coplin
ACCREDITATIONS MANAGER: Amy M. Johnson, MSN, RN, CPN

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The CDC has begun sharing the number of confirmed U.S. COVID-19 cases and the number of those who were repatriated to the United States with the virus.¹ The agency updates this information daily Monday through Friday.

The CDC is working with businesses, manufacturers, and pharmacies on steps they can take to ensure supplies of needed materials are available in the event of a surge in new cases.

Frontline providers in the ED need to be prepared, too. The risk of a larger outbreak of COVID-19 is clear, and public health authorities are stressing the need for a heightened focus on screening and infection control practices.

If there is any good news, it is that the 2014 Ebola outbreak illuminated many of gaps in the U.S. healthcare infrastructure that needed to be improved to effectively manage a fast-spreading infectious disease. Since then, much work has been done to address these shortcomings.

For instance, the Department of Health and Human Services and CDC developed a tiered structure, establishing 10 regional treatment centers as well as some state-designated treatment centers that are capable of caring for people infected with special pathogens, explains **Shelly Schwedhelm**, MSN, RN, NEA-BC, the executive director of emergency management and biopreparedness at the Global Center for Health Security at Nebraska Medicine.

The University of Nebraska Medical Center's (UNMC) biocontainment unit, a highly specialized facility designed to care for people affected by bioterrorism or highly hazardous communicable diseases, was one of three centers that took charge of the care and

treatment of patients diagnosed with Ebola during the 2014 outbreak. Specialists are again playing an important role in the latest health emergency, as several patients with COVID-19 have been flown to the UNMC campus for evaluation and treatment.

Further, the specialized staff members at UNMC make up a significant portion of the faculty at the National Ebola Training and Education Center (NETEC), which has spearheaded efforts to improve preparedness for infectious disease outbreaks through systems improvements as well as basic training. (*Learn more about the center at: <http://bit.ly/2HU0gwS>.)*

"To say that we are more prepared [than in 2014] is an understatement," Schwedhelm stresses. "NETEC also does some site visits for readiness. They are nonpunitive, nonregulatory site visits. The 10 regional treatment centers are [evaluated] annually, and then we have done numerous other site visits over the last five years to look for progression ... in moving people toward preparedness."

While considerable progress has been made, Schwedhelm acknowledges there is a long way to go, specifically regarding frontline providers who have not yet been able to access the kind of training that NETEC provides.

"I think it is a matter of doing a lot of work to let people know what their resources are," she says. "We share everything very broadly. All of our resources and tools we put on [the NETEC website]. People can then download them, customize them, and use them without having to start [from scratch]."

Schwedhelm notes that an important mantra of the one-day training sessions that NETEC

provides to frontline providers is “Identify, Isolate, and Inform,” a straightforward process for ensuring individuals at risk for a communicable disease are identified quickly, steps are taken immediately to protect others from acquiring the potential pathogen, and appropriate internal and external authorities are notified about a suspected case.

While this approach has been adapted for use with Ebola, SARS, MERS, and other pathogens, the CDC has quickly developed a flowchart for use of the process with COVID-19.²

First implemented at UNMC as a paper process during the Ebola crisis, it has been integrated into the health system’s electronic medical record, and is fine-tuned continually, Schwedhelm shares. The process is in place at all entry areas for clinics, urgent care centers, and EDs within the Nebraska Medicine system to ensure any potential cases of COVID-19 are picked up before staff or other patients are put at risk.

For instance, when patients present to the ED at UNMC, the first person they interact with, whether this person is a receptionist at the front desk or a nurse greeter, will ask if they have a fever, rash, or cough.

It is a simple “yes” or “no” question, requiring no clinical judgment, Schwedhelm explains. For cases in which patients answer “no,” the ED staff person will move on to travel questions.

Staff ask the patient if he or she or anyone they have been in contact with have traveled outside the country in the last month.

“We went with a month because that keeps us from having to be specific to the incubation period of 21 days for Ebola and Lassa [fever], or 14 days for [COVID-19], or

EXECUTIVE SUMMARY

As the outbreak of COVID-19 expands well beyond China, public health authorities warn hospitals and frontline caregivers to prepare for possible widespread virus outbreaks in U.S. communities. Experts note that policies and procedures developed during the Ebola crisis of 2014 are in place and ready to be deployed. They urge hospitals to take advantage of the resources available.

