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MAY 2015

Vol. 27, No. 5; p. 49-60

## Early data suggest new protocol to risk-stratify chest pain patients, potentially preserving resources without compromising safety

*Serial troponin tests improve sensitivity of a risk-score system developed in Europe*

**E**mergency providers are accustomed to seeing patients with chest pain. In fact, it is the second most common complaint in the ED. However, while more than half of these patients are either admitted or

### EXECUTIVE SUMMARY

Early data from the study of a new protocol suggest there may be a more efficient way to risk-stratify patients presenting to the ED with chest pain so that lower-risk patients can be safely discharged rather face longer hospital stays and expensive tests. The approach, dubbed the HEART Pathway, involves using the HEART score, a clinical decision tool developed in the Netherlands, along with slight modifications including a second blood test for troponin levels.

- Experts say that the United States spends \$10 to \$13 billion per year for workups on chest pain patients when fewer than 10% are actually having an acute coronary syndrome.
- In a single-center randomized controlled trial, investigators found that when compared to usual care, use of the HEART Pathway resulted in 12% fewer cardiac tests, shorter lengths-of-stay, and 21% more early discharges. No patients in either group experienced a major cardiac complication within 30 days of their ED visit.
- Larger studies of the HEART Pathway approach are being implemented with more robust findings expected within a year.

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**ED Management®**

ISSN 1044-9167, is published monthly by AHC Media, LLC  
One Atlanta Plaza  
950 East Paces Ferry Road NE, Suite 2850  
Atlanta, GA 30326.  
Periodicals Postage Paid at Atlanta, GA 30304 and at additional mailing offices.

**POSTMASTER:** Send address changes to:  
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P.O. Box 550669  
Atlanta, GA 30355.

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Online only: 1 year (Single user) with free AMA PRA Category 1 Credits™: \$469  
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GST Registration Number: R128870672.

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placed in an observation unit for rounds of expensive tests, a cardiac cause is ruled out most of the time.

“It has been a frustration for most of us,” notes **Simon Mahler**, MD, MS, FACEP, an associate professor in the Department of Emergency Medicine at Wake Forest University School of Medicine in Winston-Salem, NC. “We do all of these workups. We spend somewhere between \$10 billion to \$13 billion per year on these patients ... and less than 10% are actually having an acute coronary syndrome when they come to the ED.”

As Mahler further points out, though, even with all of this testing, there is evidence that providers still miss some patients who are having acute myocardial infarctions (MI). “We have had issues on both sides of the spectrum: over-triaging patients to testing and missing patients and sending them home when they should have been tested.”

While this has been a vexing problem facing emergency providers for years, there is growing evidence that accuracy on these matters can, in fact, be improved. And the latest indication of this comes from a new study, led by Mahler, showing that there is good potential in a protocol called the HEART Pathway to accurately identify those lower-risk patients who can safely be sent home without the additional testing that typically takes place now.

## Early data show promise

The HEART Pathway adds a couple of modifications to the HEART score system, a widely used clinical decision tool that was developed and validated in the

Netherlands. The HEART score takes into account five components, including the patient's history, electrocardiogram reading, risk factors, age, and troponin levels, to determine an individual's risk of having a serious cardiac issue. However, studies have shown that the HEART score alone isn't quite sensitive enough to get the miss rate down to less than 1%, the minimum threshold deemed acceptable in the United States, observes Mahler.

To improve the sensitivity of the HEART score, investigators added a second blood test to measure troponin levels three hours after the first blood test, and they also added the modification that a patient cannot be considered low risk with any positive troponin result, explains Mahler.

Early testing of this HEART Pathway protocol revealed that the tool had 100% sensitivity in a cohort of patients that were admitted to an observation unit. “We were able to send home a larger number of patients from the observation unit cohort,” notes Mahler. “So the next thing we did was look at the HEART Pathway within a cohort of about 1,000 patients from 18 different EDs in the United States.”

The data came from a biomarker study, so researchers had the troponin levels and all the clinical assessment needed to calculate HEART scores on the patients. “We found that [the HEART Pathway] was 99% sensitive, and we could have discharged more than 20% of those patients,” explains Mahler. “We compared it to just clinician gestalt and we compared it to one of the other chest pain rules, and the HEART Pathway rule seemed to perform better.”

