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EDs on heightened alert for MERS-CoV as first cases reach the US

Public health experts emphasize importance of travel history, strict adherence to infection control practices

With cases of the Middle East Respiratory Syndrome coronavirus (MERS-CoV) now confirmed in the United States, EDs across the country are on heightened alert for any patients who present with the kind of respiratory distress that is typical of the virus — especially in people who have recently traveled to the Arabian Peninsula or have been in close contact with another confirmed or probable case of MERS-CoV.

The concern is well placed. While there have only been a small number of MERS-CoV cases identified here, there was a brief, but strong surge

EXECUTIVE SUMMARY

The first cases of Middle East Respiratory Syndrome coronavirus (MERS-CoV) have turned up in the United States. First, in late April, a patient tested positive for the virus at a hospital in Munster, IN, and then shortly thereafter, a second patient tested positive at a hospital in Orlando, FL. While both patients have since recovered from the virus and been released, the cases have raised awareness of the infectious threat of MERS-CoV, and they have put EDs and other frontline providers on heightened alert for patients with severe respiratory symptoms and other risk factors.

- While MERS-CoV is not yet as contagious as seasonal influenza or the severe acute respiratory syndrome (SARS) that started in China and then swept around the globe in 2003, it is more deadly. The World Health Organization reports that roughly one-quarter of 514 people who have tested positive for the virus have died.
- Experts note that health care workers make up a large percentage of the documented cases of MERS-CoV, and they point out that most human-to-human transmissions of the virus occur in the hospital setting.
- Public health officials urge emergency personnel to pay strict attention to infection control practices, and to query patients who present with fever and respiratory distress about recent travel to the Arabian Peninsula and/or close contact with a person who has a confirmed or probable case of MERS-CoV.

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of cases in the Middle East this spring, possibly due to seasonal variation, according to the World Health Organization (WHO), which has been tracking the virus. Further, health care workers make up a large percentage of these cases, with most human-to-human transmission occurring in the hospital setting.

While MERS-CoV has not yet been as conta-

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gious as seasonal influenza or the severe acute respiratory syndrome (SARS) that started in China and then swept around the globe in 2003, it is more deadly. As of early May, WHO reported that the global total of confirmed cases of MERS-CoV stood at 514 cases, with 142 confirmed deaths from the virus.

It's the type of infectious threat that needs to be taken very seriously, according to public health officials. And thus far, at least, emergency professionals in the United States appear to be well-prepared.

Be alert to red flags

Given the extensive global travel that takes place between the United States and the Arabian Peninsula on a daily basis, infectious disease experts at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA, knew it was just a matter of time before a case of MERS-CoV was identified in the United States. That happened at the end of April when a health care worker who had traveled to the United States from Riyadh, Saudi Arabia, presented to the ED at Community Hospital in Munster, IN, with severe respiratory symptoms.

"The patient was seen by a physician and then had a good number of tests ordered," explains **Alan Kumar, MD**, chairman and medical director of the Department of Emergency Medicine and chief medical information officer at Community Healthcare System, the parent organization for Community Hospital. "Along the course of care, the diagnosis initially of pneumonia was made, and the patient was admitted to a private room upstairs for further workup and care."

The suspicion that the patient might have MERS-CoV didn't come up until the next day when the patient and his family were interviewed by an infectious disease specialist on the hospital's staff. "That is when further isolation measures were taken and the patient was put on full precaution," says Kumar.

Fortunately, the patient was cared for in a negative airflow room — both while in the ED as well as up on an inpatient floor. That was all serendipitous because only eight of the 30 rooms in the ED are negative airflow rooms, explains Kumar. "We don't have enough [of those rooms] for every patient. But we always want private rooms for patients who have infectious problems, and that was able to be arranged for the patient's entire stay," he explains. "We don't automatically go on

full precaution unless we suspect a truly infectious, contagious virus, whether it is something more common like influenza or something involving an outbreak in the Midwest like measles, or something rare like MERS-CoV.”

The red flags that prompted the hospital to test for MERS-CoV included the fact that the patient had traveled to the United States from Saudi Arabia within the previous 14 days, and he was also a health care professional who had worked at a hospital that was caring for patients with the virus.

