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## Influx of patients with asthma-like symptoms strains resources in many pediatric EDs

*The CDC confirms outbreak of uncommon enterovirus D68*

**A**s if frontline health care providers don't have enough to worry about with the first case of Ebola diagnosed in the United States and concerns that the disease could

spread further, now another rarely seen virus has been sending children to the ED with breathing difficulties. The virus, which has been identified by the Centers for Disease Control and Prevention

### EXECUTIVE SUMMARY

An outbreak of a rarely seen virus in the United States is spiking volumes at pediatric EDs across the country, with children typically presenting with asthma-like symptoms. Cases of enterovirus D68 (EV-D68) first emerged in the Midwest in early August, but the virus has since been confirmed in at least 40 states. The CDC is also investigating whether a cluster of nine pediatric cases involving young patients with muscle weakness or paralysis are related to the EV-D68 outbreak. The patients are all hospitalized in Colorado and Massachusetts.

- Children's Mercy Hospital in Kansas City, MO, first alerted the CDC that the ED was seeing an unusual spike in patients coming in with asthma-like symptoms. By mid-September, the hospital had seen 500 confirmed cases of EV-D68, including 60 patients who were admitted to the pediatric intensive care unit.
- Patient volume in the ED at the University of Chicago Medicine Comer Children's Hospital is up by about 40 patients per day, with most reporting symptoms consistent with EV-D68.
- Emergency department leaders from hospitals impacted by the outbreak advise colleagues to put plans in place for an extended surge of patients because patient volumes can escalate quickly.

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(CDC) as enterovirus D68 (EV-D68), first began filling up pediatric EDs in the Midwest, but at press time, the virus had been detected in at least 40 states, causing long waits and administrative nightmares in more than a few hospitals.

Further, the CDC is investigating whether a few cases involving young patients with muscle weakness or paralysis are related to the EV-D68 outbreak. Nine of these patients are hospitalized in Colorado, and four additional cases have been identified in Massachusetts. The CDC reports that at least some of them have tested positive for EV-D68, although it is not clear whether the virus is responsible for the neurologic symptoms. Reports indicate that the nine patients all had fevers and respiratory illness about two weeks before they began experiencing varying amounts of weakness in their limbs.

Health officials confirm that paralysis is a rare complication of EV-D68, but with so many cases being reported this year, it is possible that the problem could surface.

## Cases surge in Midwest

Infectious disease specialists at Children's Mercy Hospital in Kansas City, MO, were the first to alert the CDC that they were experiencing an unusual trend in early August. "We noticed that we were seeing a lot more asthma patients than normal, and it seemed like they were a bit sicker than is usually the case," explains **Lisa Schroeder**, MD, associate division director, Emergency Medicine, Children's Mercy Hospital. "Several of the children coming in appeared like they were having a bad asthma attack, but they had no history of asthma."

Emergency providers alerted the hospital's infectious disease experts, who then began testing specimens from each of the patients admitted with the respiratory symptoms. "What they were finding is that almost all of these patients were showing up positive on the viral screening panel for enterovirus/rhinovirus," says Schroeder. However, she adds that the screening panel only indicates whether a patient has one of those two types of viruses, and there are several hundred strains between the two.

This is when the hospital turned to the CDC for more sensitive testing. "[Investigators from the CDC] took back samples from several of our patients, tested them, and were able to identify the culprit as enterovirus D68," says Schroeder.

By this time, the hospital was seeing a huge influx of patients with the hallmark respiratory symptoms, putting a big strain on both the ED and inpatient floors. Schroeder recalls one particularly difficult night early on during the outbreak. "We ended up with a very long wait in the ED for the patients who weren't having trouble breathing. One patient who came in with a rash ended up waiting more than six hours to be seen," she recalls. "At one point, we had 10 patients in our department who were all receiving continuous albuterol treatments, and that night, the hospital became completely full. We ended up boarding nine patients in the ED all night."

To cope with the influx, administrative leaders ordered extra supplies of oxygen and masks, and they put plans in place to ensure the health system was adequately staffed. "By [mid-September] we had seen more than 500 confirmed cases, and 60 of those were admitted to our pediatric intensive care unit,"

notes Schroeder, adding that this number only includes the admitted patients because they are the only ones being tested. “Overall, between our main ED, our satellite, and our urgent care centers, we are seeing about, on average, 100 more patients per day than normal for this time of year, which is about a 20% to 25% increase in our volume.”