- The CDC reports there are 100 cases of COVID-19 in the United States. Ten people have died (as of March 5). Thirty cases are travel-rated, 17 have been spread person to person, and the rest are under further investigation.
- In addition, there are many other patients with COVID-19 undergoing care in the United States because of repatriation efforts to bring home U.S. citizens living in areas hard-hit by the virus.
- Experts from the National Ebola Training and Education Center urge healthcare systems to adopt processes in line with “Identify, Isolate, and Inform,” a process for quickly identifying and managing cases of infectious disease in a way that minimizes the risk for subsequent transmissions.

whatever it is we are looking for,” Schwedhelm observes. If patients answer “yes” to both the symptom and international travel question, the ED staff person will pin down the travel location, beginning by continent. For example, if a patient has recently traveled to the Democratic Republic of Congo, where an Ebola outbreak is occurring, that will trigger a banner for the triage person to move the patient to an isolation room, Schwedhelm explains.

Regarding COVID-19, a similar trigger occurs if the international travel involved China.

“We just changed this [question] from just being about travel to Wuhan City ... to travel to all of China,” Schwedhelm says. “We customize the process for how we want it to be. We believe it is very efficient, and it takes relatively little time.”

Patients who report a warning symptom and have traveled to a hot spot (or been in contact with someone who has), receive masks. “What this does is ... get a mask on

people right away so that they are not sitting side by side with other people sitting in the waiting room,” Schwedhelm says. “We have many fewer, almost to the point of it being zero, healthcare exposures, too.”

At press time, the ED at UNMC had not yet picked up on any suspected cases of COVID-19, although there have been two possible cases reported in the system’s student health centers. There are two such centers, one in Lincoln and one in Omaha. Nonetheless, protocols are in place in the UNMC ED should a suspected case present there.

“Once that patient is identified up front, then they would have a mask placed on them, and then they would be taken to a negative airflow room,” explains **Michael Wadman**, MD, chairman of the department of emergency medicine at UNMC. “Then, we would have a consult with our infectious disease specialists at UNMC and with the county health department [to initiate] testing once we have determined that symptoms of a lower respiratory tract infection are present.”

Currently, a nasopharyngeal swab, an oropharyngeal swab, and serum samples would be sent to the CDC for testing for COVID-19, Wadman notes.³

How might colleagues in other emergency settings go about putting similar procedures in place so they are optimally prepared for COVID-19 cases? First, scrutinize front-end triage and intake processes, Wadman advises.

“Make sure there is a standard way to screen for these patients, and then make use of the resources that

Schwedhelm described for getting [the Identify, Isolate, and Inform] process in place,” he says. “This is not something that is going to end. What will be the next challenge that we confront? Having that type of a flexible intake process that we have here really allows you to adapt to whatever the threat might be.” ■

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Work With Public Health Partners on Treatment, Care of Patients Diagnosed With COVID-19

The recommended care of a patient with COVID-19 is similar to what is required for other viral pneumonias, such as those associated with influenza or respiratory syncytial virus (RSV). Further, mild disease does not necessarily require hospitalization.

“You can work with your public health agencies to ensure that those individuals get appropriate care and isolation without necessarily being hospitalized,” said **Aneesh Mehta**, MD, FIDSA, FAST, an associate professor in the division of infectious diseases at Emory University in Atlanta, explained during a review of treatment guidance. Mehta reviewed treatment guidance for the pathogen as part of a Feb. 18 telebriefing on COVID-19.

It is important to be able to provide oxygen support — invasive oxygen support, if needed — for patients with COVID-19 as well as monitored fluid administration that can be administered both orally and by IV. “Consider antibiotics if there are signs of secondary bacterial infections or bacterial

superinfections,” Mehta said. “Currently, there are no known therapeutics or vaccines available, but there are many experimental options that are being considered at this time that may be available in the near future.”

Based on recommendations from colleagues around the world, Mehta advised clinicians to avoid the use of corticosteroids in patients with COVID-19 because it may worsen their lung disease. Mehta noted that more should be known about the impact of corticosteroids in the coming weeks.

In terms of presentation, Mehta explained the current incubation period for COVID-19 is thought to be around five days, although it can range from two to 14 days. “Patients do present with a constellation of symptoms that are very common to other viral diseases,” he said. “The vast majority of patients present with fevers, many have cough, and also many have myalgia and fatigue.”