Once testing confirmed that the patient did indeed have MERS-CoV, the hospital attempted to identify every person in the hospital who may have been exposed prior to full precaution, explains Kumar. This process was facilitated by the hospital’s extensive video surveillance system that enabled administrators to view the patient’s path, from arrival in the ED to triage and then into the treatment area and a private room. “We also have an RFID badge system, so all of our nurses and patient care technicians wear a radio frequency ID tracer tag that tells us in the ED what room they are in,” explains Kumar. “It connects to a call light system so if a patient hits the call light and [a nurse or patient care technician] responds to the room, the call light automatically turns off.”

The RFID system also enabled investigators to determine how long clinicians or other staff members were in the patient’s room right down to the second, says Kumar. “The system is deployed throughout the entire hospital,” he observes. “This is the first time the CDC has had this level of detailed data that very clearly delineate exposure time.”

Establish lines of communication

As a result of this review, a total of 50 hospital employees including nurses, phlebotomists, respiratory therapists, radiology staff, and employees from several other departments were all tested for MERS-CoV. Further, even though the tests all came back negative for the virus, the employees were all sent home for a full two weeks to prevent any potential transmission of the virus. “The incubation period for this virus is two to 14 days, although the vast majority of exposed individuals develop symptoms within five days,” explains Kumar. After 14 days, all the employees who had been sent home were retested to ensure they were still negative for the virus and then allowed to return to work.

Doing without 50 employees is challenging, but Kumar notes that Community Hospital is a large, 467-bed facility with an ED that sees 65,000 patients a year, so it probably has more flexibility to handle this type of disruption than a smaller hospital might have. “We were able to stretch and fill those shifts, and keep operations going as if we were never impacted at all, even though there was a significant amount of scheduling work required,” he says.

A larger challenge was managing information about this case so that the community was informed but not overly alarmed. “There was significant collaboration between [the hospital] administration, myself, and the rest of the medical team involved,” explains Kumar, noting that the CDC and the Indiana State Department of Health were also in the loop. “We worked very hard to keep the messaging on point and to make sure there was no conflicting data going out.”

As soon as the CDC confirmed that the patient had MERS-CoV, there was an educational briefing to management staff throughout the hospital. “They then went out and informed their staff, and we had daily press releases to the public,” says Kumar. “We also got help from an outside media firm to make sure that the message was consistent and clear for reassurance and to prevent any type of panic.”

Not long after the first case of MERS-CoV was identified in Indiana, a second case was confirmed at Dr. P. Phillips Hospital in Orlando, FL. This case, too, involved a health care worker from Saudi Arabia. Also similar to the Indiana case: Health care workers who treated the patient before the hospital took full MERS-CoV precautions were tested for the virus and then sent home for 14 days, according to the hospital administrators.

Raise awareness, get travel history

While there is no approved treatment for MERS-CoV other than supportive care, both patients who tested positive for MERS-CoV in the United States have since recovered from the virus and have been released. Further, in the process of tracking down everyone who may have come into contact with these patients, the CDC discovered that one patient who was a business associate of the patient in Indiana initially tested positive for antibodies to MERS-CoV, although additional testing showed that this person did not have the virus.

While the investigation into these cases continues, public health experts note that these early

experiences have already illustrated why frontline practitioners need to be vigilant in adhering to best practices with respect to infection control. “The biggest thing these two cases have done is they have drawn attention to the issue and raised awareness,” observes **David Kuhar**, MD, a medical officer in the Division of Healthcare Quality Promotion at the National Center for Emerging and Zoonotic Infectious Diseases at the CDC. “We are still learning about MERS-CoV, and we are still learning about the cases being reported; however, we don’t know at this time if there are undocumented cases in these regions and how many people out there may have mild disease rather than severe disease.”

Systems for the rapid triage of patients and eliciting symptoms of respiratory infection and fevers may be fairly standard practices, but the early identification of MERS-CoV requires a little more digging, says Kuhar. “The important things here are to be familiar with the case definitions, to be aware of MERS-CoV, and then to not only get the medical history when you are triaging a patient who is presenting with fever, pneumonia, or respiratory distress, but also the travel history,” he explains.