With all of this research

completed, along with multi-center European trials showing that the HEART score alone produced a miss rate of about 1.7% over a six-week period, Mahler and colleagues decided they had enough evidence to start looking at the HEART Pathway prospectively in a randomized, controlled trial.

With funding from the American Heart Association (AHA), Mahler and colleagues set out to compare risk stratification using the HEART Pathway with usual care, according to AHA guidelines. The single-center study included 282 chest pain patients who presented to the ED, with half randomized to the HEART Pathway arm and the other half randomized to usual care.<sup>1</sup>

## Evidence is growing

What the investigators discovered was that the chest pain patients evaluated with the HEART Pathway underwent 12% fewer cardiac tests, had shorter lengths-of-stay, and experienced 21% more early discharges than the usual care group. Further, no patients in either group experienced a major cardiac complication within 30 days of their ED visit.

While this was a small trial, Mahler says that the data, when combined with earlier studies on the HEART score, together represent strong evidence to support “the structured implementation” of the HEART Pathway protocol.

“The HEART score has been evaluated in more than 6,000 patients now, and we have evaluated the HEART Pathway using observational data in more than 2,000 patients, and then there is this smaller, prospective randomized study,” says Mahler.

While this is not enough evidence to go ahead and implement the HEART Pathway as a standard of care, according to Mahler, he believes that there are enough data to support centers that want to implement the protocol as long they are willing to closely monitor the impact, conduct quality surveillance, and make sure that they are not seeing any increase in adverse outcomes.

“That is exactly what we are doing at Wake Forest right now. We are just at the beginning of our implementation,” says Mahler. “We expect, after about a year, that we should have some pretty robust data of what it looks like with a structured implementation [of the HEART Pathway] across a health system [including] three sites.”

## Hospitals, payers show interest

A number of other hospitals are proceeding with trials of the protocol as well. For instance, **James McCord**, MD, a cardiologist affiliated with Henry Ford Hospital in Detroit, MI, is looking at the HEART Pathway protocol within the scope of a small pilot study involving about 100 patients.

“We are just looking at people at the very low-risk score [end of the spectrum], and then we are randomizing them to immediate discharge vs standard of care, which is observation and mostly stress testing,” says McCord. “I think the biggest bang for your buck is just at that lower-risk end, sorting out who you can send home.”

McCord observes that it is clear that the second blood test for troponin levels, which is called for in the HEART Pathway protocol, adds important value in evaluating

risk. “You can argue over what time period [is optimal] for doing the [second blood test], but the bottom line is it does look like for the best score, you do need to have some serial sampling of the troponins,” he says.

McCord also prefers the type of scoring used in the HEART score, from which the HEART Pathway is derived, over some of the other methodologies for assessing risk. “Probably the [risk score] that gets the most press in the United States is the TIMI [Thrombolysis in Myocardial Infarction] risk score or the modified TIMI score, but my take on that is that the TIMI score was really developed and meant to be used in definite MI patients, so its application to this category of patients is, in my mind, poor and questionable,” he observes. “When you actually try to apply that score to this [lower risk] patient population, it is not as predictive as the HEART score.”

While all of the risk scores base their findings on similar criteria, McCord notes that the HEART score has the most validation in the largest number of appropriate patients, but he does acknowledge that most of the studies on the clinical decision tool have taken place in Europe. “It is mostly novel in the United States,” he says. “I would assume the European studies are not much different, but sometimes you get surprised by results, so it has to be studied more [here].”

Nonetheless, McCord is intrigued by the HEART Pathway approach. “I think this has tremendous potential to help sort out who can go home from the ED without any further observation and testing,” he says. “It is promising, but this is preliminary data, and I believe it would be

premature to implement such a protocol outside of a trial because it is certainly not the standard of care.”

## Changing practice is challenging

**Gregg Fonarow**, MD, associate chief of the Division of Cardiology at the University of California in Los Angeles, CA, and an AHA spokesperson, is likewise impressed with the findings of Mahler’s HEART Pathway study. “It is a very nice single-center study that integrates a clinical decision support tool together with a standard troponin assay brought together to improve the identification of low-risk patients presenting with chest pain that could be discharged from the ED safely,” he observes. “It demonstrated less use of cardiac testing, a shorter length of stay, and those patients identified for early discharge did not have any cardiac events in the first 30 days.”