Some common lab abnormalities have been reported. These include both low and high white blood cell

counts, lymphopenia, and elevated AST and ALT levels. “Chest imaging has shown bilateral involvement in many of these patients with many areas of consolidation and ground glass opacities reported on chest imaging, including CT scans,” Mehta explained.

Mehta shared that up to 80% of patients with COVID-19 experience mild illness; however, illness severity can range from mild to severe — even fatal. Globally, the virus has already sickened more than 80,000 and killed an estimated 2,700 people as of late February. “It has been reported that clinical deterioration often occurs in the second week of illness, and approximately one-third of hospitalized patients are requiring intensive care,” Mehta said. “We have seen ARDS develop in 17% to 29% of hospitalized patients in China, and secondary infections have been reported in approximately 10% [of these cases].”

Interim guidance on the treatment of suspected cases of COVID-19 is available from the CDC online at: <http://bit.ly/2I0pIkY>. ■

Flu Season Charts an Unusual Course, Beginning With a Predominant B Victoria Strain

While the world is focused on COVID-19, frontline providers across the United States have their hands full with what is shaping up to be an unusual influenza season.

The CDC reports that not only was there an early start to the season, with flu activity jumping sharply in December, but the predominant strains of flu circulating in the early part of this season were from B lineage viruses, in particular the B Victoria strain.

“Typically, when we think of B activity in the U.S., we think of the later wave of flu activity that happens,” noted **Alicia Budd**, MPH, an epidemiologist in the influenza division of the National Center for Immunization and Respiratory Diseases at the CDC. Budd provided an assessment of the 2019-2020 influenza season during a Clinician Outreach and Communication Activity (COCA) call on Jan. 28.

However, as the season has progressed, Budd reported epidemiologists have observed an increase in A strains, especially A(H1N1)pdm09. This is a reverse of how flu seasons typically unfold. Generally, a season starts with A strain activity, followed by an uptick in B activity as the season progresses.

While the B Victoria strain tends to lead to worse outcomes in children, the A(H1N1)pdm09 strain is worse for adults, Budd explained. This trend is holding true thus far this season. “We are actually seeing a different predominant virus in the different age groups,” Budd said. “In our kids, the B Victoria viruses are predominant. In the adult age groups, it is the A(H1N1)pdm09 that are predominant.”

By mid-February, the CDC reported the numbers of B Victoria and A(H1N1)pdm09 viruses were about equal for the season overall, as cases of A(H1N1)pdm09 have continued to surge in recent weeks. Furthermore, widespread influenza activity remained prevalent in most regions of the country.

Hospitalizations for flu were estimated at 47.4 per 100,000 people, a rate similar to recent flu seasons, but a bit higher among children and young adults than what has been typical. Of all deaths that occurred in the United States, 6.8% of those were attributed to flu or pneumonia, slightly below the epidemic threshold of 7.3%. However, in the week ending Feb. 15, the CDC reported there were 13 pediatric deaths attributed to influenza, bringing the total number of pediatric deaths for the 2019-2020 season to 105.¹

(Editor’s Note: For information about these mortality rates, which are based on National Center for Health Statistics surveillance data, please visit: <http://bit.ly/38aEqjD>.)

Overall, the CDC reported there have been at least 29 million flu illnesses, 280,000 hospitalizations, and 16,000 deaths related to the flu this season. As of mid-February, epidemiologists observed evidence of influenza activity had only slightly decreased from previous weeks.¹

In a bit of good news, the first estimates on flu vaccine effectiveness, unveiled in late February, show the current formula is reducing doctor visits for flu by about 45% overall and 55% in children. Further, data show the vaccine is effective against both predominant circulating virus strains.

Clinicians can expect to see many typical manifestations of

uncomplicated flu virus when patients present, explained **Angela Campbell**, MD, MPH, a medical officer in the CDC’s influenza division who also spoke during the Jan. 28 COCA call. “This can range from asymptomatic infection to a more typical upper respiratory tract illness, typically consisting of an abrupt onset of fever and cough with other symptoms that may include chills, muscle aches, fatigue, headache, sore throat, and runny nose,” she explained. “A runny nose and nasal congestion symptoms also occur with more common cold viruses as well, but they may occur in young children with the flu. GI symptoms such as abdominal pain, vomiting, and diarrhea tend to be more common in children.”

