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INSIDE

Pushing the Envelope on STEMI Response

Investigators maintain that every minute of treatment delay leads to irreversible heart damage in patients suffering STEMI

Can EDs, cardiologists, and emergency medical service (EMS) providers do more to accelerate heart-saving care to patients with ST-segment elevation myocardial infarctions (STEMI)? An important new project, spearheaded by Duke Health and the American Heart Association (AHA), suggests the answer is yes. But findings from this work also reveal that such improvement requires a more regionalized approach to STEMI care, better coordination between emergency medicine and EMS, and a focus on more rigorous outcome indicators — a tall order in a healthcare system that is highly fragmented and influenced by competitive pressures. (*See also: "Time to Move the Goal Posts on STEMI Care?" p. 124.*)

The new findings cover an 18-month period of outcomes from the Mission: Lifeline STEMI Systems Accelerator. The project included 484 hospitals, 1,253 EMS agencies, and nearly 24,000 patients in 16 regions across the United States.[1] The goal was to increase the number of STEMI patients who receive percutaneous coronary intervention (PCI) within the time parameters recommended by prescribed guidelines: within 90 minutes of first medical contact with emergency responders if the patient is taken to a hospital that is capable of fully handling the PCI, or within 120 minutes if the patient must be transferred to a second hospital for PCI.

> CURRENTLY, ROUGHLY 50% OF STEMI PATIENTS DO NOT RECEIVE PCI WITHIN THE RECOMMENDED TIME WINDOW.

Currently, roughly 50% of STEMI patients do not receive PCI within the recommended time window. However, over the course of this project, that percentage improved among participating organizations. For patients who were brought by EMS to hospitals capable

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EDITORIAL EMAIL ADDRESS:
Jonathan.Springston@AHCMedia.com

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of performing PCI, the proportion receiving this intervention within 90 minutes increased from 50% to 55%. Among patients who needed to be transferred to a second hospital, the proportion grew from 44% receiving PCI within the recommended 120-minute window to 48% meeting this standard.

While not all observers are impressed with the modest improvements achieved in this large-scale project, the authors contend that additional benefits are possible as the coordination strategies leveraged at the demonstration sites are optimized in the coming years. Further, they note that the project provides a roadmap for other health systems to follow in improving care for STEMI patients as well as other time-sensitive cardiovascular conditions. Indeed, the Mission: Lifeline program now is setting its sights on accelerating brain-saving care to stroke patients. (*See also: "An Alternative View on Regionalized STEMI Care," p. 125.*)

Target Delays

Christopher Granger, MD, a professor of medicine at Duke University School of Medicine and chairman of the AHA's Mission: Lifeline program to improve heart attack care nationally, states that a key roadblock for investigators in this area is the highly competitive nature of America's healthcare system.

"Individual hospitals do a really good job with healthcare, but they are not really working together because part of their job in terms of administration is to be a successful business, and that means being better than the competition in terms of margin-generating patient care," he explains. "It is not really in their best interests to do things that will help their competition, especially with something like cardiovascular care, which is fairly lucrative."

Another challenge is the fragmentation between different healthcare services.

"In some states, like Maryland, there is one EMS system and it is pretty organized. In other states, like North Carolina and Georgia, EMS is not really part of the medical system. It is funded through state and local government in a fragmented way, and it is part of the highway transportation system," he says. "In North Carolina, we have 640 different EMS agencies."

Granger notes that this competition and fragmentation can slow down care when there are not common approaches or protocols to follow regarding what a paramedic, emergency physician, and an interventional cardiologist will do when someone is having a heart attack.

"The paramedic goes to the scene and diagnoses that the patient is having a heart attack, and then he or she has to decide where to go. Maybe there are two PCI-capable hospitals that are equidistant or the paramedic doesn't know if one hospital is ready or not," he says. "In the past, the paramedics have ended up having to call around or even to drive to the nearest ED before anything is really done, and then that ED might call in the catheterization lab, and that results in an additional delay. Pretty soon you've got these long delays, and every minute of delay after a heart attack begins there is irreversible injury to the heart muscle and greater likelihood of death and heart failure."

Given that outcomes in the case of STEMI are highly dependent on providing rapid care, investigators

have seized on a big opportunity to improve care by doing a better job of coordinating the various care elements involved, thereby improving efficiency and time to treatment.