Travel to countries in or near the Arabian Peninsula within 14 days of symptom onset or close contact with another known case of MERS-CoV should help to set in motion infection control precautions sooner rather than later, explains Kumar. “We recommend standard contact and airborne precautions so that testing for MERS-CoV can be started,” he says.

Bolster existing screens

Hany Atallah, MD, the chief of emergency medicine in the Grady Health System in Atlanta, GA, believes it is only a matter of time before clinicians encounter a patient who is at least at risk for MERS-CoV. To ensure that such a case is identified quickly, the hospital has added questions to a cough screen that it uses to identify potential cases of tuberculosis.

“When people come in we ask them about their cough symptoms — how long they have been coughing, whether they have been exposed to anyone else with TB, and whether they have other risk factors,” he explains. Now the hospital is adding questions about whether the patient has been to the Arabian Peninsula within 14 days of the onset of symptoms or whether he or she has been exposed to anyone else who has been to the

Arabian Peninsula, says Atallah.

“If a patient is identified as being at risk [for MERS-CoV], there will be an institutional response in that we will place the patient in an appropriate level of isolation. Right now, we [aren’t sure] how MERS-CoV is transmitted, so we will put them in both contact and respiratory isolation in addition to standard precautions,” explains Atallah. “We will notify our infectious disease specialist and the hospital epidemiologist, who can then take it from there and let us know what they think.”

While the Grady ED sees plenty of patients with respiratory problems, clinicians have not yet come across a patient who has recently traveled from the Arabian Peninsula, but Atallah acknowledges that being on guard for this type of infectious threat is a challenge. “We have a very large hospital that is very close to the busiest airport in the world,” he says. “The biggest concern is that we will get so focused on taking care of the patient that we forget about the common sense things in terms of protecting ourselves ... so the thing we want to emphasize to the staff is that they’ve got to protect themselves.”

If, like Community Hospital in Munster, IN, Grady finds itself in a situation in which scores of employees need to be sent home for two weeks because they have been potentially exposed to a person who has tested positive for MERS-CoV, then appropriate plans are in place to do just that, says Atallah. “The last thing our patients need is to come to the hospital and get sicker by contracting something from a health care worker, so that is something we take very seriously,” he says. “It is never going to be easy ... but will do whatever is needed to make sure our patients are kept safe.”

Check and re-check protocols

Administrators at Community Hospital have already learned from their first experience in managing a case of MERS-CoV. “One of the things we found in our evaluation is that some of the batteries in our RFID badges had run out,” says Kumar. “They had worn all the way down and there is no warning system when a battery is about to wear out, so we have put practices in place so that we can make sure that the batteries are functional at all times.”

Administrators also discovered that all the universal and standardized processes they had put in place to handle an infectious process worked well during this case. “These were things we were

comfortable doing because we do them every day,” says Kumar.

Consequently, Kumar’s advice to colleagues is to make sure proper protocols are in place, follow those protocols, check to make sure you are following those protocols, and then re-educate at appropriate intervals to make sure things are done properly. “One of the main reasons we were able to contain the outbreak so well was strict adherence to the policies in place,” he says. ■

Editor’s note: For case definitions, infection control recommendations, and frequently asked questions about MERS-CoV, visit the CDC’s web page on the virus at: <http://www.cdc.gov/coronavirus/mers/hcp.html>.

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Patient flow scorecards capture complexity in the patient flow process

Approach relies on committed, multidisciplinary team and high-level buy in

A common refrain of ED administrators is that when it comes to patient flow, there is only so much they can do to eliminate wait times when the upper floors cannot quickly accommodate admissions from the ED. Further, numerous studies have shown that capacity problems of this nature can impact care quality and patient satisfaction scores.

Recognizing that such problems are difficult to resolve without fully appreciating the interdependence of multiple departments, and the many different factors that ultimately impact the flow of patients through the hospital, investigators

at Children’s Hospital of Philadelphia (CHOP) developed a five-domain patient flow scorecard, designed to capture the complexity that is inherent in the patient flow process, and to highlight specific areas where ripe opportunities for improvement exist.

