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Milwaukee Health System Leverages Telemedicine During Triage Process at Multiple ED Sites

Administrators take a page from other industries, aim to apply enterprise solutions to the emergency care delivery process

Large, integrated healthcare systems have long turned to enterprise-level solutions to reduce costs and improve efficiency. Although most of these efforts have focused on administrative processes, some pioneering organizations are looking to make similar gains in the way clinical care is delivered. In particular, Aurora Health Care in Milwaukee has partnered with a Brookfield, WI-based startup, EmOpti, to design a way to leverage the services of one off-site provider in the triage process at multiple EDs.

“Effectively, we just took best practices from other industries and said, ‘OK, we should be able to manage this with a more centralized approach,’” explains **Michael Rodgers**, the director of strategic innovation at Aurora Health Care.

Further, rather than looking for a product, solution, or vendor that was on the market already, Aurora decided

to find an entrepreneurial partner that would co-develop a solution that was tailor-made to fit the health system’s needs, Rodgers observes. “We are actually building this together, which is a great augmentation of the expertise on both sides,” he says.

Early results are impressive. First launched at Aurora Sinai Medical Center in early 2016, there have been notable improvements, beginning with door-to-provider times. “We were at about 60 to 65 minutes at Aurora Sinai, and [this approach] has reduced that number to 10 to 15 minutes. And by doing that, it has also helped our overall length of stay [LOS], cutting that number by about 40 minutes,” explains **Paul Coogan**, MD, the president of Aurora Emergency Services and an emergency physician at Aurora Sinai, a busy, urban ED that sees 61,000 patients per year. “It has also cut our leave-without-being-seen [LWBS] rate from about 8% down to 2%, and pa-

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tient satisfaction has improved.”

This past October, the virtual-provider-in-triage solution was expanded to include the ED at Aurora West Allis Medical Center in West Allis, WI, a department that sees 36,000 patients per year, and the ED at Aurora Medical Center in Kenosha, WI, which sees 30,000 patients per year. With this expansion, Rodgers anticipates additional gains. “There is a huge benefit to doing this at an enterprise level versus the local level ... because we can effectively scale up or down on providers at the [centralized hub] based on the volume we are seeing,” he says. “It is easier to scale up there than to get someone to a local site in a remote location when volume starts surging.”

Prioritize Efficiency

One of the big motivators for taking advantage of telehealth during triage was the increasing focus on ED efficiency measures by the CMS. “We were never held to any standards [in this area before], and we certainly didn’t have any money at risk for things like door-to-doc times, LOS, and all the other efficiency measures,” Coogan explains. “Those were all things that were developed in the past few years.”

Even without regulatory pressure, Coogan stresses ED leaders always were trying to improve efficiency, but such efforts didn’t get much attention or support. “We were sort of under the radar as far as having to put resources towards solving problems in the ED,” he says. “It was kind of accepted that if someone showed up in the ED in a busy urban department, they were going to have to wait a while to be seen.”

Long waits in the ED mush-

roomed into other problems like increased ambulance diversion and spikes in the LWBS rate, Coogan notes. He adds that while the virtual-provider-in-triage solution is not a “silver bullet,” it has helped address many efficiency-related problems.

The way the approach works is an off-site emergency provider is stationed in a room with a set of computers and a two-way hookup for audio and video. The provider then responds when a triage nurse at any of the participating EDs calls in for a patient consultation. “I literally get a ping at my workstation and I answer that,” Coogan explains, noting what a shift serving as the triage provider typically involves. “Immediately, it is like a Skype call. I see the patient’s face, the patient sees my face, and we begin a conversation.”

Focus on

Lower-acuity Patients

There is always a nurse with the patient at the local ED site, and he or she will record vital signs and input the patient’s chief complaint. The virtual triage provider has access to the patient’s medical record for review. “We will talk with the patient, and then when we conclude the interaction, we thank the patient and explain to them that one of our techs will be drawing blood, collecting a urine sample, performing an EKG, or perhaps [the provider explains that he] has ordered some X-rays,” Coogan explains.

In other instances, the triage provider may note that the nurse will be administering medication to help relieve the patient’s symptoms while he waits to see an on-site provider who will perform a full history and

examination. “The virtual provider will then put in the orders, and the tech or nurse on site will get the orders started,” Coogan notes. “Even if the patient goes on to spend another 40 minutes in the waiting room, by the time he or she gets back to a treatment room, hopefully [most of] their tests will be done so that when the treating provider goes into the room, the patient’s workup is nearly complete.”

Coogan acknowledges that before the approach was implemented, there was some concern that older patients especially might not like interacting with a provider via video hookup and that they might find the approach impersonal, but this concern was dispelled quickly. “They really seem to have embraced it the most,” he says. “I don’t know if they find it cool or what, but they have really appreciated [the approach] and like the interaction.”

Not all patients who present to the participating EDs are seen by the virtual provider during the triage process, Coogan observes. “There are five triage levels. The ones and the twos are the most sick, and those patients are taken directly back [to see an in-person provider],” he explains. However, Coogan adds that when the ED is very busy, he has had occasion to see triage level two patients through this process virtually.

“If someone were showing stroke symptoms, [the virtual triage provider] could quickly see the patient, call a stroke alert, put in stroke orders, and then [emergency staff] would quickly make room for that patient. It would be a very brief [virtual] interaction,” Coogan says. “The [virtual-provider-in-triage] approach is really meant for triage levels three, four, and five, and the nurse primarily establishes the triage level.”