"Most of our focus is starting when the paramedic arrives. That is when the clock starts. We call that first medical contact (FMC), or when the first medical provider arrives at the side of the patient," Granger explains. "Then what we want the paramedic to do is within 10 minutes, and ideally within five minutes, to get an ECG, and that will diagnose if there is a STEMI heart attack."

Under a proper regionalized system of care, there should be an effective training system that can assure the competency of paramedics to interpret 12-lead ECGs, Granger notes. However, he observes that even computers can diagnose STEMIs accurately about 90% of the time. Alternatively, some paramedics transmit ECGs to the closest appropriate ED or cardiologist.

"That provides a bit of an extra step, but if it is done in an efficient way, it can reduce the false positives," he explains. "We try to keep the 'seen' time — the time that the paramedics are at the site of the patient before the ambulance rolls — to less than 15 minutes."

Once a STEMI has been diagnosed, paramedics are instructed to call the closest hospital that is capable of performing the primary PCI so that the catheterization lab can be activated, Granger explains, noting that while healthcare providers can't do anything about the distance between the patient and the hospital, they can take this step to insure that the patient receives PCI as quickly as possible.

"Then we try to minimize the time in the ED, and get the patient as quickly as possible to the cath lab," says Granger. "Sometimes the cath lab [personnel] have not yet arrived, so the patient has to wait until that happens. Other times, the cath lab [and personnel] may be available, and in some regions like New York City, for example, they have a fairly robust program of completely bypassing the ED if the cath lab is ready. Then the patient goes straight from the EMS stretcher to the cath lab."

EXECUTIVE SUMMARY

New findings from the Mission: Lifeline STEMI Systems Accelerator program suggest that a regionalized approach to ST-segment elevation myocardial infarctions (STEMI) can cut time-to-treatment for patients modestly, thereby improving the prospects for better outcomes. The approach encourages hospitals, emergency medical services (EMS), and cardiologists in a region to work together to optimize treatment and efficiency so that patients in need of percutaneous coronary intervention (PCI) receive this care more expeditiously.

- The research included 484 hospitals, 1,253 EMS agencies, and nearly 24,000 patients in 16 regions across the United States.
- The goal was to increase the number of STEMI patients who receive PCI within professionally prescribed time parameters.
- Overall, the percentage of STEMI patients receiving PCI in accordance with guidelines improved from 50% to 55% during the study period.
- Key to the Mission: Lifeline approach is a focus on starting the clock ticking on time-to-treatment at first medical contact (FMC) as opposed to the hospital door, but this requires coordination with EMS and other hospitals.
- Some observers question whether a push for regionalization is worth the effort, considering the modest results thus far.

Address Hospital Concerns

To chart improvements in treatment time, it is critical that health systems measure performance on STEMI care, beginning with FMC, Granger stresses. However, this requires cooperation and coordination across health systems and EMS service providers.

"I live in Durham, NC. We have three hospitals and three EMS systems, and unless we work together ... on improving heart attack care in Durham, and measure how we are doing across the whole region, we really don't know how we are doing and we can't move things forward," he explains. "We really have to look at it as a regional problem, and that is what we did in this project."

J. Lee Garvey, MD, the director of emergency cardiac care at Carolinas Medical Center in Charlotte, NC, and a co-chair of the Mission: Lifeline statewide program in North Carolina, agrees, noting that there are distinctive roles to play for EMS, emergency medicine, and cardiology.

"A lot of work is really depending on each of us in those different niches working cooperatively together, making sure we are each on the same page and we each have the same expectations in performance," he explains. "We consider the EMS role to be critical. We would like more patients with STEMIs to come

[to the ED] via EMS because we then in the ED can be the brokers of the information, apply some additional filters ... and then can activate the cath lab appropriately for the whole systems response."

Making sure that patients who are diagnosed with STEMI heart attacks in the field are taken to a hospital capable of performing PCI is not a hard-sell to EMS providers, Garvey observes.

"There is a common desire by EMS to provide patients with the best care they can. That is entirely a non-political, non-business decision, and they have been doing this forever," he explains.