While the approach is being continually refined, leaders of the effort note that it has helped them home in on the specific reasons for hold-ups so resources can be focused in the most effective way while also giving hospital administrators and staff a larger, holistic view of the patient flow process.

Establish a multi-disciplinary team

The new approach was initiated in the summer of 2009 after hospital administrators identified patient flow improvement as a priority, explains **Evan Fieldston**, MD, MBA, MSHP, medical director of care model innovation and an attending physician in the Division of General Pediatrics at CHOP, and the lead author of a research paper on the project.¹

“I have been involved for many years in our patient flow quality improvement activities and thought that we needed better systems of measurement,” says Fieldston. “While the ED in many places is a large microsystem, it is also in a concentrated place with concentrated staff. For our hospital, we have 500 beds [with 9,000] people distributed in over 21 physical locations, each with their own dynamics and operational flows.”

EXECUTIVE SUMMARY

To get a larger, more holistic view of the patient flow process, a multidisciplinary improvement team at Children’s Hospital of Philadelphia (CHOP) developed a five-domain patient flow scorecard. Each domain has several weighted sub-metrics that add up to 20 points, so the maximum number of points in the composite score is 100. Improvement team leaders say the approach has helped them home in on specific reasons for hold-ups so that resources can be focused in the most effective way.

- The “ED and ED-to-inpatient transition” domain includes eight sub-metrics that cover five specific time intervals, the leave-without-being-seen (LWBS) rate, and two adjustment measures that are used to account for high volumes and high admission rates from the ED.
- The other domains cover bed management, the discharge process, room turnover and environmental services, and scheduling and utilization.
- Administrators say it is important to establish metrics that can be captured easily along with entry points that tie in with workflows.

Among the problems administrators encountered when measuring performance was that individual measures, such as the time between arrival in the ED and admission to an inpatient floor, did not adequately reflect the complexity of the patient flow process. Further, administrators were concerned that trying to improve one isolated measure could adversely impact another, simply moving the problem rather than making the overall process better.

Consequently, researchers sat down with a multidisciplinary team to develop a patient flow scorecard that captured data from five domains, including:

- ED and ED-to-inpatient transition;
- bed management;
- discharge process;
- room turnover and environmental services department activities; and
- scheduling and utilization.

Within these domains are several more component measures that are assigned one to four points. For instance, there are eight individual component measures within the “ED and ED-to-inpatient transition” domain. These include various time intervals, such as “arrival to physician evaluation,” with the goal of 80% of patients seeing a physician within 60 minutes; “ED physician evaluation to decision to admit,” with the goal of 80% occurring within 240 minutes; and “decision to admit to MD report complete,” with the goal of 80% occurring in 120 minutes. Each of these components receives four points on the patient flow scorecard, with five other component measures in the ED domain receiving fewer points.

For example, three points are aligned with “RN report to patient floor,” with the goal of 80% occurring within 60 minutes; two points are aligned with “ED length-of-stay (LOS) for non-admitted patients,” with the goal of 80% of patients having an LOS less than 300 minutes; and one point is aligned with a “leave without being seen (LWBS) rate,” with the goal of less than 3%.

Also included in the ED domain are “ED admission rate” and “ED volume” adjusting measures, each of which is aligned with one point. These enable administrators to adjust the scoring based on the severity of patients visiting the ED and high volumes.

While the number and type of components differ within each domain, the total number of points associated with each domain is the same at 20 points, adding up to a maximum patient flow composite score of 100 points.

Tie entry points to workflows

When selecting metrics to be included on the patient flow card, developers looked not just for overall relevance to patient flow, but also for items that were automated, explains Fieldston. “We wanted something that would be relatively easy to use, so [all the measures] come from any number of the variety of electronic systems in the hospital,” he says.

While there was not much disagreement about which time intervals were important in the emergency setting, coming up with the best metrics to use was still challenging, according to **Nicholas Tsarouhas, MD**, medical director of the emergency transport team and associate medical director of the ED at CHOP, and a co-author of the research. Tsarouhas notes that the ED at CHOP sees nearly 90,000 patients a year, so it is a very busy department.

“You need a starting point and an ending point, and then you need the users to be compulsive about entering those time points,” he says. “So the challenge [revolved around] potentially disrupting someone’s workflow and making them go to a computer to hit a button.”