Further, the average length-of-stay (LOS) for children hospitalized with the illness is running longer than usual. “Normally when we admit someone from the ED with an asthma exacerbation, typically they end up in the hospital overnight or maybe for a couple of days. But one of the things we found is that these children are responding to asthma treatment, but much more slowly than usual, so at one point, our average length-of-stay was about three days instead of one or two,” offers Schroeder.

## Recovery takes time

In addition to adding staff, the hospital has taken added precautions to minimize transmission of the respiratory virus. For example, administrators have communicated to all staff that they are to wear masks when entering the rooms of patients who are experiencing respiratory problems. “If a patient has respiratory symptoms, we are putting a sign on the door to remind everyone to please wear masks in those rooms at all times,” says Schroeder.

Also, on the inpatient floors, staff are wearing masks and gowns, and hospital administrators have significantly reduced visitation. “Right now, we are on a no sibling visitation policy, which is hard for families, but we have to protect the kids,” says Schroeder. “There are signs at all the entrances stating the

new policy, and everyone is screened — even the adults. If a person is ill, we are not going to stop them from seeing their child, but they will be required to wear a mask when they are in the hospital at all times.”

As of late September, all of the children treated for EV-D68 at Children’s Mercy Hospital had improved with treatment, but Schroeder notes that there is really no way to predict which cases are going to be the most severe. “The virus is not terribly common. When the CDC initially identified it this past summer, the agency had only identified 68 cases in the last few years, and at that point, we had already had about 70 cases here,” she says.

While children with underlying asthma or other conditions may be more at risk, close to 40% of the patients being admitted with EV-D68 do not have a history of asthma, observes Schroeder. “They are previously healthy children. Several of them have never wheezed in their lives, and they are coming in in respiratory distress,” she says. “People will say that it seemed as though [their child] just had a bad cold, and then all of a sudden he couldn’t breathe.”

These patients are not necessarily having fevers, but many of them are requiring supplemental oxygen, says Schroeder. “We are treating them like we would treat someone with an asthma attack, with bronchodilators and steroids,” she says. “They are not responding as quickly as a normal asthma exacerbation case does. Several of the patients are taking multiple hours of continuous breathing treatment to respond, which is quite unusual and goes along with the longer hospitalizations.”

Another interesting aspect to the

outbreak is that compared with the normal winter respiratory viruses that typically affect young babies, this virus seems to be impacting children who are a little bit older. “During the first two weeks [of the outbreak] the average age of the patients presenting with this was 4 or 5 years old,” says Schroeder. “We have seen a lot of school-aged kids, and typically they handle their colds much better.”

Thus far, EV-D68 doesn’t seem to be impacting adults as much or as harshly as it is young children. Schroeder notes that while some hospital staff members have developed respiratory problems, there haven’t been many off days attributed to these issues. Further, by the end of September, the severity of the illness appeared to lessen just a bit in patients. “We aren’t seeing as many of the really sick kids as we were in the first couple of weeks,” she says.

## Timing is unusual

The University of Chicago Medicine Comer Children’s Hospital in Chicago, IL, has also seen a spike in volume during the past few weeks from children presenting to the ED with respiratory problems. The influx began in August, gradually increasing until there was a sudden peak in mid-September, explains **Allison Tothy, MD**, the section chief of Pediatric Emergency Medicine at the hospital.

“Usually we see this sort of bronchiolitis pattern in the middle of winter, so this was an unusual time to see it, and then we were seeing it in very large volumes,” says Tothy. “Our average volume is between 70 and 80 patients a day, and we have been up to 120 patients, so we have seen an increase of about 40 patients per day, and the majority of them have the viral respiratory type of symptoms.”

Putting the numbers in more context, Tothy says that the hospital usually admits about 8% of the patients who come to the ED, but that number is closer to 15% now. “We have almost doubled our admissions, and not only are we doubling our admissions percentage, our volumes are higher,” she says. “When you talk about wait times and overcrowding, it is almost always the adult side of the world that gets [the attention]. We forget that pediatric EDs can have that same experience.”