Speaking more generally about accelerated pathways for chest pain patients, Fonarow notes there are a number of tools that have been shown to be valuable in carrying out this type of risk-stratification. “There is really a growing body of evidence that this is an efficient, high-value approach to patients with chest pain who are identified through a validated risk score together with troponin assays to be low risk so that they can then be safely discharged from the ED without a more prolonged period of observation,” he explains.

Fonarow notes that UCLA has utilized an accelerated pathway for chest pain patients for years, but he acknowledges that it is challenging to change the way emergency providers typically manage these

patients. “Missing a patient who presents with myocardial infarction can be absolutely devastating. It is one of the leading causes of liability for emergency medicine physicians, so there is a lot invested in the type of monitoring, additional consultation, and testing that has traditionally occurred,” he says. “In some ways there is a shared feeling of responsibility if you have observed the patient for a longer period, consulted a cardiologist, and performed stress testing prior to discharge.”

The extra time and resources devoted to these patients may help providers feel that they have provided additional safety for the patient and additional liability protection for themselves, but there are consequences, notes Fonarow. “This ends up being tremendously expensive with a large number of individuals that otherwise would be at low risk being kept in the ED or observation unit,” he says.

Mahler’s study, showing that use of the HEART Pathway protocol resulted in no patients being discharged when they really were having a cardiac event, is added evidence that accelerated pathways can be implemented into clinical practice, argues Fonarow. “Troponin testing is just getting better and better, and when combined with clinical decision support tools, it can help identify low-risk individuals more efficiently.”

## Potential cost-savings significant

Mahler observes that a more accurate and efficient approach to risk-stratifying chest patient patients offers value to all the stakeholders involved. “It is patient-centered because patients don’t want to have

unnecessary hospital stays and to undergo unnecessary testing. There is anxiety and expenses related to those,” he says. “Then it can also save the health system a lot of money, and payers are excited about this sort of program as well.”

Mahler notes that two payers in North Carolina have been willing to share data because of the protocol’s potential to cut costs while still delivering high-quality care. “Hospitals are excited about this too. It was fairly easy showing them the data from this trial and the data from previous studies both in Europe and [the United States] — just to [demonstrate] that this is something we should be looking into further because the reductions in admissions are pretty profound, and then there are the decreased lengths of stay; and all of that translates into big cost savings.” ■

## REFERENCE

1. Mahler S, Riley R, Hiestand B, et al. The HEART Pathway Randomized Trial: Identifying emergency department patients with acute chest pain for early discharge. *Circulation: Cardiovascular Quality and Outcomes* 2015;8:195-203.

## SOURCES

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# Mount Sinai leverages smartphone technology, aiming to boost care, coordination of ED patients while also trimming costs

*New initiatives are just getting started, but administrators have high hopes*

Using telemedicine in the care and treatment of stroke patients is widely used and accepted at this point; the approach facilitates quick access to expert consultations when time to treatment is a critical factor. However, some medical centers are finding that there are other ways to take advantage of telemedicine in the emergency setting, and they're testing out methods to most effectively leverage its ability to connect with patients from a remote location.

For example, as part of its Geriatric Emergency Department Innovations in Care Program (GEDIWISE), Mount Sinai Hospital in New York, NY, is using smartphone technology to conduct face-to-face follow-up communications with senior patients

after their ED visits. Further, they have just begun to experiment with a new program that is sending some ED patients who meet inpatient criteria home, where they will receive hospital-level care and monitoring through a mobile acute care team (MACT).

In both instances, investigators are attempting to show that these new approaches can help to avert readmissions and trim costs, and that patients can come out ahead on both outcomes and satisfaction.

## Smartphones facilitate face-to-face connections

The idea of using telemedicine

to advance the emergency care of senior patients is just the latest step in Mount Sinai's GEDIWISE program, which is funded by a Health Care Innovation Award from the Centers for Medicare and Medicaid Services (CMS). "This is a federal grant we received in 2012 to open our geriatric ED, staff it, and build in some workforce innovations, informatics innovations, and structural enhancements to better serve elderly patients in the ED," explains **Nicholas Genes**, MD, PhD, an assistant professor in the Department of Emergency Medicine at the Ichan School of Medicine at Mount Sinai.