To make such entries or time stamping as easy and efficient as possible, developers endeavored to tie the key time entries to parts of the ED workflow that made it practical for someone to be at the computer when the entries needed to be made. For example, the nurses were instructed to always note in the computer whenever a patient is leaving the ED to go to an upper floor, but the challenge was getting the staff to do this consistently. “Sometimes [these types of entries] are made before the patient leaves; sometimes the nurses forget and they wait until they take the patient upstairs and they come back down and do the time stamp when they return,” says Tsarouhas. “So even though the job is actually done, when you time stamp it is very important.”

Another challenge with the patient flow cards was trying to make sure that hospital staff fully appreciated the results. “As much as there is a problem with single measures not giving you a holistic picture of what is happening, a multi-component patient flow score card also has its complexities in the ability of people to understand it,” notes Fieldston. “Getting used to it, and getting people to understand the overall flow as well as how the various pieces connect together, is a communications and a culture issue.”

To help with understanding, developers used

color descriptors. For example, when staff met or exceeded a particular component goal, the results were in the “green” category. Results that were 10 percentage points below the goal fell into the “yellow” category, and performances below this level were in the “red” category. Domain and overall composite scores were likewise color-coded, with performances of 16 or above on the 20-point domain scale or 80 and above on the overall composite score were presented in green, scores between 70% and 79% in yellow, and scores below that level in red.

Fieldston notes that the patient flow team also communicated directly with the teams and sub-teams for the particular domains, sending out scores or sub-scores with explanations about what was happening with respect to the different parts of the patient flow process.

Engage frontline staff on metrics

Even with the added level of complexity, developers say the approach has helped the hospital better home in on the specific areas that need improvement. “All of our metrics are broken down into sub-metrics, and the sub-metrics let us look at the areas that need focus,” explains Tsarouhas.

For example, from the scorecard results, administrators were able to discern that the bed-cleaning process was not commencing quickly after patients left beds, delaying the availability of the beds to new patients. “Examining our metrics enabled us to see that there was a lot of down time when the rooms were empty and nobody knew that someone should start cleaning,” notes Tsarouhas. “That was an example of where we tried to close that gap.”

In response to those metrics, the improvement team decided to link the process of removing a patient from the ED tracking board with a notification to environmental services that the bed needed to be cleaned. “What we realized is if you tie workflows together, that makes the data better because ... when you tie one operation to the next, you get more efficiency,” observes Tsarouhas.

Also in response to these data, environmental services reorganized their workforce, and the changes produced improvement. “In that way, rather than just looking at one global number [showing] how long patients spend in the ED or what time they get discharged, which doesn’t really cause other members of the team to connect to the process and the improvement work, we were able

to provide all of the key stakeholders in the patient flow progression with information that they could respond to,” observes Fieldston.

The metrics utilized in the patient flow cards are continually refined, and developers are always looking for new and better ways to present the information in the most concise and meaningful way, explains Fieldston. His advice to others interested in employing a similar approach is to engage frontline staff on what is important to patient flow and what metrics to follow.

“We have identified some important time stamps in patient progression, but by no means are these the only steps in the process, and our values may be different than what other places have,” says Fieldston. “I also think that pairing the [patient flow card] approach with things like process mapping and value stream mapping, so that organizations can understand the key steps in their patient flow processes and identify where there are opportunities for improvement, are crucial steps in patient flow improvement.”

Tsarouhas observes that the overall focus on patient flow was well received in the ED. “We always feel that it is so important to our optimal functioning that we move patients out efficiently so that we can bring other patients in,” he says. “The scorecard itself is just an objective way for us to measure some of our processes to hopefully provide objective data to help drive improvement work.”

However, Tsarouhas adds that a multidisciplinary group needs to drive the improvement process. “It doesn’t work if there are just doctors or nurses or administrators,” he says. “The success of our programs has really been predicated on every one of our meetings including doctors, nurses, nurse practitioners, people from environmental services, people from bed management, and people from administration who are all in the same room, and all committed to the work.”