However, hospitals that do not have PCI capability need to be reassured that their bottom line will not suffer. The issue certainly came up in Charlotte in the early stages of the Mission: Lifeline project, according to Garvey.

"The administrators of smaller hospitals were concerned that if their local populations were directed to go downtown for STEMIs, then these patients also might feel like they should also go downtown for chest pain not known to be a STEMI or abdominal pain," he says.

However, Garvey notes that such concerns have turned out to be unfounded.

"The response of the patients has been that they are much more confident in their local hospitals doing the best they can for them because they would really prefer to be closer to home when it is appropriate, and they would prefer to be downtown [at a receiving PCI-capable hospital] when that level of care is appropriate," he explains.

In fact, when the EMS agencies and hospitals work together to make the appropriate decision about where the patient will receive the right level of care, patients are more confident that their local hospital is looking out for them, Garvey observes. Such questions about bottom line impact are raised frequently when the Mission: Lifeline regional systems are being set up, he acknowledges.

"And it is a common response that patients express more confidence in their local hospital's care strategy because they only filter the most severely ill and injured patients to go directly to their receiving centers," he says.

Standardize EMS Protocols

Another aspect of the Mission: Lifeline model involves standardizing what hospitals require from EMS when a patient is diagnosed in the field with a STEMI.

Time to Move the Goal Posts on STEMI Care?

It is true that guidelines backed by the American College of Cardiology and the AHA establish that when caring for STEMI patients, the clock should start ticking upon the patient encounter with a paramedic or first medical contact (FMC). However, the Centers for Medicare & Medicaid Services (CMS) has not yet moved its goal posts on this measure, relying instead on door-to-balloon times, essentially starting the clock when patients first arrive at the hospital.

"Most hospitals now, at least 75% of the time, can get their door-to-balloon times within 90 minutes," **Christopher Granger**, MD, observes. "But most hospitals cannot get FMC-to-balloon times within 90 minutes, and that is what we are after."

Why hasn't CMS adopted the more aggressive indicator? Because it requires coordination between various elements of the healthcare system, and since CMS pays for individual elements, it is difficult for the agency to incentivize or penalize a region, Granger offers. "The other challenge is if people aren't measuring [FMC-to-balloon times], then CMS can't penalize them for an indicator that is not being measured."

However, given that most hospitals already meet the door-to-balloon time standard, Granger maintains that it is time to aim for the more aggressive indicator.

"We should be moving to where this is expected, where regions measure it, and where it is a shared responsibility," he says. "We are not there yet for CMS."

Nonetheless, the Mission: Lifeline program holds participating organizations to the tougher standard along with recognition criteria for high performers. Granger would like to see more hospitals and regions establish these higher expectations without regulatory pressure.

"The best things that we do are not because government tells us to do them; it is because we get together as healthcare providers and leaders and say that this is the best thing for our patients, and we convince hospital administrations and paramedics and interventional cardiologists to do this, not because they will get paid more or less, but because it is the right thing to do," he says. "Fundamentally, if we convince people that this is the case, they will do it." ■

"A lot of this regionalization is aimed at making sure the hospitals provide a singular type of information and share patient care in a well-defined manner with all the EMS agencies so that an EMS agency will have the same response, the same pattern of care, and the same pattern of communication no matter whether they are going to PCI center A, PCI center B, or PCI center C," Garvey notes. "That took a lot of coordination [in Charlotte], and that is a lot of the work that is ongoing with Mission: Lifeline and the Accelerator program."

To a large degree, the program focuses on taking advantage of prehospital and transport time, Garvey adds.

"The majority of the work that Mission: Lifeline is engaged in right now is ensuring that EMS agencies are doing the appropriate diagnostic work, and that they are communicating in an early and effective manner," he says. "Then the hard part is making sure that hospitals act on the information at the earliest opportunity."

Of course false-positives are a concern, Garvey notes.

"We are trying to figure out how we can do this so that the hospital's response is early and appropriate, and that there are only very few inappropriate activations or cases that later get canceled that could have been sorted out ahead of time," he explains.

Granger emphasizes the central role that emergency medicine plays in STEMI care and the Mission: Lifeline approach.