The telemedicine component is an enhancement of a practice already in place in which nurses schedule follow-up calls with senior patients while they are still in the ED. The calls are used to confirm that the patients got their prescriptions filled, they are on track to proceed with any scheduled follow-up visits with their physicians, and that circumstances haven't changed, explains Genes. "We really don't want these patients to end up back in the ED," he says. "That would be bad for the patients and it would just be bad care."

While these calls have been taking place for years, Mount Sinai is now incorporating smartphone technology so that the nurses can actually engage with the patients face-to-face, much like the way people interact on Skype or Apple's Face Time, explains Genes. However, he notes that this approach utilizes an application that is compliant with the Health Insurance

## EXECUTIVE SUMMARY

Mount Sinai Hospital in New York, NY, is using smartphone technology to enhance follow-up calls to senior patients who have visited the ED, and to help provide acute-level care to select patients in their own homes. Investigators are hoping to show that these approaches can improve care and coordination while trimming costs, and they expect that patients will approve of these new approaches as well.

- While senior patients are still in the ED, nurse coordinators will work with them to load a HIPAA-compliant application to their smartphones so they can conduct face-to-face follow-up calls that meet HIPAA standards.
- Nurses say the face-to-face communications enhance their ability to assess how patients are doing following their ED visit
- The hospital is also testing a program that enables some ED patients who meet inpatient criteria to receive this care in the home setting through the use of a mobile acute care team (MACT).
- In the case of emergencies, the MACT team relies on community paramedics who will visit the patients' homes and provide care under the direction of MACT physicians who are linked in to these visits via smartphone technology.

Portability and Accountability ACT (HIPAA) to protect privacy.

“We ask patients if they have a smartphone and if they are comfortable using it. And with them we install the [application] while they are still in the ED prior to discharge,” explains Genes. At this point, the nurse will schedule a follow-up call with the patient, and at the appointed time the face-to-face visit will take place, he says.

## Visual clues add value

How much value does seeing the patient bring to a typical follow-up call? Genes admits he was skeptical at first, but even after just a couple of weeks, the nurses making these calls say that actually seeing the patient gives them a better view of how the person is doing.

“I think you are more able to gauge the person’s overall temperament and how they are really feeling,” observes **Cindy Amoako**, RN, a GEDIWISE nurse clinical coordinator who has made several of these face-to-face calls. “You get to see their facial interaction; you have that eye-to-eye contact, so it is really more intimate, and it allows a bit more assessment.”

Amoako adds that you can also get a sense of the patient’s overall surroundings, which can provide additional clues on how the patient is faring at home. For instance, Amoako recalls speaking to one patient who had been to the ED recently for a fall. “I was making sure his pain was okay, trying to gauge his reaction ... and I could tell by his facial expression that he was much better than when I saw him in the ED.”

Amoako was also able to verify that the patient was not forgetting to use his walker, an important point

because that was why he fell in the first place, she says. “I asked him if he was using his walker. He said ‘yes’ and then pointed to it in the room.”

The face-to-face calls provide both the nurse and the patient an opportunity to verify that the right medications are being taken as directed. “If I can see the medication bottle right in front of me, that is definitely an advantage over just talking about it over the phone where the patient might be confused or not able to read what is on the bottle,” says Amoako.

Another plus is that the patients who have participated in the face-to-face calls thus far give the approach high marks. “They like the face-to-face interaction; they feel it is more personal,” says Amoako. “We have gotten really positive feedback.”

All of the geriatric patients receive a call the day after their ED visit, but from that point on the call schedule is individualized. “Some people need more extensive follow-up if they are more complicated or if they are less compliant,” says Amoako. “We call some people up to two weeks after their initial ED visit.”

Genes acknowledges that a lot of people were skeptical that geriatric patients would have smartphones or would be comfortable using the technology. “That is true in some instances, and so we just use the traditional phone calls in those cases, but in the handful of patients we have done the video telemedicine calls with so far, I think we are perhaps surprising some of these critics, he says.