However, Campbell stressed young infants may not exhibit any respiratory symptoms at all, and may present with fever alone, often accompanied by irritability. She also noted elderly patients and those who are immunosuppressed may present with atypical symptoms and may not even report with any fever.

Clinicians also should be aware of the complications that can go along with flu. For instance, Campbell noted otitis media can develop in up to 40% of children younger than age 3 years who have the flu. It also can exacerbate chronic underlying conditions such as asthma. “Other common causes of hospitalization with flu include dehydration and pneumonia, and pneumonia can be primary viral pneumonia or secondary bacterial pneumonia,” Campbell explained.

Campbell added flu can cause other respiratory syndromes and extrapulmonary complications such as renal failure, myocarditis, pericarditis, myositis, and extreme

rhabdomyolysis. “Flu is also known to cause encephalopathy and encephalitis, particularly in children, as well as sepsis and multiorgan failure,” she shared. “In fact, in a relatively recent review of death reports of children who died with flu, sepsis was actually found to be listed as a complication in up to 30% of those reports.”

Bacterial co-infections can cause severe disease when present with flu, Campbell said. She noted the most common bacteria involved in these cases include *Streptococcus pneumoniae*, *Staphylococcus aureus*, and group A streptococcus.

When should clinicians order tests for the flu? Campbell noted such testing is in order when the results are likely to influence clinical management. For example, if the results may decrease unnecessary lab testing for other etiologies or the unnecessary use of antibiotics, testing is advised. Further, if the results might facilitate implementation of infection prevention and control measures, increase the appropriate use of influenza

antiviral medicines, and potentially shorten length of stay, flu testing is indicated.

“Another reason for testing is if it will influence a public health response. It can be very useful for outbreak identification and intervention,” Campbell said. “One of the most common situations where this is the case is in long-term care facilities or nursing home outbreaks.”

The Infectious Diseases Society of America (IDSA) produced an algorithm that can be used to help clinicians determine whether to order flu testing. This graph, along with additional guidance, is included online at: <http://bit.ly/2HZZz5m>.

“If a patient with suspected flu is being admitted to the hospital, testing is actually recommended both by IDSA and by CDC, along with empiric antiviral treatment while results are pending,” Campbell said. “If [the patient] is not being admitted, but if results will influence clinical management, the same recommendation applies.” In cases where flu testing results will not

influence whether empiric treatment can be initiated based on a clinical diagnosis, then there probably is no need for it, Campbell added. However, she also noted empiric treatment is recommended in cases in which the patient is at high risk or presents with a progressive disease.

When considering antiviral treatment for flu, the focus of CDC’s treatment guidance is on the prevention of severe outcomes, Campbell noted. Consequently, this guidance is particularly aimed at patients with severe disease and those at the highest risk for severe disease. “Clinical trials and observation data show that early antiviral treatment can shorten the duration of fever and flu systems,” she said.

In particular, Campbell observed early treatment reduces the risk of otitis media in children and lower respiratory tract complications that require antibiotics and hospital admission in adults. Further, she noted both observational studies and meta-analyses have shown early antiviral treatment reduces the risk of hospitalization in high-risk children and adults.

Regarding oseltamivir, one antiviral medication, studies have revealed early treatment reduces the likelihood of death in hospitalized adult patients, and the drug has been shown to shorten the duration of hospitalization in both adults and children, Campbell said.

Considering the demonstrated benefits, the CDC recommends antiviral treatment as early as possible for any patient with suspected or confirmed influenza and severe, complicated, or progressive illness, or who is at high risk for influenza complications. This includes children younger than age 2 years, adults age 65 years and older, pregnant and postpartum women, American Indians and Alaska natives, children on long-term aspirin

EXECUTIVE SUMMARY

Frontline providers confronted an unusual influenza season, with flu activity spiking as early as December. B virus strains, which usually lead to worse outcomes in children, was predominant in the early part of the season. By mid-February, flu activity remained widespread throughout the United States.