"Emergency medicine is at the center of this. Even though sometimes a patient might be able to bypass the ED, that is only with protocols in place and with the full support of emergency medicine," he

An Alternative View on Regionalized STEMI Care

Given the massive time, effort, and resources that went into the 18-month Mission: Lifeline research, **W. Frank Peacock**, IV, MD, is not so sure it is the right approach toward improving STEMI care. "They got a 5% average improvement in [time to] treatment. To me, that is a huge amount of effort for not much benefit," he says. "You have to wonder if we have to do something differently than this."

It should be noted that while the average improvement in the STEMI study was 5%, five of the 16 regions that participated improved by 12%, and the top performing region treated 76% of STEMI patients within guideline goals by the end of the project.

Nonetheless, Peacock argues that from a public health standpoint, it is symptom onset, not first medical contact, that should trigger STEMI care. However, the average STEMI patient typically arrives at the hospital two or three hours after their chest pain starts. "We are past the important window at this point," he says. "We have tried to do huge patient education efforts, but that number hasn't changed much."

Peacock also notes that while the concept of beginning to measure time-to-treatment for STEMI patients at first medical contact has been around for a long time, hospitals simply do not want to adopt this measure because they cannot control the prehospital period. "They don't control the ambulance. It is a separate company," he says. "If EMS takes the patient to the wrong hospital, they can't control that. And if a hospital takes too long to transfer a patient, the receiving hospital can't control that."

Peacock suggests a more cost-effective approach toward improving the care of STEMI patients would involve giving thrombolytic agents to appropriate patients who do not have quick access to catheterization labs. "If I have an MI [myocardial infarction] I want to be cathed, there is no question about it. But if I am back-packing in Montana and I have my MI, I am not going to get cathed [quickly]. It just isn't going to happen, so I would like to have a thrombolytic," he explains.

Patients who receive thrombolytic agents still need to be transferred to a hospital that can perform catheterization or percutaneous coronary intervention (PCI), but if they get reperfusion — or blood flow restored to the heart — from the thrombolytic agent, it is no longer an emergency, Peacock observes. "You can cath them in the morning," he says. "You don't need to go lights and sirens or get a helicopter. So the risks and benefits and costs and consequences change if you can get patients reperfused in some other fashion."

Peacock acknowledges that not all patients with STEMIs are appropriate candidates for thrombolytic drugs. The age of the patient, the location of the MI, and other factors have to be considered before thrombolytics are prescribed, but Peacock maintains that this approach likely would boost outcomes for more patients and at far less cost and effort than the push for regionalization exemplified in the Mission: Lifeline program.

"What we are trying to do is get everyone catheterized, but at some point we have to say, 'We have 1,253 EMS services, 484 hospitals, and thousands of doctors [involved in the Mission: Lifeline STEMI Systems Accelerator project] — and we are only making it 5% better,'" Peacock says. "We need to do something else in some patients." ■

explains. "Emergency medicine is critical [to] the coordination of more efficient care."

Involve a Neutral Third Party

Regionalizing STEMI care is one of the more difficult aspects of the Mission: Lifeline approach because it requires gathering all players and reassuring them this is not a scheme to increase hospital market share, Garvey notes.

"It may be necessary or important to get an influential outside group to help mediate the discussions — like the AHA or the state American College of Emergency Physicians chapter or the state American College of Cardiology chapter to help groups work cooperatively together rather than try to push this alone because most individuals are at least felt to be associated with and working with the interests of their home institution in mind," Garvey explains. "People may be more likely to buy into a neutral third party as the promoter of this kind of cooperative work."

While the point of such an initiative is to improve overall cardiovascular care in a region, this segment of care generally is very competitive, so the benefits to all the participating groups must be highlighted, Garvey suggests.

"We want to have all the groups' patients benefit," he says. "That is why we have engaged the AHA as the body that can assist regions to work together cooperatively."

Hospitals or providers interested in getting their own regions involved in improving STEMI care now have resources they can tap into for guidance on how to proceed.

"We have a manual of operations that goes through every element of what we have done across these regions," Granger observes. "It is publicly available for free on our website, so I would say take our manual, adapt it to your issues, and let us know if we can help." ■

> REGIONALIZING STEMI CARE IS ONE OF THE MORE DIFFICULT ASPECTS OF THE MISSION: LIFELINE APPROACH BECAUSE IT REQUIRES GATHERING ALL PLAYERS AND REASSURING THEM THIS IS NOT A SCHEME TO INCREASE HOSPITAL MARKET SHARE.