EXECUTIVE SUMMARY

Working with an entrepreneurial startup company, Aurora Health Care in Milwaukee has developed an approach for leveraging the services of one provider who sees patients remotely during the triage process at multiple ED sites. The process has enabled the health system to accelerate throughput times while maximizing provider resources and boosting patient satisfaction.

- At Aurora Sinai Medical Center in Milwaukee, the approach has reduced door-to-provider times from 60 minutes to about 10 minutes, on average. In addition, the average length of stay has declined by 40 minutes, and the leave-without-being-seen rate has plummeted from 8% to 2%.
- Providers serving in the virtual triage role average 12-15 patient consults per hour, and the average length of these patient-provider interactions is 80 seconds.
- Developers say the key to the success of the approach is placing a technician in the ED who can execute the remote physician’s orders so that each patient’s workup is well underway by the time the patient sees the treating physician on site in the ED.
- Health system administrators are exploring other ways they can use telemedicine, perhaps to accelerate discharges from the ED and eventually putting remote physicians in charge of low-acuity cases.

Accelerate Orders

Certainly, deploying the centralized, virtual-provider-in-triage approach in the health system’s EDs has required resources in terms of technology and software tools, but it has not required an influx of personnel. However, participating EDs have found it necessary to redeploy a technician from the back of the department to the triage area. This is a critical step, according to Coogan.

“Unless you are going to dedicate a tech to triage and carry out the provider’s orders, then it is not really worth the investment [to implement the approach],” he says. “If you are just going to wait until the person gets back to a room to do the orders, then you really have missed the opportunity to save time; and if you are telling patients you are going to get things started and then you don’t, they are going to get frustrated.”

However, when executed properly, the health system actually maxi-

mizes provider resources, Coogan notes. “What we used to do is have what we called the pit shift, which is a provider in triage where we were on site and doing the same job, but we found if we used [telemedicine] we could cover multiple sites doing the same thing,” he says. “Now, we are able to cover three sites with that single provider.”

Emergency providers typically spend time both working on site in the EDs and taking shifts in the virtual triage role. “Those shifts are seven hours long, and, routinely, we are averaging about 12 to 15 consults per hour,” Coogan explains. “The most consults I have done is 22 in one hour, which was a little taxing, but it can be done.”

Coogan notes that the length of the virtual provider-patient interaction is averaging at about 80 seconds. “The average time between getting a ping from a nurse calling in to the virtual provider answering is running at about 15 seconds,” he

says. However, during busier times, there can be one or two patients waiting to interact with the virtual provider, he says.

Interestingly, some of the older emergency physicians on staff suggest that the virtual triage role actually may extend their careers a few years, Coogan notes. “Instead of retiring, they could use their lifelong knowledge to do a few of these shifts per month along with some shifts in the ED instead of having to hang it up,” he says. “Maybe someday physicians will be able to do this out of their homes.”

Fully Leverage Approach

With more time, Coogan believes additional benefits from the approach will become apparent. “By

decreasing your LWBS rate and your bed turnaround time, you are really creating space without adding beds,” he says. “Certainly, there is a maximum amount that you would be able to accomplish, but our hospital [Aurora Sinai] has not been on ambulance diversion in over a year.”

Coogan emphasizes that the virtual-provider-in-triage approach is not the only reason for the reductions in ambulance diversion. He notes that the Aurora health system decided to adopt a no-diversion policy in November 2015. One year later, Milwaukee County decided that all hospitals would adopt a similar no-diversion policy. “That has been successful, so [the telemedicine solution] has certainly helped us achieve that, but you have to do a lot of other things too,” he says.

Although the virtual approach is part of the triage process, administrators are looking at additional ways to leverage the telemedicine technology. For example, Coogan notes that it could be used to facilitate discharges, or to handle patient encounters for low-acuity conditions. “I think that is where we should be headed for minor complaints,” he says. ■

SOURCES

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Report Highlights Burden Frontline Providers Face in Recognizing, Preventing Sepsis

New data on infections and healthcare factors most commonly associated with sepsis should help providers focus their efforts toward future improvements

Healthcare providers understand the importance of picking up on signs of sepsis at the earliest possible stage. The condition is associated with a high mortality rate, so accelerating treatment obviously is critical to achieving a positive outcome. Further, a new report from the CDC suggests that a clear majority of patients diagnosed with sepsis experience onset of the disease before entering the hospital.¹ What this means is that emergency providers have both a big opportunity and a responsibility to recognize sepsis in patients, and to start patients on evidence-based treatment protocols quickly.

Although early recognition and treatment must remain a top priority,

the CDC report highlights another big opportunity for frontline providers in the battle against sepsis: preventing the condition from occurring in the first place. To help with this task, investigators have begun pinpointing what types of infections, patient characteristics, and other factors are associated most closely with the development of sepsis.

In addition to arming the medical profession with this information, investigators note that patients also can move the needle on sepsis care by recognizing the signs and symptoms so that they can act on these indicators at an early stage. Investigators note that frontline providers are ideally positioned to pass this informa-

tion along to patients who are most at risk.

Understand Risks

To gather data for the report, CDC investigators performed a retrospective medical record review at four acute care hospitals in New York to isolate patients who received diagnoses of severe sepsis or septic shock between 2013 and 2015. Investigators then reviewed these records to identify factors and characteristics associated with the diagnoses.

Out of 246 adult patients, investigators found that the most common types of infections associated with

sepsis were respiratory tract (35%), urinary tract (62%), gastrointestinal (11%), and skin and soft tissue (11%). Among 79 pediatric cases, the most common infections included respiratory tract (29%), gastrointestinal (23%), and bloodstream (13%).

