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TRIAGE

Triage is used in the emergency department (ED) to prioritize patients needing care. This system has long been entrenched in the emergency department system of care; however, the approaches to triage and their often accompanying issues can vary in EDs across the country.

This issue of the *Urgent Matters E-Newsletter* examines these approaches and questions this entrenchment. Ellen J. Weber, MD, FACEP, of the University of California, San Francisco (UCSF) argues in the "Case Study" below for the adoption of streamlining triage. Weber uses the United Kingdom's approach to triage as a model for inspiration. In this system, patients are not categorized by the Emergency Severity Index (ESI) but instead assessed only as high acuity or not. Conversely, the "Best Practices" article below highlights how the Children's National Medical Center in Washington, DC, was able to reduce arrival-to-triage times by implementing the ESI and a rapid triage process. In this issue's "Innovations," Lisa Wolf's concept of "under-triage" is conceptualized in terms of the commonly used ESI, created to ease the triage process by stratifying patients on the basis of acuity and resource need but which ultimately leads to patients being mislabeling. Wolf establishes connections between this common issue of under-triage and delayed treatment in the ED.

CASE STUDY: IS TRIAGE REALLY NECESSARY?

Like their colleagues at most busy emergency departments across the United States, the ED staff at UCSF Medical Center in San Francisco use a structured triage process for all walk-in patients. A greeter nurse briefly screens patients on arrival, and those who have obvious life-threatening complaints are immediately placed in a treatment room. All other patients are formally triaged before or after registration using the Emergency Severity Index (ESI). Then they are directed either to a treatment space or to the waiting room if no space is available.

Concerned that this mandatory triage process could be causing unnecessary delays in patient care, Dr. Weber, professor of emergency medicine at the UCSF School of Medicine, decided to investigate how quickly high-acuity walk-in patients completed triage. "I realized our staff might be reluctant to try other approaches to triage because

they didn't want to compromise patient safety," Weber says. "So I wanted to look at whether our current triage process is really as safe as we think it is."

According to the ESI guidelines, ESI Level 1 patients should be treated by a physician upon arrival at the ED, and ESI Level 2 patients should be treated within 10 minutes. For her study, which was published in the *Annals of Emergency Medicine* in August 2011, Weber examined data on 3,932 high-acuity (ESI Level 1 or 2) walk-in patients who visited the ED at UCSF Medical Center in 2008. She found that only 41 percent of these patients completed triage within the recommended 10 minutes. The median time from arrival to triage completion for the group as a whole was 12.3 minutes.

"Since our research showed that we're not getting most of our high-acuity patients to providers within the time frame recommended by the ESI-5, perhaps now we should feel freer to experiment with triage," Weber says. "We need to do a better job of directing the limited amount of resources we have to the right people."

UCSF Medical Center is an academic hospital with an ED that provides care for approximately 40,000 patients each year. The ED is located in a culturally diverse urban area and serves many patients with complicated medical histories, but its intake challenges are not unique. Weber says physicians at EDs throughout the country have told her they think their triage processes may be causing unneeded delays.

Questioning Triage Practices

One problem, Weber notes, is that triage nurses wind up collecting more data than they need to determine each patient's ESI level. At the ED at UCSF Medical Center, a nurse takes the patients' vital signs and records their chief complaints, current medications, medical and surgical history, and pain severity. In some other EDs, triage nurses complete additional tasks such as conducting domestic violence risk assessments. "I don't think we need to be asking so many questions in triage—for example, we don't need to know all the patient's medications or allergies to assign an acuity level," says Weber.

Weber also worries that ED patients are being asked the same questions too many times. Patients often are asked to give their history when they're registering, then again when seen by the triage nurse, the bedside nurse, a resident or student, and the attending physician. This process can be inefficient, says Weber, and patients who've

already repeated their stories multiple times may forget to share key details with the physicians who are actually treating them.