Mount Sinai has three interrelated goals in mind for its telemedicine push: to improve care, reduce costs, and promote coordination, notes Genes. But he acknowledges that measurement of these factors is not a simple matter. “We have to wait for

the Medicare claims data which takes many months, so we have some proxy measures, and revisits [to the ED] is one of them.”

## Mobile teams deliver acute care

Genes notes that Mount Sinai is, in fact, being very ambitious with both telemedicine and coordinating care throughout the health system’s accountable care organization (ACO). These efforts extend to one of the medical center’s newest initiatives — an approach focused on caring for some ED patients who meet inpatient criteria in the home setting rather than the hospital.

“Basically, if a patient needs admission from the ED to the hospital and they are medically stable, they can get admitted to their own home, and the MACT [mobile acute care team] will go to their home and see them there,” notes Genes, explaining that program incorporates both in-person home visits and telehealth communications.

Funding for this program also comes from CMS, but eligible patients over the age of 18 who present to the ED can participate, explains **Linda DeCherrie**, MD, an associate professor of geriatrics and palliative medicine at Mount Sinai. “The emergency physician has determined that they need hospitalization, and we are bringing them home instead and providing services that are pretty equivalent to hospitalization, with a physician coming daily to their home and a nurse going twice a day.”

Depending on individual needs, these patients may require physical therapists, social workers, IV medicines, and other types of care. “All of these services are provided

in the home,” notes DeCherrie. However, she explains that the program is currently limited to a set of conditions that clinical leaders have determined can be treated safely within the program’s parameters.

These include community-acquired pneumonia, cellulitis, congestive heart failure, high and low blood sugars for diabetes, deep vein thrombosis (DVT), and chronic obstructive pulmonary disease (COPD), although DeCherrie notes that more conditions may be added later on. “We have created criteria where we know we can get all the things we need into the home within four hours [such as] nebulizer treatment, IV antibiotics, or oxygen,” says DeCherrie.

To handle any emergency situations that arise with these patients, the program is relying on community paramedics. “We are having ambulances with paramedics go out to the patient but ideally not to transport them to the ED,” says DeCherrie.

As part of this process, physicians use smartphones to see what is going on during the paramedic’s visit, and communicate any instructions through this two-way video conferencing method, explains DeCherrie.

While entry into the MACT program always begins with a visit to the ED and an emergency provider’s decision that the patient requires hospital-level care, most of the physicians providing care as part of the MACT program are internists or geriatricians, explains DeCherrie. “There was a lot of discussion about who would be the right providers — both physicians and nurses,” she says. “And we really needed people who are very comfortable in the home.”

Consequently, the MACT program has been able to draw

on Mount Sinai’s large health call program which takes care of as many as 1,200 patients who are homebound in Manhattan. “Emergency physicians are extremely important [to the program]. They need to make the decision to admit,” she says. However, after that point, the MACT program takes over, utilizing the skills of physicians who are already accustomed to operating in the home environment, adds DeCherrie.

## **Nurse, physician buy-in takes time**

Bringing both emergency physicians and nurses on board with this type of disposition took some time, acknowledges DeCherrie. For instance, getting nursing approval to send a patient home with an IV in place was one issue, and some physicians initially resisted the idea of sending home patients who met inpatient criteria. “They really needed to understand the services of our program, how it is based, and what we are able to do for patients,” she says. “We also had to work with case managers so that they would understand our program.”

One key concept that everyone needed to understand was that the program is not advanced home care, stresses DeCherrie. “We need to make sure that these patients truly need an admission,” she says. “So once a patient is determined to need admission and [he or she] is administratively assigned to a medicine team in the hospital, we will at that point intervene.”

Typically, a MACT provider will physically come to the ED to discuss the patient’s condition with both the patient and the emergency provider to make sure that the MACT provider fully understands what is

going on, and that the patient is safe to go home, explains DeCherrie, noting that the patient must also be comfortable with the arrangement.

The MACT works frequently with patients who have been in observation for 24 hours, and are then deemed to require admission, so the emergency physicians who work in observation are perhaps most acquainted with the program at this point, although the program is still quite new. “We had our first patient in November [2014],” notes DeCherrie. “We are still in our pilot phase, but we are planning to have about 1,100 patients in three years.”