- Typically, A strains are predominant in the early part of flu season, with B virus cases increasing later on. The reverse is true this year.
- The predominant strain during the first half of the season has been B Victoria, a strain that is particularly hard on children.
- As the season has progressed, cases of A(H1N1)pdm09, a strain that tends to produce worse outcomes for adults, have surged.
- As of Feb. 15, the CDC reported hospitalizations for flu were estimated at 47.4 per 100,000 people, a similar rate observed in recent flu seasons, but a bit higher among children and young adults than what has been typical.
- Deaths attributed to flu or pneumonia stood at 6.8% as of Feb. 15, slightly below the epidemic threshold of 7.3%. However, the total number of pediatric deaths for the 2019-2020 season totaled 105.

therapy, people with underlying medical conditions, and residents of nursing homes and chronic care facilities. “Clinical benefit is absolutely greatest when antiviral treatment is initiated as close to illness onset as possible. Treatment really shouldn’t be delayed while testing results are pending,” Campbell stressed.

However, she noted antiviral treatment initiated after 48 hours can still be beneficial in some patients. “There have been observational studies in hospitalized patients that suggest treatment might be beneficial even when initiated four or five days after symptom onset. Similarly, there have been observational data in pregnant women that have shown treatment to provide benefit when started three to four days after symptom onset,” Campbell reported. “But by and large, the earlier [treatment commences], the better. Even within the first 12 hours is better than within 24

or 48 hours.” Beyond the high-risk groups, antiviral treatment also can be considered for any previously healthy patients with suspected or confirmed flu. This determination can be made on the basis of clinical judgment if treatment can begin within 48 hours of illness onset, Campbell said.

Currently, there are currently four antiviral medications that are FDA-approved, including oseltamivir, zanamivir, peramivir, and baloxavir. However, which drug can be used depends, in part, on age. “Oseltamivir can be given to anyone of any age, zanamivir is for treatment of children age 7 and up, peramivir age 2 and up, and baloxavir age 12 years and up,” Campbell explained.

Considering zanamivir can cause bronchospasm, it should not be used in patients with underlying airway disease. Further, baloxavir is not recommended for pregnant or breastfeeding mothers because there are not

enough data to support efficacy or safety in these groups. For hospitalized patients, treatment with oseltamivir is recommended as there are enough data to support the use of the other antiviral drugs in patients with severe influenza. For patients who cannot tolerate oseltamivir, intravenous peramivir should be considered, Campbell said.

Regarding corticosteroid drugs, Campbell noted they are not recommended as an adjunctive therapy for suspected or confirmed flu, for flu-associated pneumonia, for respiratory failure, or acute respiratory stress syndrome unless they are indicated for some other reason. ■

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Be Vigilant Distinguishing Between EVALI and Flu-Associated Pneumonia

If dealing with the COVID-19 outbreak and peak flu season are not enough, frontline providers in the ED also need to remain on the lookout for cases of e-cigarette or vaping product use-associated lung injury (EVALI). One big problem is that the symptoms of these illnesses can overlap, making it difficult to

distinguish between flu-associated pneumonia and EVALI.

Kaitlyn Works, MD, an emergency physician at Vanderbilt University Medical Center (VUMC) is the lead author of new report detailing how one case of EVALI went unrecognized through several ED visits.¹

The case involved a 20-year-old man who was initially diagnosed at a local ED with a viral illness. After failing to improve, he presented to another ED out of state where he was visiting family, and was hospitalized with a diagnosis of bilateral pneumonia. This was confirmed through a CT scan. Despite treatment with IV

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antibiotics, the patient failed to improve, left the hospital after four days (against medical advice), and returned home.

The patient then presented to the ED at VUMC where he reported that he had tested negative for hepatitis and HIV. Again, the patient started on broad spectrum antibiotics and was admitted to the hospital. At this point, a pulmonary consult was obtained. A detailed history revealed the patient had begun vaping cannabis oil several months prior to his illness, leading to a suspected diagnosis of EVALI.

The diagnosis was confirmed after a bronchoscopy revealed acute lung injury, and subsequent tests ruled out strep and other infectious causes. The patient was placed on steroids and began to improve. He was able to come off oxygen within 48 hours of treatment. While treatment ultimately proved effective in this

case, the authors stressed that prompt recognition of EVALI is important because disease severity can worsen rapidly. Further, Works advises taking a detailed social history early.