Learning from EDs in the United Kingdom

Weber was inspired to conduct her research on triage at UCSF Medical Center after studying ED intake processes in the United Kingdom during a 2008 sabbatical at the School of Health and Related Research at the University of Sheffield. To reduce ED wait times and crowding, Britain's National Health Service (NHS) mandated in 2005 that 98 percent of ED patients had to be treated and discharged or placed in an inpatient bed within four hours of arrival. One of the NHS recommendations was to eliminate formal triage of all walk-in patients. Weber collaborated with Suzanne Mason, MD, professor of emergency medicine at the School of Health and Related Research at the University of Sheffield, on several studies of how hospitals implemented the four-hour target.

Weber observed that in most EDs in the United Kingdom, patients arriving by ambulance and high-acuity walk-in patients are brought immediately into the treatment area. All other patients stay in the waiting room and are treated by a clinician in order of arrival. Nurses assess some of these waiting patients. "They do whatever they think is appropriate—for instance, they may take a patient's vital signs or provide pain medication," says Weber. "But they don't spend time sorting people into very specific categories and determining who is sicker within those categories." Because they're not as focused on assigning priority to patients, the nurses can help speed up care by devoting more of their time to treating patients.

Streamlining Triage

Starting this June, UCSF Medical Center will be using a new electronic medical record. Weber and her colleagues see this as an opportunity to redesign their intake form. The triage nurses soon will use a directed series of questions that walk them through the ESI algorithm. "We're going to be asking the patient about the medical problems that directly influence the acuity rating. If they have a fever, for example, we'll ask if they are receiving chemotherapy or have had a transplant because if they are immunosuppressed, they should be an ESI Level 2 and if not, ESI Level 3," Weber explains. "The form guides the nurses to ask only certain questions, so the time spent at triage should be shorter."

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She recommends that colleagues at other hospitals who are interested in improving intake processes repeat her study and find out whether they're treating ESI Level 1 and 2 patients within the time frames recommended by the ESI-5. If they discover they're not meeting these standards, they can try to identify and eliminate unnecessary steps in their triage process. She also suggests triaging patients in treatment rooms whenever they're immediately available.

Ideally, Weber would like to see the ED at UCSF Medical Center and others in the United States adopting the United Kingdom's approach to triage. "A system with two acuity classifications—see now and see later—makes a lot of sense to me," she says.

Ellen J. Weber, MD, FACEP, professor of emergency medicine and vice chair for faculty development and diversity for the department of emergency medicine at the University of California, San Francisco (UCSF) School of Medicine

BEST PRACTICES: RAPID TRIAGE

In 2006, the Children's National Medical Center in Washington, DC, was able to reduce arrival-to-triage time from hours to less than 10 minutes. Children were waiting as long as two hours just to be triaged, prompting many families to leave before care could be administered. Staff knew something had to be done, and they hit upon a two-pronged approach: the ESI and rapid triage.

"We were in the throes of LEAN, realizing that we didn't have to do things the same way we had always done them," recalls Stacy Doyle, manager of the Medical Center's Emergency Medicine and Trauma Center at the time. "We started thinking about where our bottlenecks were, about which of our processes were necessary and unnecessary, and about what a visit to our ED had become. We saw a lot of waste."

According to Doyle, the Medical Center was using a "home-grown" triage system that had five levels but lacked the validity and reliability of ESI. Wait times, the experience and preferences of the nurse on duty, and census pressures all resulted in uneven triage decisions from day to day. In addition, their fast track lacked clear guidelines.

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Led by the nursing staff, the ED decided to switch from its own triage system to ESI. It did so for two reasons. The first was to advance the national goal of its parent organization, the Children's Hospital Corporation of America (CHCA), to reduce length of stay in pediatric EDs by 25 percent. The second was to enhance the understanding of ESI efficacy in the pediatric ED setting. While ESI is widely considered a reliable tool for assigning acuity in the general ED setting, Doyle noted, much less is known about its effectiveness among children. The symptoms children present with can indicate very different things than they do in adults, explains Doyle, giving chest pains and fever as examples of things that are approached differently in pediatrics.

The ED adopted ESI at the same time as a rapid triage process, designed to sort patients to the appropriate ED area based on acuity level. To do this, the triage nurse's initial assessment was substantially reduced, from a complete nursing assessment including the patient's weight and a full set of vital signs, to only relevant elements of the history and physical. This brought triage time from 20 minutes to about seven.