Also on the schedule is a planned expansion of the MACT program to a second ED in September 2015. And it is possible that MACT program administrators may at some point consider accepting patients from settings other than the ED. However, for the time being, the ED is the only entry point, says DeCherrie.

## **Administrators eye program expansion**

While there are other hospital-at-home programs around the country, Mount Sinai is among the first to attempt the approach in a fee-for-service environment. “The programs that [already] exist are in VA [Veterans Administration] hospitals, and they exist in some closed health systems where the insurance company owns the hospital and employs the physicians and the nurses with a much cleaner package,” explains DeCherrie.

These other programs have already demonstrated that the approach is safe and that it can save money under those conditions, explains DeCherrie. “What is different here is we are doing it in fee-for-service Medicare

where we have multiple vendors and multiple parties involved,” she says. “From Medicare’s point of view, this [effort] is really to show that this [type of program] can be done with the same outcomes, and that it can also save money.”

What’s more, investigators are hoping to demonstrate that, given an option, patients would prefer to be cared for in their homes rather than in the hospital. “We also think there will be fewer complications, fewer falls, less delirium, and fewer superbugs when patients are cared for in their homes,” adds DeCherrie.

Further, while the earlier programs have produced good outcomes, they have been done on a smaller scale, notes DeCherrie. “We are really going to do a much larger investigation of all of this,” she says.

Getting the program up and running has involved multiple challenges, acknowledges DeCherrie. “It probably took us 14 to 16 months to see our first patient,” she says,

noting that there are multiple parties involved with the service. Program administrators also had to decide how to create an electronic medical record (EMR) for these patients, how patients would be categorized in the EMR, and how nurses would carry out medication reconciliation when they are not physically administering every medicine.

“A person’s initial response to this is often concern, liability, and they don’t get it, but almost everyone, once you talk about it, is very excited about this prospect,” says DeCherrie. “The Mount Sinai ED is always full ... and the whole hospital is always full, so taking a patient out of the system is not a problem at Mount Sinai because there is always another patient waiting for the bed.”

Further, health system administrators have been very supportive of the program because they see this as the future, says DeCherrie. “Yes, there will always be a need for an operating room,

and there will always be a need for the ED and the ICUs and general medicine floors,” she says. “But I think there is a level of patients we can really do this for, and this could potentially be expanded once we have all the protocols and procedures in place.” ■

## SOURCES

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# Patient passports aim to speed appropriate care for medically complex children presenting to ED

*Developers say the tool provides an added comfort level to both parents and frontline providers*

A medically complex child can decompensate quickly — even if he or she appears to be quite healthy. But grasping the urgency of such a patient’s condition can be especially difficult for triage nurses in the ED who may have never laid eyes on the child before, let alone reviewed his or her lengthy medical history. It’s a problem that Mattel Children’s Hospital at Ronald Regan UCLA Medical Center in Los Angeles, CA, is attempting to solve through the

development and dissemination of what administrators are calling a patient passport.

Creation of the tool was initially prompted by Mattel Children’s parent advisory council, a panel that is largely comprised of the parents of medically complex children. “About two years ago they raised the issue that in the ED [their children] were receiving different care than they were receiving on the pediatric floor,” explains **Gitangli Arora**, MD, assistant clinical professor,

UCLA Department of Pediatrics, and chair of the patient and family-centered care committee at Mattel Children’s Hospital.

This is not necessarily surprising in a setting where a pediatric hospital is part of a much larger medical center complex, acknowledges Arora. “A tiny portion of the population of patients that present to the ED [is comprised of] medically complex pediatric [patients],” she says. However, she notes that parents were reporting

delays in appropriate care because emergency clinicians were not picking up on the clinical signs of acute illness in their medically complex children.

Young patients with central lines and fevers might be vulnerable to sepsis, but they didn't appear to be very ill, notes Arora. "A child would look so much better than what was actually happening internally," she says. "And treatments would be started in the ED, but then be quickly changed once the pediatrician became involved."

## Get all sides together

To improve the situation, the parents got together with representatives of the ED and pediatric providers to discuss the problem. During this meeting the ED representatives noted that there was already a mechanism in place to speed appropriate care for children with certain metabolic or genetic disorders. Pediatricians in the hospital had created a prescription-like letter to the ED with specific instructions for this subset of patients when they presented to the emergency setting.