Investigators found that sepsis occurred most often in patients presenting with one or more comorbidities and that most (79.4%) developed infections that led to sepsis outside the hospital. The authors also noted that the majority of these patients had interacted recently with healthcare providers prior to their admission for sepsis — perhaps revealing a key opportunity for providers to educate patients about their risks for sepsis.

“This goes for EDs, but also primary care practitioners [PCPs] and acute care clinics — people on the front line who are seeing patients diagnosed with an infection,” explains **Shannon Novosad**, MD, the lead author of the review and an epidemic intelligence service officer at the CDC. “It is really about educating patients and their families about what sepsis is, and what they should look for to know if sepsis could be happening.”

Leverage Patient Encounters

Although some infections lead to sepsis more commonly than others, Novosad stresses that it is important for patients to understand that almost any infection can lead to the condition. “Keep this in the forefront — that even something that doesn’t seem that serious at the start could develop into something serious,” she explains. “Educate [patients] on the signs and symptoms, and how to know when their infection is getting worse. That is very important.”

EXECUTIVE SUMMARY

Although much of the research on sepsis has focused on early recognition and treatment, the CDC issued a new report highlighting opportunities to prevent the condition from developing. To facilitate improvements in this area, investigators highlighted data showing which infections and healthcare factors are associated most commonly with sepsis so that providers can improve their efforts.

- Investigators reviewed the medical records of 246 adult patients diagnosed with severe sepsis or septic shock at four New York hospitals, finding that the most common types of infections associated with sepsis were respiratory tract, urinary tract, gastrointestinal, and skin and soft tissue.
- Among 79 pediatric cases, the most common infections included respiratory tract, gastrointestinal, and bloodstream.
- Investigators found that sepsis occurred most often in patients with one or more comorbidities and that most developed infections that led to sepsis outside the hospital.
- Given that many patients at highest risk for sepsis frequently encounter the healthcare system, there is an opportunity for providers to better educate patients about prevention and early warning signs.

In addition, Novosad stresses that patients must feel comfortable and unafraid about asking providers whether they might have sepsis, and that providers play a role in helping patients feel empowered to pose these questions.

The study findings show patients suffering from chronic diseases are more at risk for contracting infections and are at greater risk of developing sepsis. This association was particularly strong with respect to diabetes, Novosad observes. “That disease was common [in the patients who developed sepsis]. Between 30% and 40% had diabetes,” she says. “Also, there was a lot of cardiovascular disease that ranged from coronary artery disease to peripheral vascular disease and some heart failure. Chronic kidney disease was common, and then lung diseases as well, such as COPD.”

One thing that ties these chronic diseases together is the fact that patients presenting with these

conditions tend to encounter healthcare providers frequently, Novosad observes. “We are highlighting these chronic diseases for two reasons: Having these chronic diseases puts people at higher risk, but also people who have these chronic diseases are seeing healthcare providers more frequently, and that provides an opportunity to educate them about sepsis,” she explains.

Focus on Prevention

By identifying at-risk groups and documenting factors and conditions that are most associated with sepsis, the CDC hopes to move the conversation beyond the early recognition of sepsis. “One thing that we are really striving to work on is preventing infections. We think that is one really important way to prevent sepsis,” Novosad says. “So efforts here and future work to better understand what patients are getting sepsis and what

diseases they have could really inform some of these prevention efforts.”

For example, vaccines to prevent respiratory disease such as influenza and pneumonia also can prevent sepsis because they prevent specific types of infections, Novosad observes. Similarly, decreases in certain behaviors such as smoking will result in lower rates of lung disease, which also leads to a diminished risk of sepsis. “We are trying to take a broad view of prevention for these different types of infections, and not just focus on preventing the infections themselves, but better manage chronic diseases that can increase the risk of infections,” she says.

One component of this work involves developing better surveillance methods so that healthcare policymakers and providers understand better what the true burden of sepsis actually is, Novosad offers. “Everyone can tell that sepsis is a big public health problem, but I think honing in on exact numbers is difficult,” she says. “The way we track sepsis now is with billing data.”

With better definitions and tracking methodologies, healthcare providers will be able to more accurately measure not just the burden of sepsis, but also what interventions are proving most effective, Novosad explains.

Use a Systems Approach

Although moving toward prevention is important, what the CDC report also makes clear is that emergency providers carry a heavy burden in recognizing sepsis in patients who present for care. This is according to **Manish Garg, MD**, a professor of emergency medicine in the Lewis Katz School of Medicine at Temple University who co-authored an accompanying editorial to the CDC

report.² In particular, Garg highlights the finding that the vast majority of patients in the report were identified as developing sepsis before they arrived at the hospital. This puts the responsibility of early recognition on front-line providers, and this task can be very challenging.

“We have to take a combination of the patient’s history, their risk factors, and their exam. We also have to think about different criteria that they might have,” he says. “Sometimes, we are lucky and we get an immune-compromised patient with a high fever who has a history of sepsis ... but a lot of times there are overlapping illnesses, and [arriving at a correct diagnosis] is very difficult.”

Garg says that early warning tools are helpful in alerting providers that sepsis should be considered, but these tools do not provide definitive answers. “I was working a shift last night and had three patients who were coming up positive for sepsis on our early warning detection score for sepsis, but only one of the three had sepsis,” he explains. “We have a lot to differentiate as the front-line providers in the ED. Sepsis can be very difficult to recognize.”

However, given the high mortality rate associated with sepsis, emergency providers must put sepsis on their radar, along with a systematized approach for responding, Garg notes. “In our ED, we have ‘think sepsis’ signs plastered literally everywhere, so that is a way to help our providers think about it, but I really think protocolized care, having checklists, and using some early warning scores or even triage alerts [are most important],” he says. “We have systems set up for trauma, so really having a system set up for sepsis that really leverages the entire ED system, from the nurses to the techs to the physicians — that is probably

your most effective approach and probably your biggest opportunity for improvement.”