Editor's Note: For links to the Mission: Lifeline manual of operations and other resources available through the STEMI Systems Accelerator project, please visit http://bit.ly/2dU5Hij and http://bit.ly/2dycwp7.

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- **J. Lee Garvey**, MD, Director, Emergency Cardiac Care, Carolinas Medical Center, Charlotte, NC, and Co-chair, Mission: Lifeline in North Carolina. Email: lee.garvey@carolinashealthcare.org.
- **Christopher Granger**, MD, Professor of Medicine, Duke University School of Medicine, Durham, NC, and Chairman, American Heart Association Mission: Lifeline Program. Email: grang001@mc.duke.edu.
- **W. Frank Peacock**, IV, MD, FACEP, FACC, Professor of Emergency Medicine, Associate Chair and Research Director, Baylor College of Medicine, Houston. Email: frankpeacock@gmail.com.

Using Telemedicine to Address Crowding in the ED

Early telemedicine pioneers see ED applications evolving as consumers demand greater access and convenience

Many hospitals already are leveraging telemedicine to quickly connect patients with needed consults for things such as stroke and mental healthcare. However, there is growing interest in applying this same type of technology to the problem of crowding in the ED.

For instance, as part of a larger effort to incorporate digital health solutions throughout its healthcare system, New York-Presbyterian (NYP) is piloting the use of virtual visits for patients who present to the Lisa Perry Emergency Center at NYP's Weill Cornell Medical Center in New York. Administrators say it is a level of service patients have long been requesting.

"When patients go to the ED, one of their complaints and concerns has always been that they wait forever, which for some of the simple things shouldn't take that long," observes **Rahul Sharma**, MD, MBA, CPE, FACEP, the emergency physician-in-chief for the Division of Emergency Medicine, and an associate professor at Weill Cornell Medicine, and the medical director of strategic initiatives and the "Making Care Better Program" for NYP Weill Cornell Medical Center. "We just wanted to give our patients another option at the way they receive healthcare."

Ensure Safety, Compliance

Sharma acknowledges that the idea of providing virtual visits to patients who go to the trouble to travel to the ED for care did not seem like a winning idea to some of the staff initially. They assumed these patients would demand to see a provider in person. However, Sharma compares this new offering in emergency care to what already has happened in banking.

"Several years ago, banks were going up everywhere in New York City. On every single street corner there was a bank," Sharma notes. "When they built up all these banks, people would ask why would anyone go to an ATM when you have a bank and you can just go to the teller."

Now, people rarely go inside a bank just to get cash from the teller, observes Sharma, and he thinks patients are yearning for the same kind of convenience when they require medical care, although he stresses that this approach is suitable only for patients with lower acuity conditions — at least at this stage.

People with chest or abdominal pain, or people who require long workups or CT scans are not ideal for the virtual approach, Sharma explains. However, he notes that a significant chunk of patients who present to the ED have colds, small

EXECUTIVE SUMMARY

Some health systems are piloting telemedicine solutions in the ED to address crowding and decrease patient wait times. One new program, implemented at the Lisa Perry Emergency Center at New York Presbyterian (NYP) Weill Cornell Medical Center in New York, involves offering low-acuity patients the option of visiting an off-site physician via telemedicine hookup. Administrators note that the approach can get patients in and out of the ED within 30 minutes, and patients have thus far been highly satisfied with the approach. However, an earlier telemedicine program piloted at the University of San Diego Health System's (UCSD) Hillcrest Hospital in 2013 got bogged down due to administrative and insurance reimbursement hurdles, although the approach showed enough promise that there is interest in restarting the program.

- In the NYP program, patients are identified as appropriate candidates for the program at triage. They can opt to be seen remotely or through traditional means in the ED's fast-track section.
- Administrators note that patients with complex problems requiring extensive workups are not suitable for the telemedicine approach.
- The most challenging aspect of implementing a successful telemedicine program in the ED is getting the workflows right, according to administrators.
- An earlier ED-based telemedicine program piloted at UCSD ran into difficulties because the model required the involvement of two physicians, and some insurers did not want to pay for the telemedicine visits. However, patients were receptive.

wounds they need to get checked out, or other minor conditions that can be managed safely by a provider who is seeing them via telemedicine hookup, especially when other aspects of care are in place to ensure safety.