"These patients required a special type of IV fluids, and [these fluids] needed to be ordered right away because sometimes not having that knowledge was resulting in a delay of care, during which time the children would become increasingly ill," explains Arora.

Thinking this type of solution could potentially work on a broader scale, all the stakeholders at the meeting discussed how they might come up with a similar approach for other medically complex children. "The parents, the pediatricians, and the ED [representatives] went back and forth during this meeting and [concluded] that maybe they could call it a pediatric passport," says Aurora.

At this point, a champion from each of the three groups got together to devise a passport tool, with each champion regularly running the various iterations of the tool by their respective groups to make sure it was user-friendly and that it had all the information required.

**Kerry Gold**, RN, CCRN, CEN, administrative /pediatric liaison nurse, at Ronald Reagan UCLA Medical

Center, served as the ED champion of the patient passport project. "We had an idea initially of making [the tool] look like a passport, being a couple of pages long, and being the same size as a real passport with different information on each page," she explains. "But then we decided that the triage nurse is not going to have time to read a whole book. We wanted something very brief, succinct and to the point, so that is how we ended up with a one-page document."

## Highlight key information

One of the key pieces of information on the passport is whom to call when the patient presents to the ED. "A lot of our kids have multiple services who take care of them, so a child might have a kidney transplant, but then also have cancer on top that ... so they've got renal taking care of them but they've also got [hematology/oncology] taking care of them, and sometimes that muddies the waters of who is really in charge of this patient," explains Gold.

There is also a section on the passport that lists any sensitivities that the child has or any special indications. "We have one little girl who comes in, and she often has a urinary tract infection. She has come in in septic shock before, so that is on her passport," says Gold. "If the triage nurse knows this child has had septic shock before, or she has had two kidney transplants or a liver transplant, her level of concern will be elevated."

While the approach started with genetic disorders, the hospital has now "rolled it out to the broader population, and a lot of it has really centered on our kids that get septic, especially our transplant and [hematology/oncology] patients," says

## EXECUTIVE SUMMARY

Mattel Children's Hospital at Ronald Reagan UCLA Medical Center in Los Angeles, CA, has developed a "patient passport" to improve the timely and appropriate care of medically complex children who present to the ED. The one-page form, which parents can keep in their wallets, highlights any special indications or sensitivities that the child has as well as contact information for the patient's primary care provider. The form also includes special instructions for the triage nurse.

- Creation of the tool was prompted by the parents who complained that their medically complex children were receiving different care in the ED than on the pediatric floor of the hospital.
- The tool was developed by a group comprised of parents, pediatric providers, and ED representatives.
- Physicians must create and sign the passports, either in the hospital or in their outpatient clinics, although parents may request a passport for their children.

Gold. “A lot of them have a central line or a port, and these kids come in and they look pretty good, but they can go into septic shock quickly.”

With vital information provided up front quickly, appropriate care is likely to be accelerated, including an expedited evaluation, placement in a room, and physician exam, says Gold. Further, if antibiotics are warranted, then administration of antibiotics will be expedited as well.

The passport can also be helpful in quickly conveying that a child is immune-compromised, notes Arora. “Prior to having the passport we had one child who was very medically complex, and the parents were concerned that in his health state if he was in the ED, either in the waiting area or in a crowded room, that he would be exposed to other adults or children with infectious diseases,” she explains. “What this family would do is leave one parent in the ED to listen for their name to be called, and then the other parent go wait with their sick child in the car because they thought that was safer than waiting in the ED for a room to open up.”

However, now the passport has a box on it that says this child is immune-compromised,” notes Arora. “The ED [staff] then knows that they have to get the child to an isolation area as quickly as possible.”

## Use parents as advocates

Emergency staff helped to design the passport, and there is a section on it that is directed specifically toward the ED triage nurse, notes Arora. “They find it very useful because when the ED is very busy they just need to very quickly know what information about this child is most important and how to triage the child,” she says.

Typically, when a parent arrives

with a child in the ED, the parent will present the passport to the triage nurse, explains Gold. “I think it provides an improved level of comfort for the parents and for the ED staff, and sometimes there is super helpful information on the passport that can guide the initial care,” she says.