Think Beyond Current Problem

Garg explains that the electronic medical record he uses will prompt providers to consider sepsis automatically when a patient’s vital signs fit the criteria for systemic inflammatory response syndrome. “There can be false positives on that, and providers can get a little frustrated but ... I think the prompt is very helpful in the long run, because when we are seeing patients we are always thinking about the worst possibility first — and sepsis carries the highest mortality.”

These types of early warning tools also serve an important role in educating emergency staff about the signs and symptoms of sepsis. “If you have an educated group from the front door of the ED to the provider, you are in the best possible shape to help patients,” Garg observes.

In fact, Garg notes that flu season is when providers really need to be thinking about sepsis. “Patients are staying home longer because it is colder outside and they don’t want to come to the hospital,” he says. “In my experience, this is the time when we see the highest morbidity and mortality from sepsis.”

Garg notes that it is difficult for emergency providers to make a big difference on prevention, but there are opportunities. “In our department, we screen patients when they come in on whether they have received a flu or pneumonia shot, and if they haven’t, then they are automatically offered the shots,” he says. “And this is not just for people with respiratory illness.”

Garg stresses that providers should

not underestimate the effect flu shots can have on preventing illness and downstream complications such as sepsis. “Right now, the flu strain that is going through our ED is actually covered by this year’s flu shot ... and it is unbelievable what a difference we see in terms of volume,” he says. “The one year I remember when the flu shot didn’t work, it was just non-stop flu, and all these patients with comorbid illnesses were just having horrendous outcomes, so a little bit of prevention goes a long way.”

Further, Garg notes that he reminds residents that they are on the front lines and they have an

opportunity to teach patients. For example, he often sees patients from nursing homes who are in and out of the hospital frequently. “We really try to talk to them about ways they can prevent the need to come back,” he says. “I always try to put myself in the patient’s or the family’s shoes and say, ‘OK, the current problem is what I am here for, but let’s make sure there is not a future problem.’” ■

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Despite Variations, Evidence Provides Clear Road Map for Adult Patients Presenting with Acute Migraine

Obtaining a full patient history can help guide providers toward effective treatment and longer-term solutions

It is not unusual for head pain to become so severe or debilitating that it drives the sufferer to seek relief in the emergency setting. Experts note that headache is, in fact, the fifth most common reason for a visit to the ED, and most of these cases involve migraine headaches. Certainly, this is not news to front-line clinicians who see these types of patients on a daily basis. However, data show there is ample room for improvement in how these cases are managed.

For instance, in a recent review article on the management of adults with migraine in the emergency setting, the authors noted that there is wide variation in how patients who present to the ED with migraine are treated. Out of more than 1.2 million yearly visits to the ED for acute

migraine, the investigators noted that more than 20 different drugs and drug combinations typically are prescribed.¹

Further, and perhaps not surprisingly, patients who are treated in the ED for an acute migraine typically do not experience long-lasting re-

EXECUTIVE SUMMARY

Although there is solid evidence to support how patients presenting with migraine headaches should be treated in the ED, studies show there is wide variation in the care that these patients receive. To reduce this variation, experts have unveiled guidelines based on a review of 68 randomized, controlled trials that looked at 28 injectable migraine medications.

- Investigators did not present any A-level, or “must offer,” recommendations, but four medications received B-level, or “should offer,” recommendations.
- The authors advised that intravenous metoclopramide and prochlorperazine, as well as subcutaneous sumatriptan, should be offered as a first-line treatment to adults who present to the ED with an acute migraine.
- Investigators also advised that dexamethasone should be offered to these patients to prevent their acute headache from recurring over the short term.
- Researchers noted that injectable morphine and hydromorphone should be avoided as a first-line therapy.

sults. The authors noted that clinical trial data show that only about one-quarter of these patients experience sustained relief following their ED visit, setting up the potential for repeat ED visits and continued suffering.

To obtain guidance on the way forward in treating migraine in the emergency setting, *ED Management* caught up with a headache specialist from the University of Miami Miller School of Medicine who sees patients with the most severe types of migraines, and an emergency medicine physician who is one of the authors of the review on management of acute migraine cited above.

Base Treatment on Evidence

Although roughly 12% of Americans suffer from migraines, medical scientists still lack a complete understanding of what a migraine is, observes **Benjamin Friedman**, MD, an emergency physician at Montefiore Medical Center in Bronx, New York, and a co-author of the recent review on management of migraine. “We still don’t understand the pathophysiology of what goes on during a migraine attack,” he explains. “But from an emergency perspective, I think we have seen a number of high-quality trials that have shaped how to treat migraine in the emergency setting.”

Friedman et al set out to clarify for providers what the evidence suggests are the best options for treating patients who present with migraine, based on 68 randomized, controlled trials that looked at 28 injectable migraine medications. Although the authors did not present any A-level, or “must offer,” recommendations, four medications received B-level,

or “should offer,” recommendations. “What a B-level recommendation means is that there is very strong evidence that these medications are effective; they are generally well-tolerated and they are superior to alternatives,” Friedman observes.

ALTHOUGH
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Specifically, the authors noted that intravenous metoclopramide and prochlorperazine and subcutaneous sumatriptan should be offered as a first-line treatment to adults who present to the ED with an acute migraine. In addition, the authors indicated that dexamethasone should be offered to these patients to prevent their acute headache from recurring, although Friedman clarifies that dexamethasone is effective for short-term prevention only.