“It is important to ask about vaping specifically, particularly if the patient has any cardiac or respiratory symptoms,” she tells *ED Management*. “Unfortunately, simply asking about smoking or drug use is not detailed enough anymore.”

For cases in which patients report they have used vaping products, Works recommends clinicians ask more questions, such as:

- What type of device was used: a vape pen, vape mod (meaning modified), or e-cigarette?
- What type of product was vaped? Did it include only nicotine, THC, CBD oil, or other ingredients?
- What flavor was the liquid?
- Was the product commercially licensed or homemade?

Patients using vaping products that contain THC are more likely to suffer from EVALI, Works reports. “Nearly 80% of the confirmed cases were using these products,” she says.

However, Works also stresses that not all patients with EVALI are necessarily going present with exact same history. “Their symptoms may be based on duration of use, frequency of use, and the type of device used,” she cautions. “As emergency providers, we should assume the worst and rule out all life-threatening causes of our patient’s complaints, and this includes EVALI.” ■

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Emergency Medicine Leaders Push for Pediatric Readiness Improvements in Prehospital Setting

After the success of the National Pediatric Readiness Project (NPRP), which led to improvements in the preparedness level of EDs across the country to care for children, there is now a push to achieve similar gains in the prehospital setting.

Like NPRP, this fresh effort is backed by multiple professional organizations, including the American College of Emergency Physicians, Emergency Nurses Association, American Academy of Pediatrics, National Association of Emergency Medical Services (EMS) Physicians, and the National Association of Emergency Medical Technicians. To start, these groups issued a joint

policy statement, which makes the case that EMS systems must be able to ensure they have the infrastructure, support, equipment, and training needed to meet the unique needs of younger patients. The statement also includes a long list of specific recommendations that the authors contend EMS systems need to follow to achieve true pediatric readiness.¹

The authors tell *ED Management* the joint policy statement is an initial step in what they hope will be a multistep process that unfolds over the coming years. For example, the NPRP was preceded by a similar joint statement that included guidelines for the care of children in the emergency setting.²

As with NPRP, the participating groups in this latest effort anticipate broad involvement on the part of emergency medicine clinicians and administrators, many of whom continue to play a key role in ensuring EDs are well prepared to meet the unique needs of children.

There was no precipitating adverse event or crisis prompting the joint policy statement; rather, it was the culmination of several years of discussion among several stakeholders, explains **Brian Moore**, MD, the statement’s lead author and a pediatric emergency physician in the department of emergency medicine at the University of New Mexico. After the earlier policy statement

regarding the care of children in the ED and the success of the NPRP, the thinking was, “Hey, we should do this for EMS,” he explains. “There is a blueprint for what the ED piece is saying, and we should extend that to the world of EMS.”

The latest policy statement includes 16 distinct recommendations for EMS that cover such topics as the development of protocols for use with children, the acquisition of pediatric-specific equipment and supplies, the provision of pediatric-specific training, the development of policies and procedures related to pediatric patients and their families, the development of key metrics, and ongoing assessment.¹

Moore, who once worked as the air ambulance medical director in Albuquerque, NM, has seen firsthand the need for more emphasis on pediatric-specific care in the prehospital environment. “One of the overarching reasons to advocate for this is seeing, often times, how nervous some prehospital providers are about the care of children,” he says. “Readiness [can] be highly variable.”

Consequently, Moore believes it is important for the relevant national professional organizations to spell out what the important parameters are for taking good care of children in the prehospital setting. “We are addressing this from a systems [perspective], knowing that the [NPRP] for EDs is having some great success with readiness and evaluation ... and [prompting] a lot of EDs to want to improve,” he shares. “They put a scoring system in place [that showed] how EDs could improve. Now, there are published data correlating ED readiness for pediatric patients with outcomes.”

In a similar fashion to the NPRP, Moore and several other

statement co-authors are involved with a prehospital readiness steering committee. This group is developing an assessment tool for EMS systems so they can evaluate where their readiness is regarding care for pediatric patients. Further, Moore notes the committee is looking at how pediatric leaders and groups can best assist EMS systems with their readiness improvement. “That is really the next step, and that is in process right now,” he says.

Moore acknowledges there is wide variation in the way U.S. EMS systems operate. That creates different challenges than the NPRP effort has faced in pushing quality improvement to EDs.