The hospital alerted the CDC to what it was seeing in late August — not long after Children’s Mercy Hospital notified the agency. At this point, however, the hospital isn’t testing for the virus anymore because treatment is the same whether the patients have enterovirus D68 or another virus, explains Tothy. “What really matters is how we take care of them,” she says. “It’s really affecting our asthmatic patients significantly, and our toddlers.”

Handling the sustained surge in patient volume has been very challenging, observes Tothy. “We have a standing surge plan that we review regularly for disaster planning, but this

required a very quick influx of resources for a longer period of time,” she says.

Consequently, administrators from throughout the hospital evaluated how they could allocate resources appropriately for an extended period. “It has involved pulling our physicians in for more clinical time in the ED and we have had to increase our nursing staff, but it does not just involve doctors and nurses,” says Tothy. “It includes environmental services staff, our techs who transport patients, and our coordinators who register patients. It includes a whole workforce that we have had to rapidly surge.”

In fact, Tothy notes that the biggest challenge has been trying to make sure the hospital doesn’t burn out the resources it has. Her advice to other hospitals that have not yet seen a surge in patients with EV-D68 is to start planning now just in case. “Assume that you need resources and put those resources in place so that it doesn’t take you by surprise,” she says.

Also, don’t just plan at your gateway point or entry point level, advises Tothy. “It is not just the ED that has to surge. It is the floors and the ICU,” she says. “Consider how you will move patients throughout

your system efficiently, rapidly, and — most important — safely while maintaining expert, experienced care.”

To gain more information about the typical characteristics of this illness, investigators at Children’s Mercy Hospital plan to evaluate some of the cases retrospectively. “We’re looking at all of the patients that have been admitted at least to see if we can describe the virus a little bit better,” says Schroeder. “We are looking at every patient that had this and was discharged and returned for any reason so we can see the natural course of the disease.” ■

*Editor’s Note: The CDC has issued guidance on EV-D68 at [www.cdc.gov/non-polio-enterovirus/about/EV-D68.html](http://www.cdc.gov/non-polio-enterovirus/about/EV-D68.html).*

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# Strong administrative buy-in, firm mandates can push flu vaccination rates up to more than 99% among health care workers

*Experts urge hospital leaders to promote flu vaccination as a patient safety initiative*

**T**here is new evidence that health care workers are increasingly opting to receive yearly flu vaccinations, as recommended by the CDC, The Centers for Medicare and Medicaid Services (CMS), The Joint Commission, and many other public health agencies. The CDC reports

that last year (2013-14), slightly more than 75% of all health care workers received the vaccination — roughly a 3% increase from the 2012-13 flu season. The findings are based on a web-based survey of health care workers conducted in April of 2014.<sup>1</sup>

The data are similar to findings

from CMS, showing that nearly 82% of hospital-based workers received the flu vaccination last year. These totals, which are based on information provided by more than 4,000 hospitals that participate in the Hospital Inpatient Quality Reporting Program, also show that 90% of

physicians and nurses got the shots in 2013-14.<sup>2</sup>

While the overall progress is welcome news to public health agencies that have been strongly pushing for all health care workers to be vaccinated in recent years, the vaccination rates vary widely by state. For instance, the CMS data show that vaccination rates for health care workers last year stood at just 62% in New Jersey and 64% in Florida. At the other end of the spectrum, more than 95% of health care workers received the flu vaccinations in Maryland.

Clearly, there is still ample room for improvement in many areas, and there is no question that pockets of resistance remain. However, some hospitals have shown that flu vaccination rates in excess of 99% are possible when administrators make the issue a top priority and put

resources in place to get the job done.

## Consider a firm mandate

Loyola University Medical Center (LUMC) in Maywood, IL, was among the first hospitals in the country to make flu vaccinations mandatory as a condition of employment six years ago. At the time, the flu vaccination rate for hospital staff stood at 72% — above average for the country during that period, but not where hospital administrators wanted to be.