“An acute migraine is a 72-hour process. An acute attack can recur within that 72-hour period, and so the preventive [care] we are giving is not to decrease the number of headaches a patient is having, it is to prevent the recurrence of a headache in the immediate aftermath of an ED visit,” he explains.

Largely Avoid Opiates

With regard to opiate medications, the authors were more circumspect. Pointing to a lack of evidence regarding efficacy and concerns about long-term complications, they suggested that injectable morphine and hydromorphone “are best avoided as a first-line therapy.”

Friedman stops short of saying that opiate drugs should never be used as a first-line therapy for migraine, instead emphasizing that physicians should make informed decisions. “There is a substantial evidence base for how to treat acute migraine, and so if emergency physicians are actively choosing opioids preferentially because they have said that they have read through the literature and read about these medications, and they understand the side-effects that come with them, and given all that, they choose opioids because they think opioids are the best for their patient, then that is a position that I can respect,” he explains. “But if this is not an informed decision, then I would say read the literature and understand a little bit more about these various medications.”

Although there is much discussion in the literature and elsewhere about the dangers of opioid prescribing, Friedman notes that the data are not clear about the efficacy of using opioids to treat migraine or about associations between opioids and so-called bounce-back headaches. “No one can point to a high-quality clinical trial and say that in this trial opioids were clearly shown to cause less effective headache treatment, more bounce-backs to the ED, or more abuse down the road,” he says. “There [are] a lot of lower quality data or correlative data where patients who got migraines and were treated with opioids in the ED were

more likely to come back to the ED ... but it is unclear whether [these findings are valid] or not because they are not based on high-quality data; they are just associations that have been noticed.”

Consider Patient History

Teshamae Monteith, MD, FAHS, chief of the headache division in the department of neurology at the University of Miami Miller School of Medicine, agrees that there is no hard and fast rule that stipulates that opiates should never be used to treat migraine, but notes that non-opiate management is the preferable first-line treatment option. “The best way to treat the patient is with migraine-specific medications. These are triptan medications that can easily be used and might be helpful to patients with migraine if they come in early enough,” she says.

However, Monteith concurs that neuroleptics, such as metoclopramide and prochlorperazine, can be very useful in treating migraine attacks. When these drugs are used in combination with ketorolac, a non-steroidal anti-inflammatory medication, and basic hydration, they can be very effective in migraine patients, she says.

In addition to avoiding opiates, Monteith recommends emergency providers stay clear of prescribing Fioricet, a medication which contains acetaminophen, butalbital, and caffeine. “These prescriptions are very easy to write in getting patients treated and out of the ED, but these drugs are associated with rebound headaches and medication overuse headaches,” she says. “Patients with migraines should have more migraine-specific care and less of the non-specific care, which includes the opiates and Fioricet.”

Monteith advises that getting an accurate history from patients who present with migraine is very important because some migraines are caused by specific triggers that dictate different treatment strategies. “We know that menstrual migraines are associated with more severe attacks, longer-lasting attacks, and more difficult to treat attacks, so asking patients if they are on their menstrual period is very useful because the treatment option would be very different for that patient,” she explains.

Think About Future Attacks

Especially for cases in which patients repeatedly visit the ED with migraine attacks, emergency providers must think about longer-term solutions, Monteith observes. “I think reducing utilization is as important as treating that acute migraine,” she says. “Setting that patient up with education about prevention and abortive care is going to be really important, as well as prescribing migraine-specific treatments.”

If a migraine patient comes to the ED, Monteith advises providers to ask them whether they are taking a triptan medication, and if their triptan is not effective, find out what other triptans they have used, she says. “You need to make sure they are hooked up with a neurologist, and if you look back in the chart and see that they have come to the ED one or two times before, you might consider sending them to see a local headache specialist,” she says.

It is about appropriate coordination of care, Monteith stresses, noting that headache specialists often are linked to infusion centers in which patients have access to more and better treatments than what

they would receive in an emergency setting. “Teaching patients that they don’t necessarily need to get their treatment in the ED is important,” she adds.

Friedman, who sees two or three patients with migraine on every shift he works in the ED, adds that migraine represents a spectrum. People presenting with mild migraines may be fine by taking ibuprofen once in a while, he says. “At the other end of the spectrum are people with chronic migraine, which is having migraine on more days than not,” Friedman observes. “Certainly, repeat ED presentation for management of migraine is a marker of serious underlying disease, and these are patients who should probably be handled by specialty care.” ■

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How To Use the New Medicare Outpatient Observation Notice

Better known as MOON, it is an attempt by CMS to resolve confusion and avoid surprise patient charges related to observation stays

[This quarterly column is written by Caral Edelberg, CPC, CPMA, CAC, CCS-P, CHC, President of Edelberg Compliance Associates, Baton Rouge, LA.]

Hospital observation services have received much attention in the past several years, because of issues relating to patient copays and charges for Medicare outpatient vs. inpatient services.

CMS is responding to patient concerns that, although they may have perceived their stay as an inpatient stay for an extended period of time, their stay actually was categorized as “outpatient” under existing observation designation requirements.

This often results in higher charges than expected, but more significantly, required nursing home coverage may not qualify under current provisions.

In an effort to address these issues, CMS has developed the Medicare Outpatient Observation Notice (MOON), effective for dates of service beginning Feb. 21, 2017, under CMS-10611 Transmittal 3695, dated Jan. 20, 2017. The MOON is mandated by the Federal Notice of Observation Treatment and Implication for Care Eligibility (NOTICE) Act, which became law on Aug. 6, 2015.

What Is MOON?