“New Mexico is a very rural state, and I think we have 33 or 34 hospitals total in the state and probably 300 different EMS services, a lot of them very small or volunteer-

based,” he explains. “EMS is a much more complex system.”

On the plus side, the world of pediatrics and pediatric emergency personnel often is tiny, even in large metropolitan areas, Moore observes. “People often know each other or sit in the same meetings or committees,” he says, noting there is a big opportunity for emergency clinicians and leaders to play a role in this new effort to push the concept of pediatric readiness to the EMS services with which they work.

To be sure, EMS personnel will not be starting from scratch regarding pediatric care training. Many states require paramedics obtain a certain number of hours of continuing education in pediatrics as a condition for recertification. However, the level of preparedness or readiness concerning pediatric patients can vary significantly, explains **John**

EXECUTIVE SUMMARY

A new joint policy statement heralds the initial step in an ambitious effort aimed at promoting pediatric readiness in the prehospital environment. The move follows in the footsteps of the successful National Pediatric Readiness Project, which continues to push for improvements in the preparedness level of EDs across the country to care for children. Backers of the new effort note they plan to use a similar blueprint in pushing for improvements in pediatric readiness in the prehospital environment.

- The push is backed by multiple professional organizations, including the American College of Emergency Physicians, Emergency Nurses Association, American Academy of Pediatrics, National Association of Emergency Medical Services (EMS) Physicians, and the National Association of Emergency Medical Technicians.
- The joint policy statement includes 16 distinct recommendations for EMS operations that cover such topics as the development of protocols for use with children, the acquisition of pediatric-specific equipment and supplies, the provision of pediatric-specific training, the development of policies and procedures related to pediatric patients and their families, the development of key metrics, and ongoing assessments.
- Recognizing the variations in how prehospital care is delivered in the United States, the recommendations are scalable so that whether an EMS operation is small or large, everyone should be able to implement the recommendations.

Lyng, MD, FACEP, FAEMS, NRP, a statement co-author and emergency physician at North Memorial Health Hospital in Robbinsdale, MN. Lyng also is an EMT paramedic, and was one of the first U.S. physicians to receive board certification in EMS medicine.

After working in several states and countries, Lyng observed variability in ambulance service preparedness as far as the pediatric equipment they carried and even how it was organized. Also, Lyng found it difficult to discern who had received pediatric-focused education or understood specific protocols.

Lyng observed that while smaller EMS operations may be less prepared, size was not necessarily the determining factor.

“In some cases, the smaller services that had a smaller scale could be very well prepared compared to the larger services,” he says. “It is a lot easier to turn a canoe than to turn an aircraft carrier. The larger services were sometimes challenged with making sure that they had those preparedness things in place as well.”

Consequently, Lyng sees the new joint policy statement as a good level-setting document that could set expectations across the industry regardless of service size or patient volume.

What can happen when an EMS service lacks readiness or training to

care for a pediatric patient? “I have seen circumstances where, because a service may not have had a piece of pediatric-specific equipment, they have had to improvise, using an adult piece of equipment instead,” Lyng observes.

For instance, Lyng recalls instances when EMS personnel did not have pediatric-sized bag-valve masks for manual ventilation, so they had to use an adult-sized mask that fits over an entire child’s face rather than just around the child’s nose and mouth. This is a less-than-ideal way to ventilate or provide breathing assistance.

“There are reasons why we have pediatric-sized equipment. It’s because it needs to fit [a child’s] body shape and size,” Lyng explains. “When people try to improvise, they are probably well-intentioned. They want to try to do the right thing, but the best thing is to have the right equipment handy.”

In fact, Lyng is working on a revision of the national minimum recommended equipment list for ambulances. However, he stresses that along with carrying the right equipment and tools, providers have to know how to use the tools appropriately.

“It is critically important that people are trained in the motor skills of using equipment, but also the other aspects of when you need to

use these different interventions and when you don’t,” he says.

Lyng notes pediatric patients tend to be different than adults in terms of how well they can compensate for illness. Further, their disease patterns are quite different.

“Kids don’t have pulmonary or cardiovascular disease related to smoking like adults do, but they still have pretty significant pulmonary and cardiovascular disease sometimes. Their ability to compensate for those types of illnesses is quite a bit different,” he says. “There is important education in terms of recognizing when kids are sick. They can kind of fool you for a while, and then all of a sudden they’re really sick, and then you are behind the eight ball.”