Further, for any improvement to work, there needs to be high-level executive support, stresses Tsarouhas. To win this support, you have to present good data, he says. “If you can give data to the executives and they can see where the areas for improvement are, that makes it easier for them to support the work.” ■

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CT hospital slashes door-to-balloon times to reduce patient harm

Hospital administrators: Changing the culture requires persistence and commitment

Administrators at John Dempsey Hospital at the University of Connecticut Health Center in Farmington, CT, have bought into the idea of using checklists and similar tools to standardize and improve medical practices, and they have proven that such tools can be instrumental in moving key metrics in the right direction. A dramatic improvement in door-to-balloon times is just one example, according to **Scott Allen**, MD, the medical director for clinical effectiveness and patient safety at Dempsey Hospital.

“Three or four years ago, we were probably in the 60% range in terms of compliance with the 90-minute door-to-balloon metric, so we knew we had a problem,” explains Allen. Consequently, an improvement team, consisting of members of the EMS staff, emergency physicians, nurses, cath lab staff, and quality personnel, devised a solution that includes a “tackle box” containing all the supplies and forms needed whenever a STEMI (ST segment elevation myocardial infarction) patient presents to the ED, complete with a checklist of all the required materials and steps so that the case is handled thoroughly and efficiently.

Data from 2013 show that the hospital's median door-to-balloon times are now down to 46.5 minutes, exceeding both state and national median times, and Allen observes that a process for quality improvement is ongoing with every STEMI case that presents.

Hold a debrief right away

The STEMI improvement team now meets every month to review data and ideas for further improvement, but perhaps even more important than this meeting is a standard policy to review every STEMI case right away. “Every door-to-balloon gets an immediate debrief by EMS, nursing from the ED, and nursing from the cath lab in terms of what went right and what went wrong,” explains Allen.

“We have a sheet that outlines each of the major time [intervals] such as door to EKG or EKG to cath lab ... and [the meeting participants] write down each of those times. Then they are reviewed at the monthly meetings. However, if there is something that doesn't work, and it is a serious issue, then we are able to address it right then and there in real time.”

The idea for the tackle box approach grew out of the observation that standardization could resolve multiple hold-ups throughout the process of care for STEMI patients, observes Allen. “The tackle box mentality was just that we wanted everything in one place. We didn't want to have to think about where the consent form is or where the medicines we need are,” he says. “Everything that is needed is portable and in one place.”

EXECUTIVE SUMMARY

A dramatic improvement in door-to-balloon times for STEMI patients is one example of how John Dempsey Hospital at the University of Connecticut Health Center in Farmington, CT, is using checklists and other tools for standardization to improve safety and care. The hospital is part of a three-year statewide initiative of the Connecticut Hospital Association to adopt high-reliability practices and eliminate errors that cause patient harm. The approach is enabling hospitals to learn from each other and share best practices that facilitate improvement.

- By putting all the materials needed to handle a STEMI patient in a portable “tackle box,” and establishing a formal review process for all STEMI cases, Dempsey Hospital was able to trim dismal door-to-balloon times down to a median of 46.5 minutes for 2013, exceeding both state and national median times.
- The hospital is using multidisciplinary teams to focus on problems and devise solutions.
- The hospital now holds daily safety huddles to keep the staff focused on a patient-first approach. Administrators also distribute weekly and monthly publications to keep staff apprised about safety events, success stories, and the latest data.
- To reduce patient harm, more than 3,000 staff members will undergo training on high-reliability techniques.

With this approach, the patient doesn't even physically need to stop when he or she presents to the ED, says Allen. "The cardiac team is meeting the patient at the door, and they are literally walking with the patient," says Allen. Further, the ED primary nurse takes charge of the tackle box, and he or she stays with the patient as well. "As long as the patient is stable and ready to go, everything is happening en route to the lab," adds Allen.

To ensure that every important step takes place as patients are quickly transported to the cath lab, a checklist with seven "must have" items is posted on the top of the tackle box for quick reference.

These include:

- ID bracelet on the patient;
- defib pads on the patient;
- ED primary nurse with the patient — RN to RN report;
- copy of ED chart, including all ED paper work, EKG, stickers, etc;
- IV(s) intact;
- patient is undressed;
- patient on oxygen.