“Everybody was just concerned about promoting a safe and healthy environment for our patients and for our staff,” explains **Carol Schleffendorf**, RN, MS, NE-BC, the administrative director of Burn/Trauma at LUMC and the person who has taken charge of the flu vaccination campaign from its

inception. “We recognized that if we had a healthy staff we could provide consistent care to our patients, and we would also keep our patients safe because we were healthy.”

To kick off the campaign, the hospital integrated flu vaccinations into its disaster drill process, but there was significant pushback. “Primarily people just felt like they were being forced to do something against their will,” recalls Schleffendorf.

Administrators developed a process in which employees could seek medical or religious exemptions from the flu shots, but otherwise, the hospital’s position was firm. “We told people that they had a choice. They could take the vaccination or not, but we did put in there that their employment would be contingent on having a mandatory flu shot,” says Schleffendorf.

Developers of the approach were concerned that they could potentially lose a number of employees from the policy, but in the end, only 0.1% chose to leave the hospital rather than be vaccinated that first year, and the number of employees making this choice has declined even further since that time. Now, any new hires understand at the start of their employment that getting a yearly flu shot is part of the package, explains Schleffendorf.

The mandatory flu shot policy has certainly delivered: Vaccination rates have exceeded 99% since the first year of the firm approach. Further, over time, opposition to the policy has greatly diminished. “Organizationally there is not even a question anymore. People are willing and ready,” notes Schleffendorf. “If we are not careful to explain exactly where people can get their shots, there can easily be 200 people lined up outside the employee health clinic on the first day, so we take great pains to make sure we have

## EXECUTIVE SUMMARY

While flu vaccination rates are inching up among health care workers, there is still room for improvement. The Centers for Disease Control and Prevention reports that slightly more than 75% of health care workers received the flu vaccination during the 2013-14 season — an increase of roughly 3% over the 2012-13 season. However, some hospitals have been able to achieve vaccination rates in excess of 99%. The apparent key to these efforts is a firm mandate that all personnel receive a flu shot as a condition of employment. There is always pushback to such policies, but hospitals report that most personnel eventually come around.

- While flu vaccination rates are on the increase among health care personnel, data from the Centers for Medicare and Medicaid Services (CMS) note that rates vary widely from state to state. For example, the vaccination rate for health care workers in New Jersey stood at just 62% last year. In contrast, more than 95% of health care workers in Maryland received the shot during the 2013-14 flu season.
- Both Loyola University Medical Center and Henry Ford Hospital have been able to boost flu vaccination rates among their health care workers to more than 99% with the implementation of policies that require flu shots as a condition of employment.
- Experts say successful flu vaccination campaigns require strong administration buy-in and physician leadership.

multiple sites, clear communication, and consistent communication [throughout the campaign].”

## Assemble a multi-disciplinary team

With six years of experience in delivering the flu shots, the hospital is also now able to carry out the flu shot campaign much more quickly and efficiently than it did the first year. “In the beginning, our program stretched out over about 14 weeks, so we started in October and went almost all the way until Christmas,” explains Schleffendorf. “This year we will be doing it in 30 days, so that is 7,000 people [getting vaccinated] in 30 days.”

One big step that has helped to streamline the documentation process that goes along with the flu shots: The hospital replaced what had been a manual, paper-based process with a process that utilizes scanners that can electronically document that an employee has received the shot. “Once an employee’s badge is scanned, the information goes automatically into his or her record,” explains Schleffendorf. “We have people who are trained to use the scanner, and it is very simple.”

To make the flu shots widely accessible to individual units like the ED, for example, the vaccine and a scanner will be provided to the unit for a period of eight days during which the shots will be available to staff on a 24/7 basis, notes Schleffendorf. “In the ED, as on all floors, there is absolute accessibility to the flu vaccine. People can get it at 2 a.m., 2 p.m., or any time,” she says. “Then we monitor progress every week to see the status of compliance throughout the organization.”

While the process of getting

everyone vaccinated works swiftly now, Schleffendorf acknowledges that it took a few years to work the kinks out of the system. “It sounds simple, but it was a lot of hard work getting the program to this point, and every year we find something that we want to do differently with it,” she says.

Schleffendorf adds that carrying out the campaign each year requires a multidisciplinary team that includes representatives from throughout the organization, including human resources, employee health, pharmacy, and the medical staff. And she emphasizes that there can never be enough communication about the program.