Theoretically, any child can get a passport, but it is most useful in the medically complex patient population, advises Arora. “The passport outlines what are [their] medical diagnoses and what are their special needs, so if [a patient] is not medically complex, it is less likely that there will be things to fill out on the passport,” she says. “If there are other patients with other needs that should be specified, or if for some reason their care deviates from the norm, then absolutely they would get a passport, but there is just not much to write unless there is a special need.”

Further, unlike some other passport-like tools that have circulated in recent years in the health care setting, the passport used at Mattel Children’s must be created by a physician. “We are writing in it medical recommendations, so we want to be clear that it is signed and written by a physician,” says Arora. “The providers can fill it out when the child is hospitalized or they can fill it out in their outpatient clinics.”

However, Arora notes that parents have encouraged the hospital to use them as advocates for the passport, and this approach has been useful in encouraging larger-scale adoption of the tool because while physicians themselves must generate the passports, parents can provide the impetus for them to do so.

Dissemination of the tool continues to be challenging, but the hospital is coming up with creative solutions. Arora notes that a pediatric resident made a sign that said: “Wait, does

your patient have a pediatric passport? This paper could be life-saving.” The resident then posted the sign all over the hospital to get the word out.

## Use a collaborative approach

For now, the passport is paper-based, but the hospital is working on integrating the form into its electronic medical record (EMR) as well. “We aren’t there yet because EMRs are challenging to work with,” observes Arora. However, she adds that even after the passport is integrated into the EMR, the paper-based version will remain valuable. “The parents at our hospital and [people] we have encountered at medical conferences from outside hospitals have said that they think the value in it is that it is a single piece of paper that folds up into your wallet, and that you can quickly hand it over to an ED triage nurse,” offers Arora. “They don’t have to pull anything up; they don’t have to look for anything. It looks official, and it transfers from institution to institution in way that medical records can’t, so it is very quick and user-friendly to everybody.”

Both Arora and Gold believe the passport approach could work well with other medically complex patient populations as well, but they emphasize that it is important to include all stakeholders in the development process. “We would not have had a product that was useful unless the parents were involved, telling us what their experience in the ED was like,” observes Arora. “We needed a physician to translate that into what was medically necessary and what would be the immediate needs of [these children], and we needed the ED to tell us that we

needed to keep the passport short, concise, and user-friendly.”

In the end, the hospital was able to devise a natural solution to an obvious problem. “We just needed to find a way for pediatric providers, emergency providers, and parents to communicate essential information quickly in way that was understandable to all three of those groups,” says Arora, noting that a collaborative, inclusive approach produced the most effective end result. “Even if an institution is adopting the passport for their own use, I think it is important to involve those three stakeholders, or possibly more if there are more people involved in using the passport.” ■

#### SOURCES

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## CNE/CME QUESTIONS

1. **According to Simon Mahler, MD, MS, FACEP, this country spends somewhere between how much per year on workups for chest pain patients?**
  - A. \$10 million to \$13 million
  - B. \$13 million to \$20 million
  - C. \$50 million to \$75 million
  - D. \$10 billion to \$13 billion
2. **Mahler also explains that to improve the sensitivity of the HEART score, investigators added what to the HEART Pathway protocol?**
  - A. a second blood test to measure troponin levels
  - B. the provision that no patient is low risk with any positive troponin result
  - C. both A and B
  - D. none of the above
3. **According to Linda DeCherrie, MD, to handle any emergency situations that arise in patients who are being cared for at home by a mobile acute care team (MACT), the program is relying on:**
  - A. specially trained primary care physicians
  - B. community paramedics
  - C. EMS providers
  - D. emergency physicians who travel to the home
4. **DeCherrie also notes that one key concept that everybody needs to understand regarding the MACT program is:**
  - A. the program is designed to cut costs
  - B. the program is designed to improve the care of chronically ill patients
  - C. the program is not advanced home care
  - D. the program's survival depends on high patient satisfaction
5. **According to Gitangli Arora, MD, theoretically any child can get a passport, but it is most useful in what patient population?**
  - A. medically complex
  - B. under-served
  - C. chronically ill
  - D. all of the above