Get buy-in from all stakeholders

One other step the improvement team has made to speed STEMI patients to care is having EKGs sent to the ED by EMS prior to the patient's arrival. Allen notes that the hospital was among the last in the region to implement this practice, but with that process now in place, the cath lab team is activated before the patient arrives. "If we have any sense that there is a STEMI patient in the field, our cath lab is activated, so we encourage the EMS crew to call in a STEMI alert even if they are not entirely sure," says Allen.

Further, nursing supervisors are now instructed to go to the cath lab to turn on the equipment whenever a STEMI alert is called. "The computers and the equipment are now turned on and warmed up before the cath lab team arrives," says Allen. "That has shaved off a few minutes from the process."

There were multiple challenges involved with implementing the new STEMI process, but getting buy-in from the cath lab was a particularly important step. "Eventually I got the director of the cath lab to attend the [monthly] meetings, and that is when the process really gelled," says Allen. "At that point, we had buy-in from all the key stakeholders: ED physicians, cardiologists, and all the staff in both of those areas."

Key to winning the support of cardiologists was

getting them to realize what was in this improvement effort for them, notes Allen. Consequently, having the data on hand to demonstrate that the hospital really needed to make improvements was critical. "You have to make the case as to why this is important. Clearly this is a patient safety issue, it's an outcomes issue, and it is a financial issue as well, with this being a core measure," says Allen. "Once the cardiologists bought into the idea that they could really get their times down by critically looking at the process, we made significant strides."

Leverage multidisciplinary teams

The improvement in door-to-balloon times is part of a larger, organization-wide initiative aimed at improving quality and safety that began more than five years ago, when Connecticut's Department of Public Health put the hospital on probation because of a series of incidents that led to patient harm. At that point, **Ann Marie Capo**, RN, MA, an associate vice president and chief quality and patient safety officer at Dempsey Hospital, led a successful two-year effort to get the hospital off probation.

"We accomplished that through the use of multidisciplinary teams that homed in on specific issues that were outlined in the report that the Department of Public Health brought forward to us," explains Capo. However, she adds that this was just the beginning of what became a much more comprehensive mission.

Dempsey Hospital is now plugged into a three-year, statewide effort, led by the Connecticut Hospital Association (CHA), to adopt high-reliability practices and eliminate medical errors. With all of the hospitals in the state pushing in the same direction, there is ample opportunity for administrators to learn from each other's mistakes and share best practices. "All 29 hospitals in the state have pledged to participate in this initiative, and we are a small enough state for this kind of collaborative effort to work," observes Capo, who has taken a leadership role in the CHA collaborative.

For instance, most of the hospitals now hold daily safety huddles, an innovation aimed at keeping the focus on safety and continuous quality improvement while also ensuring that if an error occurs on one floor, the other floors will hear about this error and take the same corrective actions to prevent it as the floor on which it occurred.

At Dempsey Hospital, the daily safety huddles

started in March of 2013. Capo usually presides over the huddles, but they include representatives from throughout the hospital. “We do a look back and a look forward,” says Capo. “We start with the critical care areas, and we call out all of our service areas and they do a brisk report.”

The safety huddles are designed to proceed swiftly, never taking more than 20 minutes, says Capo. “If someone has a situation occur today, the expectation is that they will tell us what the follow-up is going to be tomorrow,” she says. For more difficult issues requiring system-level solutions, corrective teams are put in place to delve into the problems and devise corrective actions. Allen’s improvement team focused on shortening door-to-balloon times is one example.

“As we gather information during the week at our safety huddles, the information that needs to be distributed to staff goes quickly into a ‘Friday flyer,’ and then that report gets posted and passed out to all the managers in all the areas,” explains Capo. “Then, once a month we have a bigger safety newsletter that is published in which we highlight all the work that we have been doing.”

For example, the newsletter will report on any safety stories about situations that occurred in the hospital that month, what corrective actions have been taken, and also how adverse events were prevented. The report also provides data on a range of safety-related metrics for the month.

Hold everyone accountable

In addition to the hospital-level safety huddles, there are unit-level huddles that occur at least once a day, and, in some cases, on every shift. The hospital has identified safety coaches from every department who actively participate in these huddles. “They bring information back to their units and meet on a monthly basis with the person in charge,” explains Capo.