Schleffendorf explains that she utilizes videos, computer notices, and flat screens posted throughout the hospital to keep hospital staff abreast of where and when the flu shots are being delivered on a daily basis during the campaign. However, now that the program is in its sixth year, employees do have a good understanding of why the flu shots are important and how the program works. “I don’t find myself having to go through the whole explanation as much anymore,” she says. “There is always a small subset of people who want to be the very last ones to get the flu shot, but they all get it.”

## Mask-compliance is problematic

Infectious disease experts at Henry Ford Hospital in Detroit, MI, have also found that the implementation of a mandatory flu vaccination policy is key to achieving the kind of maximum coverage that can insure patient and staff safety.

“There is a lot of data in the literature showing that health care workers have been associated with

outbreaks in health care facilities. And it is also known that viruses shed 24 hours before people are symptomatic, so if you just rely on people getting immunized and going home if they are sick, it is too late,” explains **Allison Weinmann**, MD, an infectious disease physician at Henry Ford Hospital. “What we are trying to do is help address the epidemic of influenza in our nation by making sure our health care workers are immunized, and that we are not a source of infection.”

The hospital began its push to increase vaccination rates in 2010 with what Weinmann describes as a soft mandate. The policy applied to just clinical staff, and it enabled employees to opt out of receiving the flu shot, but they had to sign a declination form, and they had to wear a mask if they were within six feet of a patient, she explains.

“What happened was we had to do compliance rounds to make sure people were wearing the masks. We put a blue sticker on everyone who was immunized,” observes Weinmann. “We were hoping that the threat of having to wear a mask would be a disincentive, and that people would go ahead and get immunized, but that is not what happened. What we found is that people were very creative in finding ways not to wear the masks.”

Another problem with the approach was that patients did not like the masks — even when practitioners explained to them that they were wearing the masks to protect patients. Also, immunized employees didn’t want to be in meetings with unimmunized employees, recalls Weinmann.

In the second year of the policy, the hospital tweaked the program to include both clinical and non-clinical staff, and made some other

adjustments, but the problems with the masks and compliance remained, and the flu vaccination rates still weren't where the hospital wanted them to be. "We got up to about 87% in the second year, but we wanted close to 100% vaccinated so that we could rely on herd immunity for the few people who weren't immunized," notes Weinmann.

## Address misinformation

Consequently, in the third year of the program, the 2013-14 flu season, administrators decided to lose the masks and the stickers, and simply mandate the flu vaccinations for everyone as a condition of continued employment. A process was put into place for medical or religious exemptions, but no longer would people be able to simply opt out by signing a form and wearing a mask. "We knew from the literature that we would have very few medical or religious exemptions, and that is what happened," says Weinmann.

By this time, most of the staff had already bought into the program and were getting their flu vaccinations, but the mandate pushed vaccination rates to at least 99%. "We finally cracked the code of what was successful for us," notes Weinmann. "Our administration was hugely supportive. It costs a lot of money to vaccinate 23,000 health care workers [in the health care system], and to have the staff to vaccinate them."

Along with administrative support, the program was facilitated by human resources and employee health. "If we hadn't had all these groups working together it wouldn't have happened," stresses Weinmann.

Also key to the effort was a significant educational component focused on dispelling all the mis-

information that circulates about the flu vaccine. "We are talking about [vaccinating] not just physicians and nurses, but all levels of employment, from environmental services to students and vendors," says Weinmann. "And there are a lot of myths about the influenza vaccine."

For instance, Weinmann notes that people need to understand that they cannot contract influenza from the vaccine, and that it does not cause harmful conditions such as autism. To provide this information, Weinmann and other infectious disease professionals spent a lot of time reaching out in the early days of the vaccination program. "We went to meet and greet, lunch and learns, and if we were invited to meet with different employment groups, we met with them," she says. "A lot of it was just reassurance. This is the data, it is not a harmful vaccine."

Further, Weinmann states that since most people go into health care with some sort of altruistic streak, they respond to the idea that the flu vaccine does not just protect them, but also their patients, their families, and the community. "I think the education helped some people, and in the end, the few people who couldn't be moved by the education and just felt it was being forced on them ultimately had a choice: they could capitulate and get immunized or they could be terminated," she says. "In the end, almost everyone got immunized."