MOON is the form required to inform all Medicare beneficiaries when they are considered outpatients and receiving observation services.

They would not be considered as inpatient status in a hospital or critical access hospital (CAH).

The MOON must be delivered to beneficiaries or their representatives (original Medicare fee-for-service and Medicare Advantage enrollees) who receive observation services as

OBSERVATION
START TIME IS
DEFINED AS THE
CLOCK TIME
OBSERVATION
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DOCUMENTED
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PHYSICIAN'S
ORDER.

outpatients for more than 24 hours.

However, the MOON must be provided no later than 36 hours after observation services begin. Also included are beneficiaries who:

- do not have Part B coverage;
- are subsequently admitted as an inpatient prior to the required deliv-

ery of the MOON; and/or

- designate Medicare as either the primary or secondary payer.

What Is the Observation Period?

During the observation period, documentation must clearly identify the time of placement into observation and the time the patient is either discharged, transferred, or admitted to the hospital.

Once the patient reaches the 24-hour observation mark, the MOON applies. As a precaution, patients may receive the MOON upon placement in observation, as it must be delivered *no later than* 36 hours after observation services begin.

Imagine a busy ED placing the patient in observation status and watching the clock for the magic 24th through 36th hours to assure that the MOON has been reviewed and signed by the patient and hospital representative. This is not an easy task in a busy ED.

As it must be delivered within 36 hours after observation, providing the MOON at the time of transfer into observation status removes the possibility of delay should the observation period exceed 24 hours.

Observation start time is defined as the clock time observation services are initiated as documented in the

patient's medical record following the physician's order.

Important Considerations

CMS has provided the appropriate MOON forms for use by institutions and allows some modification within certain limits.

The most important considerations are the requirements for the type of information that must be provided on the form:

- patient name;
 - patient number;
 - reason the patient is an outpatient.
- In addition, the following must be assured:
- signature of the patient or representative indicating an understanding of the contents;
 - presence of a staff person and, we recommend, signature of that individual, attesting that the patient and/or representative understands the document;
 - availability of institution staff to address any questions or concerns.

How Does One Define Notification?

Both the standardized written MOON form and oral notification must be provided and documented in each patient's medical record.

In instances in which the patient refuses or is unable to sign the MOON and there is no patient representative to sign on the patient's behalf, the notice must be signed by the staff member of the hospital or CAH who presents the written notification.

This attestation must include the staff member's signature, name, and

title as well as the date and time the notification was presented to the patient. The date and time of the staff member's signature/attestation becomes the official date of notice of receipt.

In some cases, patients will require a signature of their "authorized representative" who may make healthcare decisions on the patient's behalf. In cases in which a beneficiary is temporarily incapacitated, a family member or close friend who has been determined by the institution to be the representative of the patient, although not legally named as a representative, may be a representative for purposes of receiving the MOON.

Note that this authorization may be obtained in person or over the phone with a hospital/CAH representative documenting the required information.

Documenting Additional Information

The MOON also provides an opportunity for the institution to document additional information about

the patient. This might include:

- contact information for specific hospital departments or staff members;
- additional content relating to the notice of observation services that may be required by the state;
- any Part A cost-sharing responsibilities of the patient following admission as an inpatient before the 36 hours following initiation of observation services has occurred;
- date and time of inpatient admission, if the patient is admitted as an inpatient prior to delivery of the MOON;
- Medicare Accountable Care Organization information;
- hospital waivers of beneficiary responsibility for cost of self-administered drugs; and/or
- unique information pertaining to certain patient circumstances.

All information associated with the MOON must be maintained in the patient's medical record.

To obtain a copy of the official MOON form, please visit: <http://go.cms.gov/2kMyoxl>. To obtain instructions, please visit: <http://go.cms.gov/2kMv6Ka>. ■

CME/CE OBJECTIVES

After completing this activity, participants will be able to:

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

COMING IN FUTURE MONTHS

- Data-driven interventions to reduce violence
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- Thoughts from the ED on the future of ACA
- Next steps in the battle against boarding in the ED



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CME/CE QUESTIONS

- 1. According to Paul Coogan, MD, of the Aurora Sinai Medical Center in Milwaukee, the virtual-provider-in-triage approach is really designed for:**
 - a. triage levels one and two.
 - b. triage levels three, four, and five.
 - c. all patients who present to the ED.
 - d. None of the above
- 2. Also according to Coogan, a critical step to making the virtual-provider-in-triage approach a success is:**
 - a. comprehensive patient education about the process.
 - b. a lengthy orientation period for providers.
 - c. redeploying a technician from the back of the ED to the triage area.
 - d. a point-of-care testing program.
- 3. In a retrospective medical record review involving four hospitals in New York, investigators from the CDC found that ____ of patients developed infections that led to sepsis outside the hospital.**
 - a. 24.9%
 - b. 43.6%
 - c. 63.2%
 - d. 79.4%
- 4. In addition to avoiding opiates, experts advise emergency providers to stay clear of which of the following in the treatment of migraine?**
 - a. prescribing Fioricet
 - b. IV medications
 - c. long-term solutions
 - d. drug combinations

CDC, TJC Urge Providers To Up Their Game on Antibiotic Stewardship

Intermountain Healthcare helps smaller hospitals improve care, meet new standards through the use of telemedicine, added support

Realizing, with some alarm, that U.S. hospitals continue overusing antibiotics, threatening their effectiveness over the long term, health policy organizations and accrediting agencies are pushing initiatives aimed at educating providers on the risks of overuse and encouraging them to adjust their practices to ensure that antibiotics are used only when appropriate. TJC has implemented a new standard of antibiotic stewardship for accredited hospitals, and the CDC continues to push for the implementation of core elements it maintains are essential to effective antibiotic stewardship.