"While the patient is being seen virtually, they have already been seen by a physician assistant (PA) or a nurse practitioner (NP) in the triage area," Sharma explains. "They have had vital signs taken, they have already had a formal triage and all the other requirements have been done, so these people aren't just getting whisked into a room and whisked out. We still have to follow our requirements, and we want to make sure we are doing this in a safe way." (*See also: "Easing ED Crowding While Offering Convenience" at left.*)

Easing ED Crowding While Offering Convenience

Most ED-based telemedicine pilots focus on providing care to patients who present to the ED with low-acuity conditions. Administrators of these programs note that the goal is to reduce wait times and allow on-site providers to focus on patients with more complex and acute care needs. However, what if patients with less acute needs don't need to present to the ED or any other care setting? Several health systems believe that giving patients the ability to link with a provider from any location at any time has the potential not only to positively address the kinds of access problems that drive people to the ED, but also to deliver the type of convenience that healthcare consumers crave.

Miami-based Baptist Health South Florida is among a growing number of health systems that are unveiling telemedicine programs to deliver precisely this kind of care. With its new Care On Demand program, consumers are able to secure online access to board-certified physicians at any time of the day or night, with no need for an appointment.

David Mishkin, MD, serves as medical director of the Care On Demand program.

"This program is not for high-acuity conditions, but if [patients log in with an acute problem], I will handle them appropriately, make sure they go to an appropriate setting to be treated, and give them the best advice I can," he explains. "It really creates the ability to virtually triage these patients, and that is a great opportunity."

Mishkin still works as an emergency physician, but he also has spent time seeing patients virtually for the past two years.

"At the end of the day, what I always tell clinicians is that being a clinician is all about communication, so it is really no different whether you are at the patient's bedside or not," he says. "The [Care On Demand] application also enables the patient to submit questions to the provider, and the provider can actually receive those questions through the platform site, and there can be further correspondence."

Providers in the virtual program have access to a patient's clinical information, and they are able to make recommendations and prescribe medications as needed. Further, non-English-speaking patients can be directed to providers who speak their native language, Mishkin observes.

The program is new, so it is not yet clear what, if any, effect it will have on ED volume or any other aspects of healthcare delivery. However, Mishkin believes the approach will expand access to quality care.

"There is a lot of opportunity to educate patients," he says. "The visit is uninterrupted and patients appreciate it." ■

Target Wait Times

While the process is still quite new, initial results are promising.

"We initially offered the service for four hours a day. We then expanded it to six hours, and now we have expanded it to eight hours a day Monday through Friday," Sharma explains. "We plan to expand this to 16 hours a day."

On average, over a period of four to six hours, three or four patients are seen via telemedicine, and that should double when the service expands to 16 hours, Sharma notes.

"These are patients who would otherwise spend a couple of hours in the ED, and they are in and out within half an hour, which is just unheard of," according to Sharma, and he notes there are benefits for emergency providers as well.

"What it does is allow our [on-site] physicians and providers to focus on other patients," Sharma says. "What we are essentially doing is decanting the ED [of] these simple, lower-acuity patients so [providers] can spend more time with, and get other patients out, sooner."

This is becoming more important, Sharma says, because despite some predictions that passage of the Affordable Care Act would reduce ED volume, the opposite has occurred.

"If you look at the numbers nationally, the number of visits to the ED actually has gone up," he says. "More patients are coming to EDs, making it more challenging for pro-

viders, so if we can offer services that take a chunk of these patients away from our [on-site] providers and have someone else take care of them, that results in improved overall operational efficiency for our ED."

Educate Staff

Interacting with patients is the easy part of offering care via telemedicine in the ED, Sharma notes. Integrating the offering into the workflow of the ED presents more challenges.

"As with any initiative, we had to make sure we had buy-in from our nurses and staff members as well as our physicians because there is no point of doing something unless you have buy-in from your staff," he says.

Also critical is getting everyone educated and comfortable with the new process.

"From the time a patient comes in, if your front-end intake process, your triage process, is not well-designed and it is not robust, then this won't be a success," Sharma explains. "Everyone from patient services to the registrar to the greeter nurse and the [PA] or [NP] who is examining the patient has to be on the same page and well informed."