What also helped win employees over was the fact that by the time the hospital had implemented its hard mandate on flu vaccinations, most of the other hospitals in the region had implemented some type of flu vaccination requirement as well. "I think people saw the writing on the wall. If they were going to leave our

health system and go to some other system in the area, they would end up with the same problem," says Weinmann. "Health care workers speak their minds about things, and they did. But the vast majority of people went along with it, [they] saw the science and the logic in it, and the value in terms of patient safety."

## Get physicians on board

Reflecting on the success of the flu vaccination effort, Weinmann says there were several strategic decisions that other health care organizations can learn from. First, she advises the leaders of this type of campaign to get hospital administrators on their side first. "We realized immediately that if administration didn't buy into the whole thing and purchase and put aside resources for it, it wasn't going to happen," she explains. "We went to a lot of committee [meetings] with the CEO, the CMO, and the CNOs, and really talked to them about it. We got immediate buy-in from them, which was great."

Also, make sure your health system's influenza committee is large and robust, including a number of key players, as well as representation from all sides, says Weinmann. "We had employee health represented, infectious disease, human resources, pharmacy, and public relations," she says. "People then went back to their sites with information."

Weinmann adds that she doesn't think the campaign would have been successful if it hadn't been spearheaded by physicians as a patient safety initiative. "I think ultimately if you say it is a patient safety mandate, and that is the reason you are doing it — and it is the reason — eventually people come around," she explains. "Also, physicians are loud and tend

to take whoever is around them with them.” ■

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# Researchers: New resources, tools needed to reduce variation in the admissions decisions

*Investigators find that in some cases where a patient presents, determines how he or she is treated*

**E**mergency providers determine whether or not to admit patients to the hospital every day, but a new study suggests that while many of these decisions are consistent and clear-cut regardless of region or

hospital, for certain common, low-mortality conditions, some physicians are as much as six times more likely to admit patients than others.<sup>1</sup>

Such findings may not raise many eyebrows at first glance, but

the potential savings that could be achieved by reducing this variation in decision making are truly eye-popping. Study authors estimate that the health care system could save as much as \$5 billion a year.

The potential savings come into sharper focus when you consider the statistics highlighted in the research: EDs are the main source of hospitalizations in this country, and emergency providers make this important decision about whether to admit a patient as often as 350,000 times a day.<sup>2</sup> Further, the result of these decisions is close to 20 million admissions per year.<sup>3</sup>

In light of these numbers, you would think that more attention would be focused on this area, according to **Keith Kocher**, MD, one of the study authors and an assistant professor of emergency medicine at the University of Michigan in Ann Arbor, MI. “I am also a practicing emergency physician, and from my perspective on my shifts, [the decision to admit a patient] is by far the decision that comes with the most potential costs and downstream

## EXECUTIVE SUMMARY

New research suggests there is considerable variation in the decisions emergency providers make regarding whether to admit patients with certain common, low-mortality conditions. In some cases, the researchers found that patients were as much as six times more likely to be admitted at some hospitals than others. While available resources and cultural differences likely play a role in this variation, the researchers estimate that reducing this variation in decision making could potentially save as much as \$5 billion per year.

- Data show that EDs are the main source of hospitalizations in this country, and emergency providers make a decision about admission approximately 350,000 times each day, resulting in close to 20 million admissions per year.
- Researchers found that variation in the admission decision was most prominent for patients presenting with chest pain but no heart attack, soft-tissue infections, urinary tract infections, asthma-related difficulties, and COPD.
- There was little variation in the admission decisions regarding patients with high-risk conditions such as heart attacks, sepsis, or kidney failure.
- Researchers suggest that reducing this variation in admission decisions will require better tools for determining which patients with lower-mortality conditions likely require hospitalization, and more resources so that physicians have good alternatives to hospitalization at their disposal.

consequences,” he explains.

Kocher acknowledges that emergency providers make many decisions that come with cost and quality implications. For instance, whether to get a computed tomography (CT) scan on someone has been much discussed in recent years. However, in terms of impact, Kocher suggests that this kind of decision pales in comparison to the admission decision.