Speaking about this issue during a teleconference on Jan. 11, **Arjun Srinivasan**, MD, the associate director for healthcare-associated infection prevention programs in the Division of Healthcare Quality Promotion at the CDC, underscored the point that antibiotics are fundamentally different from all other medications.

“Antibiotics are a class of drugs that lose their effectiveness over time, even if we use them perfectly,” he said. “They are a shared resource, and the use of antibiotics in one person can impact how well they might work in someone else.”

Srinivasan noted that although almost every specialty uses antibiotics on a regular basis, exposure to these drugs comes with risks, regardless of whether the antibiotics have been used appropriately.

“The side effects from antibiotics are many and they are

significant,” he said. “We know that being exposed to an antibiotic confers a selective pressure for resistance. It also creates a risk for fungal blood stream infections.”

Patients who receive antibiotics also are at significant increased risk for *Clostridium difficile* infection for up to three months post exposure, and antibiotics are a frequent cause of adverse drug reactions in both inpatient and outpatient settings, Srinivasan added. In fact, he noted that adverse reactions to antibiotics result in about 140,000 visits to the ED every year.

“All of these adverse events and side effects would be things that we would accept as the price of doing business in cases where the antibiotic exposure is necessary. If the patient needs an antibiotic, then we just have to accept the fact that there are going to be potential consequences, and we need to monitor those,” he said. “The problem, of course, is that in many instances the exposure to an antibiotic is completely unnecessary, and in those circumstances, when a patient gets an antibiotic when they don’t need one, we are exposing them to all of the potential downsides of antibiotics with no potential benefit.”

Such instances are not rare. Srinivasan noted that multiple studies suggest that roughly one-third of the antibiotics prescribed in both inpatient and outpatient settings are unnecessary. Specifically, he cited three of the most common ways that antibiotics tend to be over-prescribed: The duration of therapy is longer than

HEALTH POLICY ORGANIZATIONS AND ACCREDITING AGENCIES ARE PUSHING INITIATIVES AIMED AT EDUCATING PROVIDERS ON THE RISKS OF ANTIBIOTIC OVERUSE.

recommended; antibiotics are prescribed to treat non-infections or non-bacterial syndromes; and antibiotics are used to treat a positive culture result when the patient does not have an infection.

Srinivasan emphasized that providers must understand that improved antibiotic stewardship offers immediate benefits to patients.

“We are not trying to improve antibiotic use for some down-the-road, theoretical, societal benefit,” he said. “We are doing this because it has a direct and positive impact on the patients in the beds in front of [providers]. Improving antibiotic use has direct benefits to individual patients.”

For example, Srinivasan said that published data demonstrate that improved antibiotic stewardship can lead to higher infection cure rates, lower rates of side effects (such as *Clostridium difficile*), lower rates of developing subsequent resistant infections in a difficult-to-treat patient during a single hospitalization, and

possibly even reduced mortality.

However, there is ample room for improvement in this area. Srinivasan pointed to one recent study showing just how frequently antibiotics are prescribed in the inpatient setting.¹

“What we found in this study is that just over half of all patients who were admitted to a U.S. hospital get at least one dose of an antibiotic during their stay,” he said. “The overall use was about 755 days of therapy per thousand patient days, so 75% of all days in the hospital involved an antibiotic. And that rate didn’t change between 2006 and 2012.”

Further, Srinivasan noted that the data didn’t vary by bed size. Antibiotic use was just as common in small hospitals as it was in large hospitals. In fact, he noted that non-teaching hospitals demonstrated higher rates of antibiotic use than teaching hospitals. What’s more, while the use of some classes of antibiotics decreased between 2006 and 2012, usage of other classes increased during this period — significantly, in some cases.

“What was both interesting and concerning about these increases was that they tended to come in many of the most broad spectrum classes,” Srinivasan said.

For example, he noted that vancomycin use was up by 32%, beta-lactam/inhibitor use was up by 26%, third- and fourth-generation cephalosporins use increased by 12%, and carbapenem use rose by 37% during the study period.

Implement Core Elements

To make progress on appropriate antibiotic use, the CDC has outlined seven core elements that the agency believes are critical pieces to an effective antibiotic stewardship program. These include:

- top-level commitment, including resources and support from administrators;
- accountability with a single leader who is responsible for outcomes;
- drug expertise with a single pharmacy leader;
- specific actions or improvement interventions;
- tracking antibiotic use and resistance patterns;
- ongoing reporting on antibiotic use and resistance to providers, nurses, and relevant staff; and
- education for clinicians on antibiotic use and resistance. (<http://bit.ly/2jDrLvZ>)

Srinivasan noted that the CDC core elements are in close alignment with TJC’s new antibiotic stewardship standard, effective as of Jan. 1, 2017, requiring accredited hospitals to create antibiotic stewardship programs, although TJC’s standard specifically requires hospitals to establish an antimicrobial stewardship multidisciplinary team

EXECUTIVE SUMMARY

With data showing continued increases in the use of antibiotics, even in cases in which such prescribing is unnecessary and ill-advised, both the CDC and TJC are pushing initiatives aimed at improving antibiotic stewardship. The initiatives stress the importance of patient and provider education, the tracking of antibiotic use and resistance, and the need for top-level support. Although smaller hospitals face challenges in meeting the new standards, some health systems are getting around the problem through the use of telemedicine.