Sharma notes that in NYP's program, the PAs and NPs in the triage area are equipped with scripting on how to introduce the program, which is voluntary, to appropriate patients.

"They have to explain that we are trying a new program where the patient can be seen by one of our same doctors, but by telehealth monitor in a private room with convenient chairs," he says. "These are board-certified, Weill Cornell faculty attending physicians. They are sitting in a room that is essentially an old office that is equipped with monitors. It is not in the ED."

Patients also have the option of visiting the "fast track" area of the ED in which they likely will wait between two to three hours to see a provider, Sharma explains.

> A CRITICAL ELEMENT TO SUCCESSFULLY OFFERING VIRTUAL VISITS IN THE ED IS MAKING SURE FACILITIES PROVIDE THE SAME HIGH LEVEL OF CARE TO A PATIENT REGARDLESS OF WHETHER THAT PATIENT RECEIVES IN-PERSON TREATMENT OR VIRTUAL TELEHEALTH SERVICES.

"If you tell patients that, they will say, 'Why not try the new program,'" he says. "We were actually a little surprised at how many patients agreed to this program. I do want to emphasize, though, that this is not for all patients. This is for patients with minor issues — not for complicated workups where physicians really need to physically touch the patient."

Sharma adds that a critical element to successfully offering virtual visits in the ED is making sure facilities provide the same high level of care to a patient regardless of whether that patient receives in-person treatment or virtual telehealth services.

"You have to follow all the rules and regulations to make sure that you do this in a safe manner," he says. "That's why we make sure that all these patients have gone through triage, have gotten vital signs taken, and are appropriate candidates. What we don't want to do is open this up for all patients."

Payment for virtual visits is just the same as if the patients were treated in person. There is no additional charge for telehealth, Sharma notes, and thus far, patients seem very pleased with the approach.

"We have had patients from the ages of 21 to 91, and we called back many of them to see how they liked the experience," he says. "I would say most of them loved the experience and wouldn't want it any other way."

Buoyed by these early results, NYP plans to expand the telehealth option to a second hospital soon, and to closely monitor the effect on ED throughput as well as the overall patient experience.

"If this all goes well, we could see this expanding to other NYP sites as well," Sharma adds.

Address Hurdles Early On

While NYP is one of the first health systems to pilot virtual visits in the ED, there have been earlier efforts. For instance, back in 2013, the

University of California San Diego Health System launched a pilot to determine if telemedicine could help ease crowding by leveraging on-call physicians remotely when the ED gets busy. Hillcrest Medical Center, a level I trauma facility that was treating about 60,000 patients a year in the ED at the time, implemented the approach.

The pilot consisted of an on-site telemedicine module that included a video screen, a camera that could be controlled by the remote physician, and tools to enable the physician to evaluate a patient during the telemedicine encounter. A dedicated, on-site nurse would handle the peripherals — placing a stethoscope where instructed by the remote physician, for example.

The most critically ill patients were not treated remotely, but there were no set criteria limiting what types of patients could be seen via telemedicine, although the approach was designed primarily for patients who were deemed safe at triage to be sitting in the waiting room while the ED was full. During the pilot, investigators noted that while most of the patients treated via telemedicine were on the lower acuity side, some patients required hospital admission.

Investigators had high hopes for the approach. The thinking was that eventually one off-site physician potentially could examine patients from several different EDs, improving efficiency and throughput at multiple sites in the health system. However, the approach never got beyond the pilot phase. **Benjamin Guss**, RN, the nurse champion of the telemedicine project, dubbed the Emergency Department Telemedicine Initiative to Rapidly Accommodate in Times of Emergency (EDTITRATE), explains that part of the problem was that the model required the involvement of both a remote physician and an on-site physician.[1]

"A telemedicine physician would be seeing the patient primarily, but then at the end of the visit the telemedicine doc would have to discuss the case with an on-site doc, and then that emergency physician would basically give the blessing to whatever the diagnosis was or the discharge or admission [decision], so it [required] taking two physicians to see one patient, which really bogged down the whole system," Guss explains. "It took the [on-site] ED physician away from seeing other patients, and it ended up just taking a lot longer to get through one patient."