## Evidence is lacking

To establish where variations in decisions about admission were most prominent, and what impact these variations had on mortality, researchers analyzed national data on more than 28 million emergency visits to 961 hospitals in 2010. These involved ED visits by adults with 15 of the most commonly admitted medical and surgical conditions.

“What we found is there really aren’t any differences or variations with respect to those high-risk conditions where pretty much everybody feels the standard of care is to hospitalize,” says Kocher.

For example, the researchers report that there was little variation between hospitals or physicians on decisions to admit for patients with heart attacks, acute kidney failure, or sepsis.

However, there was considerable variation in decision making for patients who presented to the ED with chest pain but were not experiencing a heart attack. The researchers report that patients at the hospitals with the highest rates of admission were as much as 6.55 times more likely to be admitted than patients who were treated at hospitals with the lowest admission rates.

There was also variation in admission decisions for patients who

presented with soft-tissue infections and asthma-related difficulties.

Investigators say that some hospitals were three times more likely to admit these types of patients than others. Similarly, patients with chronic obstructive pulmonary disease (COPD) or urinary tract infections were twice as likely to be admitted at some hospitals compared to others.

What accounts for this variation? Kocher suggests that for many of these conditions, there is uncertainty in the literature about what the optimal admission decision should be. “There is just not a lot of evidence to suggest what the right decision is,” he says. However, Kocher adds that there are also non-clinical factors that can influence how admissions decisions are made.

“A lot of times, there are important social, family, and hospital resource factors that really have a big part in admission decisions,” says Kocher. “For example, if you’ve got someone who is borderline for hospitalization, one alternative may be to arrange for expedited outpatient follow-up care. However, whether or not you can arrange that from your ED depends on the kind of resources in your community or what kind of health care system you work in.”

Kocher adds that in making an admission decision, physicians consider such factors as whether there are pathways to accommodate expedited follow-up or mechanisms for delivering some of the needed care in the home setting. Further, while there is plenty of evidence that providers working in the same work setting can make different decisions regarding admission, it is also clear that culture plays a role in determining how things are done in the ED.

“If you come in as a new provider, you quickly sort of adapt to what

everyone else is doing,” says Kocher. “There are just so many factors that can influence this, and I think that is why you see a lot of this variation. It is in those conditions where there is a lot of gray.”

## Find better resources, tools

Despite the uncertainty involved with making admissions in borderline cases, the researchers note that in all five of the conditions for which they found variation in the admission decisions, the in-hospital mortality rate was very low. Further, the estimated in-hospital charges associated with these types of admissions were in excess of \$52 billion, although payments to hospitals for these charges were probably closer to \$16 billion, according to researchers. Nonetheless, the researchers note that there is still a clear opportunity for potential savings.

**Amber Sabbatini**, MD, MPH, the lead author of the study and an instructor of emergency medicine at the University of Washington in Seattle, WA, says that the findings underscore the need to find better ways of determining which patients with less serious medical conditions are at the highest risk of having serious complications and, therefore, need to be hospitalized.

“The important thing is that sometimes the type of care you get depends on where you show up, so the same patient is treated differently at different places,” says Sabbatini. “The fact that hospitals are so different from each other and that entire groups of emergency physicians are, in some cases, behaving so differently would suggest that there are opportunities to reduce the

variation, and that may actually mean creating better resources and tools.”

In cases in which admission decisions are appropriately variable due to a scarcity of resources in the community for follow-up care, then solutions would involve creating lower-cost, more efficient alternatives for patients, notes Sabbatini. Further, she adds that this is an area that is ripe for improvement, but too often overlooked.

“While there has been increasing interest in the formation of ACOs [accountable care organizations], the creation of bundled payments for inpatient care ... and moving care to medical homes, the ED has sort of been lost in all of that,” says Sabbatini. “Part of what my co-authors and I were trying to do [with this research] was highlight the importance of the ED as a center for care coordination, and to think strategically about how we could use the ED to help create care that is more coordinated and efficient.”

Potential solutions include the more effective leveraging of case managers and social workers to help with transitions and a more responsive outpatient care environment, says Kocher. “You really need to have those [resources] in place to allow these types of decisions to happen.”