- The CDC is pushing hospitals to implement seven core elements that the agency maintains are critical to an effective antibiotic stewardship program.
- TJC has established a new standard requiring all hospitals to create antibiotic stewardship programs that are steered by a multidisciplinary team.
- Intermountain Healthcare in Salt Lake City is helping smaller hospitals in its network meet these new TJC and CDC directives by supplying support and expertise via telemedicine.
- The telehealth program also enables both emergency and inpatient providers to access infectious disease expertise when patients present with issues of concern.

that includes an infectious disease physician, infection preventionist, pharmacist, and a practitioner. TJC's standard also calls on hospitals to educate patients and families, when needed, on the appropriate use of antibiotics. (<http://bit.ly/2ksi1sB>)

Consider Challenges

Although meeting the requirements spelled out in both the CDC's core elements and TJC's new standard on antimicrobial stewardship may not present undue challenges for large, academic medical centers that have the requisite resources in house, it is a much taller order for smaller facilities, many of which are not equipped with the resources or expertise to properly execute stewardship programs.

To get around this problem, Salt Lake City-based Intermountain Healthcare is leveraging its existing telehealth infrastructure to provide the expertise and support that these smaller hospitals need to both meet the antimicrobial stewardship goals and to improve patient care. At press time, the Infectious Diseases Telehealth Program had been deployed at three of the health system's community hospitals, with plans to bring the remaining small hospitals in the network on board by April, explained **Todd Vento**, MD, MPH, FACP, FIDSA, medical director of Infectious Diseases Telehealth Services at Intermountain Healthcare.

The telehealth program provides two key components: access to full consultations with an infectious disease specialist via a telehealth platform so that the remote provider can view and interact with patients, and a telephone-based hotline that is available on a 24/7 basis to providers seeking advice from infectious disease

specialists on any matter regarding diagnostics, therapeutics, or antibiotic decision-making for an infectious disease.

Fully Leverage Expertise

Vento noted that the bulk of the calls that the program receives involve bread-and-butter infectious diseases such as complicated pneumonia or prosthetic joint infections.

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"One of the most important conditions we get called on is to help with the management of patients with bacteremia," he explained. "A lot of times, especially with bacteremia, there are other things that the referring providers maybe aren't aware of, and while they present the case to us, we guide them on other diagnostic studies that may be required to make sure [the patient] doesn't have down-range effects."

On occasion, participants in the program hear about a patient with an unusual diagnosis. For example, Vento noted that he recently was consulted on a case involving a patient who presented with a fever to the ED at one of Intermountain Health-

care's community hospitals, and the provider called into the program for guidance.

"The provider just wanted to make sure he wasn't missing anything in terms of travel and where the patient had been," Vento said. "We ended up making some recommendations, and the patient was diagnosed with malaria even though it was 10 degrees outside and he was on a ski vacation. Because of his prior travel, he had exposure and infection with malaria."

The infectious disease experts first consulted with the ED providers by phone, and later worked with the hospitalists to guide them through all the diagnostic recommendations, and alerted them to potential complications that could develop, Vento noted.

"Because of the telehealth support, we were able to manage that patient without having him transferred to a larger facility, which would have been a big inconvenience for the patient," he said. "We treated the case of malaria successfully basically by putting this subject matter expertise far forward by using the telehealth technology."

Educate Patients, Staff

On those occasions when a remote infectious disease provider interacts with a patient, the provider uses the opportunity to explain the benefits and risks associated with antibiotics.

"Any time we talk about any antimicrobial therapy, whether or not we are using it, we get to educate the patient, and that is another moment in time in the care of the patient, particularly a hospitalized patient, when they can get that additional advice," Vento observed. "We counsel every patient who is on antimicrobial therapy on indications for the therapy

as well as contraindications, the risks and benefits, and also the adverse effects.”

Vento noted that it is not unusual for this education to extend to the nurses and other staff caring for the patient. “This is an added layer of education specifically targeting antimicrobial use,” he said.

Of course, putting resources in place doesn’t mean that providers will use them. Consequently, Vento offered that telehealth program representatives engage in extensive outreach with participating hospitals.

“We go to the sites, meet the personnel at each of the facilities, and then describe the program to them so that they realize it is an added service that they can take advantage of,” Vento related. “We meet with the providers who will be using the services so that they are fully aware of how to arrange consults.”

Establish Multidisciplinary Team

As part of the telehealth program, Intermountain Healthcare also offers a third component, which includes formal stewardship support services to ensure that the participating hospitals are in compliance with TJC requirements.

“We identify at these facilities a physician champion, a pharmacist champion, a quality committee or a quality representative, as well as an infection preventionist from the hospital,” Vento observed. “We have also asked them to have nursing involved as well.”

The telehealth program complements the facility’s onsite team with a remote infectious disease physician and an infectious disease pharmacist from Intermountain Healthcare’s central facility.

“We then show them their antibiogram data, their antibiotic use data, and then really empower them with our support and expertise,” Vento said. “We let them run as an organization so that they essentially identify their own problem areas by us helping them review the data and also giving them the infectious disease consultation.”

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For example, a hospital might see from the data that it has an opportunity to improve its broad-spectrum antibiotic use in the ED.

“The [on-site] antimicrobial stewardship program committee will present [a plan] to their medical staff, and then they will implement the

changes,” Vento said. “They will put forth new policies, and then monitor and track the results. We will stay as part of their committee from afar, taking part in their quarterly meetings or however often they want to meet.”

Certainly, the CDC and TJC standards provide an incentive to establish robust antimicrobial stewardship programs, but there are other, perhaps more important, incentives as well, Vento observed.

“These hospitals will be making improvements in individual and population-based care,” he said. “They will cut down on broad-spectrum antibiotic use and they will cut down on overall antibiotic use, and that is a win/win.” ■

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