Using Available Staff

Before the protocol change, patients arriving at the ED were entered into an electronic tracking system and queued for assessment by the next available triage nurse. When the triage area was busy, patients could wait more than two hours to see a triage nurse, increasing the left without being seen (LWBS) potential. Meanwhile, some patients were inadvertently grouped with lower-acuity patients, and their care was delayed.

After the intervention, ESI Level 1 patients were taken directly to a treatment room by any available licensed ED staff member. Level 2 patients were taken to a treatment room by a flow nurse for the collection of data, treatment by a nurse, and an expedited assessment by a provider. Level 3 and 4 patients who did not meet fast-track guidelines were assessed by the triage nurse, and Level 4 and 5 patients who met fast-track guidelines were moved to fast track for a nursing assessment and care.

Impact

After the new triage process was implemented, nearly 88 percent of all patients were within 10 minutes of their arrival, as opposed to only 21 percent under the old system. The improvement is even more significant given that, before the adoption of rapid triage, 34 percent of ED patients waited from 10 to 30 minutes for triage, 23 percent waited 30.1 to 60 minutes, and a 20 percent were not triaged until they had been in the

ED from one to two hours. The new triage process also affected fast-track use. After adoption, the number of patients triaged to fast track increased from 35 percent to 38 percent, while Level 5 patients were almost 50 percent more likely to be sent to fast track.

Results

Before	After
21% Patients Seen in Less Than 10 min	88% Patients Seen in Less Than 10 min
35% Triaged to Fast Track	38% Triaged to Fast Track

While LWBS rates did not change after the adoption of rapid triage—they remained even at 3 percent—the number of Level 3 patients who LWBS dropped from roughly 25 percent to 21 percent, and the number of Level 4 patients dropped from 67 percent to 63 percent. Meanwhile, the number of Level 5 patients who LWBS increased from 7 percent to 16 percent. This means the new system was successful at reaching the sickest patients before they left.

Results

LWBS Before	LWBS After
Level 3—25%	Level 3—21%
Level 4—67%	Level 4—63%
Level 5—7%	Level 5—16%

While the triage process change was considered a nursing intervention, the ED physicians, medical director, and administrators were on board as well. “There was no pushback from them,” says Doyle. “We were all moving in the same direction, which was to figure out how to get people through faster and remove obstacles to getting patients to providers.”

The transition cost the Medical Center almost nothing, says Doyle. Approximately 60 ED nurses and a few technicians were trained in ESI during a six-week period. The new triage process used the same physical spaces and equipment, which may explain why other EDs have felt comfortable using it. Since the process was presented to CHCA members, the triage process has been picked up by Children’s Healthcare of Atlanta hospitals at Scottish Rite and at Egleston.

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Doyle says winning the confidence of the nurses and getting "early adopters" to lead the staff with their enthusiasm will be the biggest challenge for any ED that makes a change in triage.

"It's harder for them than for the administration and physicians to break from tradition because they get entrenched in what they're doing," says Doyle. "We had to get our nurses to go back to the fundamentals of what triage is and why it's important. More than anything, we needed to redefine our processes to make triage a process, not a place."

Stacy L. Doyle, director of emergency and urgent care services, Children's Mercy Hospital and Clinics, Kansas City, MO

INNOVATIONS: UNDER-TRIAGE

Emergency departments typically tackle throughput problems by reconfiguring physical spaces and implementing process changes to move patients more rapidly from triage to the area of the hospital where they can get the most appropriate care. These modifications help tremendously when a patient's initial acuity assessment is accurate, but unfortunately they're useless when a bad assessment sends a patient down the wrong clinical path.

Lisa Wolf, PhD, RN, CEN, FAEN, a clinical assistant professor of nursing at the University of Massachusetts in Amherst, is trying to draw attention to the phenomenon of "under-triage." Simply put, under-triage occurs when patients presenting to the ED are initially assessed to be less ill than they truly are. The patients most often under-triaged, notes Wolf, are those who receive a 3—urgent but stable—under the ESI. Patients assigned a 4 or 5 are typically the "walking wounded," while those assigned a 1 or 2 get the fastest attention. The patients who are under-triaged often get assessed as Level 3 because instability indicators are missed or go unexamined.