## Payment reforms would help

Sabbatini and Kocher agree that payment reforms are needed to ensure that patients are not admitted for financial reasons. Kocher notes that there have been some high-profile cases in which emergency providers were improperly incentivized to admit patients because they brought in revenue for hospitals. However, he

observes that the opposite scenario is also possible for hospitals that are located in areas that serve large numbers of uninsured patients.

It is clear that under new shared-risk models, it is going to be increasingly less profitable for hospitals to admit patients, observes Sabbatini. “At the same time, hospitals have to find ways to stay profitable, and this might actually be driving the development of more cost-efficient alternatives,” she explains.

At the institutional level, emergency medicine leaders need to be actively involved in devising these solutions, adds Sabbatini. “That means creating local resources for patients, improving efficiency, and also assisting physicians with appropriate decision-making,” she says. “I’ve seen interdisciplinary protocols that are created for the ED to guide practice be very effective at standardizing practice.”

Kocher agrees that solutions need to come at the group or department level, as well as at the hospital and system levels. “As hospitals become more integrated with outpatient care and with things like the ACO structure, these types of changes become more feasible because they really require coordination between the ED, which rests in this gray area between the inpatient and the outpatient, and the outpatient part of delivery system,” he says. “If you start thinking about how to create alternatives to hospitalization, that really requires resources in place to facilitate these alternatives.”

Since it can take time to facilitate alternative plans, policy makers may need to revisit the metrics that are used to assess EDs and emergency providers, says Kocher. “There is certainly a lot of pressure on emergency physicians to make

quick and timely dispositions of their patients, but it may be important to become more flexible about this, and allow for potentially longer ED stays if it allows for these alternative plans to develop,” he explains. “Unfortunately, this runs counter to a lot of how emergency medicine works where some of the administrative quality metrics are all about decreasing length of stay (LOS) and shortening time to discharge.”

Kocher acknowledges that such metrics are important markers of patient satisfaction, but he suggests that added flexibility on these measures could potentially improve the patient experience in many instances. “We are talking about enhancing that experience with what might be the sacrifice of a longer LOS,” he says.

If emergency providers don’t fully engage on these issues, then other voices will surely fill the void, according to Kocher. “We need to recognize that, particularly in this era of increasing cost consciousness, we need to be proactive within our own backyard,” he says. “Increasingly the federal government and other payers are going to be looking at these types of issues for emergency medicine. We need to be ready to respond to those pressures.”

Sabbatini agrees, noting that there is a lot of responsibility on the practicing physician to advocate for the care of their patient. “That means we don’t take a back seat,” she says. “We proactively work together to create a united front.” ■

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## SOURCES

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After completing this activity, participants will be able to:

- Apply new information about various approaches to ED management;
- Discuss how developments in the regulatory arena apply to the ED setting; and
- Implement managerial procedures suggested by your peers in the publication.

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- A new stage in the Ebola outbreak
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## CNE/CME QUESTIONS

1. **While children with underlying asthma or other conditions may be more at risk, what percentage of patients being admitted with enterovirus D68 do not have a history of asthma, according to Lisa Schroeder, MD?**
  - A. 10%
  - B. 20%
  - C. 30%
  - D. 40%
2. **Allison Tothy, MD, states that the biggest challenge in dealing with the outbreak of EV-D68 has been trying to make sure that:**
  - A. transmission of the virus is minimized
  - B. the hospital doesn't burn out the resources it has
  - C. there are enough beds to accommodate admissions
  - D. patients with less serious conditions don't overwhelm the ED
3. **The CDC reports that slightly more than what percentage of health care workers received the flu vaccine during the 2013-14 season — an increase of roughly 3% over the 2012-13 season?**
  - A. 50%
  - B. 75%
  - C. 85%
  - D. 92%
4. **Carol Schleffendorf, RN, MS, NE-BC, says that one big step that has helped to streamline the documentation process that goes along with the hospital's mandatory flu shot policy is:**
  - A. the hospital has replaced a manual, paper-based process with a process that utilizes scanners
  - B. employees must now fill out their own forms, documenting that they received the flu shot
  - C. the hospital brings in independent contractors to carry out the flu shot campaign each year
  - D. the flu shot documentation forms have been shortened and simplified