For pediatric readiness in the ED, the NPRP emphasizes the importance of employing a pediatric emergency care coordinator. This person should focus on ensuring the department is equipped with the proper equipment, training, and policies to provide appropriate care. Lyng believes the same concept is important for EMS.

“If you don’t have someone either directly focused on this or who has that focus as part of their role ... you don’t know where you have gaps in your system,” he says. “Part of the readiness is the equipment, part of the readiness is the education, and part of the readiness is also

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oversight and quality assurance.” The recommendations included in the joint policy statement are scalable. Whether an EMS operation is small or large, everyone should be able to implement the recommendations, according to Lyng.

“A large service that has a larger budget might be able to afford someone to be like a pediatric emergency care coordinator full time and have that as their role. That is the type of role that could be taken on by any frontline staff member,” he says. “In fact, when I was an EMT in a small EMS service in North Dakota where I got started, I took on that role myself. That was back in the 1990s”

It was a matter of making sure that the right equipment was on hand, that it was organized correctly, and that everyone was trained in how to use it, Lyng adds. “The focus of this role can be achieved by services of different sizes.”

Katherine Remick, MD, FAAP, FACEP, FAEMS, another statement co-author, tells *ED Management* that several related efforts have commenced since the publication of the policy statement in January.

“The HRSA [Health Resources and Services Administration]-EMS for Children Program, in conjunction with the National Highway Traffic and Safety Administration, is supporting the development of the national Prehospital Pediatric Readiness Steering Committee,” says Remick, medical director of the San Marcos/Hays County (TX) EMS system and an executive leader with the National EMS for Children Innovation & Improvement Center.

She notes this committee includes representatives from more than 25 national professional organizations and federal partners. Further, Remick says this committee and

the organizations it represents are collaborating on several specific projects. These include developing a prehospital pediatric readiness toolkit to support EMS systems to ensure day-to-day pediatric readiness. Their work also includes creating a national self-assessment of EMS agencies to identify local, regional, state, and national gaps in pediatric readiness across EMS systems.

“This is a first step in identifying the current state of prehospital pediatric emergency care such that improvement efforts can be developed and specific needs targeted,” Remick says. “The national assessment will allow us to assess the baseline level of prehospital pediatric readiness and drive improvements over time.”

The committee and partnering organizations also intend to develop additional tools, metrics, and mechanisms to support iterative improvement efforts at the local, regional, state, and national levels, Remick explains.

Additionally, Remick sees multiple opportunities for emergency clinicians to assist with these efforts. This

includes outreach and creating awareness among the EMS systems with which they work, engaging in quality improvement activities across the continuum of care and collaborating on pediatric education.

Moore says he sees potential in the ability of pediatric emergency care coordinators or pediatric champions serving in EDs to work closely with similarly designated persons working in their EMS communities.

“They can then have conversations about improving the care of children in the prehospital setting,” he explains. ■

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After completing this activity, participants will be able to:

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- The case for boosting detection of STIs in the emergency setting
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CME/CE QUESTIONS

1. **When considering antiviral treatment for the flu, the focus of the CDC's treatment guidance is on:**
 - a. making sure resources are preserved for patients most in need.
 - b. maximizing effectiveness while reducing drug resistance.
 - c. treating pediatric patients.
 - d. preventing severe outcomes.
2. **Investigators from Vanderbilt University Medical Center report that prompt recognition of e-cigarette or vaping product use-associated lung injury is important because:**
 - a. more resources will be required to confirm the diagnosis later.
 - b. patients will become more reluctant to divulge their vaping use.
 - c. disease severity can worsen rapidly.
 - d. there is a possibility of contagion.
3. **The authors of a new joint policy statement aimed at pushing for improvement in pediatric readiness in the prehospital environment wrote that pediatric patients tend to be different than adults in terms of how well they:**
 - a. can compensate for illness.
 - b. interact with prehospital providers.
 - c. rate their healthcare experiences.
 - d. adjust to new treatment regimens.
4. **An important mantra of the one-day training sessions that the National Ebola Training and Education Center provides to frontline providers is:**
 - a. use personal protective equipment.
 - b. identify, isolate, and inform.
 - c. follow the chain of command.
 - d. prepare for patient surges.