The involvement of the on-site physician was necessary because, at the time, some insurance companies required this step for reimbursement, and some clinician leaders at the hospital wanted the on-site physician involved out of liability concerns, Guss explains.

Despite these administrative hurdles, patients were receptive to receiving care via telemedicine.

"It went really well. We saw about 85 patients, and there were no bad outcomes with any of them," Guss recalls. "Some patients would even come back and ask for [a telemedicine visit] again when they presented to the ED. Unfortunately, though, we weren't doing it every day; it was only used when the ED was busy."

The pilot lasted for about six months, never moving beyond the pilot stage, but Guss notes there is still interest in restarting a telemedicine approach in the emergency setting if the insurance and liability concerns can be addressed.

"I really enjoyed doing it and think it can be a big success and work well in the ED," he observes. "We are just waiting for a good time to start it up again."

Guss's advice to emergency medicine colleagues interested in developing a telemedicine approach

CME/CE INSTRUCTIONS

To earn credit for this activity, please follow these instructions:

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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.

is to have a clear plan in place, get everyone involved to agree to the plan, and make sure that insurance companies are on board with the approach as well.

Sharma from NYP echoes these sentiments, noting that getting the workflows right is the biggest challenge. He also notes that providers and staff have to understand fully how the process will work before launch.

"While it is a new service, some people may not be comfortable doing this, and some patients may not want to do this," he says. ■

REFERENCE

1. Toila V, Castillo E, Guss D. EDTITRATE (Emergency Department Telemedicine Initiative to Rapidly Accommodate in Times of Emergency). *J Telemed Telecare* 2016; doi: 10.1177/1357633X16648535.

SOURCES

- **Benjamin Guss**, RN, Nurse Champion, Emergency Department Telemedicine Initiative to Rapidly Accommodate in Times of Emergency, University of California San Diego Health System, San Diego. Email: bguss@ucsd.edu.
- **David Mishkin**, MD, Emergency Physician and Medical Director, Care On Demand, Baptist Health South Florida, Miami. Phone: (786) 596-6284.
- **Rahul Sharma**, MD, MBA, CPE, FACEP, Emergency Physician-in-Chief, Division of Emergency Medicine and Associate Professor, Weill Cornell Medicine, and Medical Director of Strategic Initiatives and the Making Care Better Program, New York Presbyterian Weill Cornell Medical Center, New York. Email: ras2022@med.cornell.edu.

CME/CE QUESTIONS

1. **The goal of the Mission: Lifeline STEMI Accelerator project is to increase the number of STEMI patients who receive percutaneous coronary intervention (PCI) within the time parameters recommended by guidelines: within _____ minutes of first medical contact with emergency responders if patients are taken to a hospital that is capable of fully handling the PCI, or within ____ minutes if the patients must be transferred to a second hospital for PCI.**

   a. 20 minutes, 40 minutes
   b. 30 minutes, 50 minutes
   c. 50 minutes, 70 minutes
   d. 90 minutes, 120 minutes

2. **Christopher Granger, MD, a professor of medicine at Duke University School of Medicine and chairman of the AHA's Mission: Lifeline program to improve heart attack care nationally, states that a key roadblock for investigators in this area is:**

   a. lack of data.
   b. the highly competitive nature of America's healthcare system.
   c. financial constraints.
   d. provider inertia.

3. **Speaking about setting up a telemedicine program in the ED, Rahul Sharma, MD, MBA, CPE, FACEP, the emergency physician-in-chief for the Division of Emergency Medicine and an associate professor at Weill Cornell Medicine, and the medical director of strategic initiatives and the "Making Care Better Program" for NYP Weill Cornell Medical Center, says the biggest challenge is:**

   a. getting patients to agree to try telemedicine.
   b. getting the workflows right.
   c. getting physicians and staff on board.
   d. addressing the technical aspects.

4. **Benjamin Guss, RN, the nurse champion of a 2013 telemedicine pilot at the University of California San Diego, explains that one of the reasons why the pilot ended after about six months was because:**

   a. the model required the involvement of both a remote physician and an on-site physician.
   b. patients preferred an in-person physician when presenting to the ED for care.
   c. staff physicians did not buy into the approach.
   d. the required technology was too expensive.

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