Getting hospital staff to identify and report errors is difficult, but it is essential to preventing repeat incidents of the same type. Consequently, hospital administrators have developed the “good catch award” as a way to highlight staff members who have identified an error before it reaches a patient, explains Capo. “Each time someone is nominated for a “good catch award,” we give them a catcher’s mitt, and then after they have received four catcher’s mitts, we give them a more substantial award,” she explains. “That has encouraged reporting.”

As part of the CHA collaborative, more than 3,000 of the hospital’s staff members will undergo training focused on five key areas that administrators refer to by the acronym CHAMP:

- Communicating clearly;
- Handing off the care of patients safely;
- Attention to detail;
- Mentoring peers;
- Practice and accept a questioning attitude.

Campo stresses that it is not just the clinical staff members who are being held responsible for patient safety, but everyone in the hospital. In fact, she recalls one instance in which a housekeeper actually stopped a surgeon from going into the intensive care unit (ICU) while a central line was being placed. “Three or four years ago that employee might have been met with some harsh language, but that is no longer the case,” says Capo. “What we are attempting to do here and what we are beginning to see the results of is a culture change that has to occur.”

Capo notes that while the hospital used to rank below average on central-line associated blood stream infections (CLABSI), it has now gone for well over a year without a CLABSI in the ICU. Similarly, at press time, the hospital had gone for more than 80 days without a catheter-associated urinary tract infection (CAUTI) in the ICU. Capo adds that the hospital has gone from having poor scores on core measures to top percentile rankings in some areas. “This is a journey, and it is really an individual as well as an institutional commitment to put the patient first,” she says.

To colleagues struggling with many of the same issues, Capo emphasizes that administrators at all levels of the organization need to be persistent. “You have to emphasize that the patient comes first always, and you have to keep reminding yourself because you will be challenged, especially in the beginning,” she says. “There will be naysayers and there will be people who think they

COMING IN FUTURE MONTHS

- The case for “swarming” in the ED
- ED care under health care reform
- A Lean transformation journey
- Hospital-based violence: Protecting staff

can opt out of the behaviors you are asking them to change.” ■

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CNE/CME OBJECTIVES

1. Apply new information about various approaches to ED management.
2. Discuss how developments in the regulatory arena apply to the ED setting.
3. Implement managerial procedures suggested by your peers in the publication. ■

CNE/CME QUESTIONS

1. Most human-to-human transmission of the Middle East Respiratory Syndrome coronavirus (MERS-CoV) has been occurring in which of the following?
A. Riyadh, Saudi Arabia
B. urban neighborhoods
C. the hospital setting
D. IV drug users
2. At Community Hospital in Muster, IN, what helped investigators determine how long physicians and staff members were exposed to a patient who presented to

the ED with MERS-CoV?

- A. radio frequency ID (RFID) tracer tags
- B. video surveillance
- C. staff interviews
- D. blood testing

3. **Alan Kumar**, MD, states that the incubation period for MERS-CoV is two to 14 days, but symptoms usually start to appear:

- A. within 5 days
- B. within 10 days
- C. within 2 days
- D. in a matter of hours

4. **David Kuhar**, MD, notes that for the early diagnosis of MERS-CoV, ED professionals need to be familiar with case definitions, and not only need to get the medical history when they are triaging a patient who presents with fever, pneumonia, or respiratory distress, but also should obtain:

- A. a list of people they have been in recent contact with
- B. a travel history
- C. a list of medications they have been taking
- D. medical information about family members

5. When devising sub-metrics for the “ED and ED-to-inpatient transition” domain on a patient flow scorecard, developers at Children’s Hospital of Philadelphia included two measures that enable administrators to adjust the scores based on:

- A. staffing and shift hours
- B. clinical complexity and patient satisfaction
- C. the severity of patients visiting the ED and high volumes
- D. length of stay and outcomes data

6. **Scott Allen**, MD, notes that there were multiple challenges involved with implementing the new STEMI process, but a particularly important step was:

- A. getting buy-in from the cath lab
- B. establishing daily safety huddles
- C. getting EKGs from the field
- D. devising a “tackle box” approach

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