"These patients are often labeled as stable," says Wolf, "because they have a complaint that makes them unable to go to a fast-track area, or they may need multiple resources, like radiography, labs, and procedures, but the nurse thinks they are not likely to decompensate."

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"The patient's initial acuity assessment sets the trajectory for the entire ED visit," says Wolf. "If a patient goes from the triage nurse to the receiving nurse as a 3, then there will be a presumption that this patient is not in danger, and the staff's attention will be directed elsewhere. In fact, the stability an ESI designation of 3 indicates means doctors and nurses do not revisit the assessment unless the patient's condition deteriorates, requiring additional and immediate care."

Wolf observed this correlation between under-triage and delayed treatment during a research project in 2009. To learn more about factors affecting the transfer of ED patients to the ICU, Wolf and a student reviewed the charts of 75 patients transferred directly from the ED to the ICU during a three-month period at a 142-bed acute-care hospital. The patients were triaged using ESI; none of the 75 patients was given a 4 or 5. Of the 44 patients who experienced "delayed transfers"—defined as being in the ED longer than the department's four-hour throughput goal—the most significant factor affecting transfer time was the initial triage acuity assignment, Wolf says.

Significantly, 19 of the 25 patients with ESI assignations of 3 were delayed, and these 19 constituted 43.2 percent of the total number of delayed patients. Of the conditions these patients presented with, those with sepsis were the most likely to be under-triaged and delayed, with respiratory failure coming in second. Wolf said the symptoms of these two conditions, such as fatigue and nausea, can be attributed to many health problems, thus making them harder to spot.

While the chart review identified other possible contributing factors to delays—such as the possibility that mode of arrival and gender may have contributed to the triage acuity assignment because walk-ins were delayed more than those arriving in ambulances, and women were delayed more than men—they made nowhere near the impact on delay as the initial acuity ranking did.

In that case, what's causing under-triage and the diminished treatment outcomes it presents? In Wolf's opinion, the problem is two-fold, concerning both communication and geography. In the case of geography, under-triaged patients typically are sent for care to non-acute departments within the hospital, says Wolf. That initial assessment of 3 "colors the way every subsequent clinician sees the patient."

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"Communication issues among ED staff can be a problem," says Wolf. "In addition, there appears to be an over-reliance on intuition and an under-reliance on physiologic cues among triage nurses attempting to determine acuity."

The most "accurate" ED nurses, Wolf believes, are those who operate at the highest level of moral reasoning: They do what they do for the good of their patients. These nurses constantly modify their treatment—even if it means deviating from ED rules—to act in the best interests of their patients. These are the nurses least likely to under-triage.

Because in Wolf's opinion the majority of nurses don't function at this very high level to prevent under-triaging, the ED protocols must be "very, very good" and make extra, probing questions in the face of nonspecific symptoms standard operating procedure. Wolf's research also has led her to reject the commonly held belief among ED administrators that the most experienced nurses should head up triage because "experience," she says, may mean only that a nurse has been thinking the wrong way for the longest amount of time.

"For triage, you don't want your most experienced nurse—you want your best nurse," she says.

Wolf believes that under-triage is occurring almost universally in EDs across the country and is off the radar of most EDs. Even the hospitals where she conducted several under-triage studies, she says, have made no process changes to address under-triage in the wake of her findings. However, she believes that education and culture change can help eliminate under-triage and improve ED patient outcomes.

In mentoring young nurses, Wolf has found it effective "to frame the clinical day around what's best for the patient, so that rather than focusing on the completion of tasks, we view these tasks as a means to an end. We try to encourage them to see all nursing actions as ethical decisions, so that the patient is better off at the end of a nurse's shift than they were at the beginning." Wolf even asks the nurses under her tutelage to write journal entries in the middle of their shift so they can act on their insights during the second half of their day. It's critical that ED leadership support this paradigm, Wolf stresses.

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"I can train the heck out of nurses, and within six weeks they're ruined if they're in a bad environment," she said. "Nurses and doctors have to train and practice together, a clinical nurse specialist or educator should be available during all ED shifts, and each ED nurse has to believe they and they alone are responsible for all decisions they make. Unit culture is huge."

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