THE SULLIVAN GROUP

TSG NEWSLETTER

SAVING LIVES - REDUCING RISK

From The Editor

Necessity, the mother of all invention! Last month I visited three emergency departments in the Phoenix area. The sustained growth of ED volumes has resulted in an ongoing need to recreate and reinvent the ED. Without a process improvement committee and commitment from the entire ED team, your ED will quickly become seriously outdated. These three EDs are outstanding examples of managing ED volume growth, and managing the associated risk. They provide great lessons to learn from or at least consider. In this issue we will provide a brief overview of some of the innovations and change processes that are underway in these EDs and others that TSG physicians visit ■

FIRST, Some Great News From TSG!

TSG Patent Issued

TSG is very pleased to announce the United States Patent Office's issuance of patent number 7,197,492 entitled, "Computerized Risk Management Module for Medical Diagnoses."

The patented system of the module communicates with a healthcare professional while preparing an electronic medical record. It reduces risk and increases patient safety by:

- Prompting the healthcare professional to record specific information relevant to increased risks of missed diagnoses or erroneous treatment based on a collection of medical information relating to such increased risk situations;

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- Providing relevant medical care information to the healthcare professional to reduce the risk of a missed diagnosis or erroneous treatment;
- Prompting the healthcare professional to take action or record information to provide an opportunity to avoid misdiagnosis or erroneous treatment of the patient, and to adequately record the action taken;
- Alerting the healthcare professional to consider certain medical conditions based on the increased risk situation that may not have otherwise been considered.

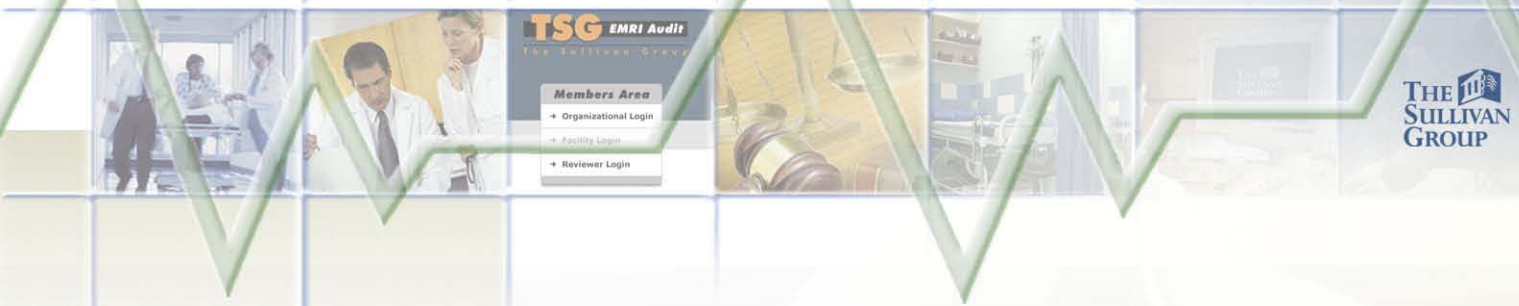
TSG's risk management and patient safety programs now impact over 10,000,000 ED patient visits annually. Our work with large hospital organizations clearly demonstrates that a commitment to a system of risk management and patient safety reduces medical errors and improves patient safety with a reduction in medical malpractice claims. The intelligent medical record is a fundamental element of the cycle of risk and safety. Current medical records grew up around coding and billing, and left risk, safety, and quality behind. We have a historic opportunity to begin using electronic medical records that work with the practitioner in an interactive fashion to reduce risk and medical errors, and enhance patient safety.

For more information on the patent, or to learn more about companies that have incorporated the risk and safety enhancements, please contact us ■

Keeping Up With ED Volumes

Twenty years ago most emergency physicians worked in an ED that was either part of a hallway, or a basic racetrack design. Patient volumes were manageable, and most events were within line of sight. If the clerk needed you on the phone, she needed only to look left or right to find you. If the emergency physician was in room 7 and was needed in room 1, it took but a moment to communicate the need for intervention. Physicians and nurses did not wear pedometers in those days to calculate mileage. Then EMTALA happened and volumes grew. Patients began to turn to EDs in large numbers for primary as well as emergency care.

Ten years ago significant increases in volume were typically managed with a fast track, some standing orders, and perhaps point-of-care testing. We blew out part of the racetrack and added a few stretcher spaces to the ED. Line of sight was lost; communication became more difficult. Volumes continued to grow.

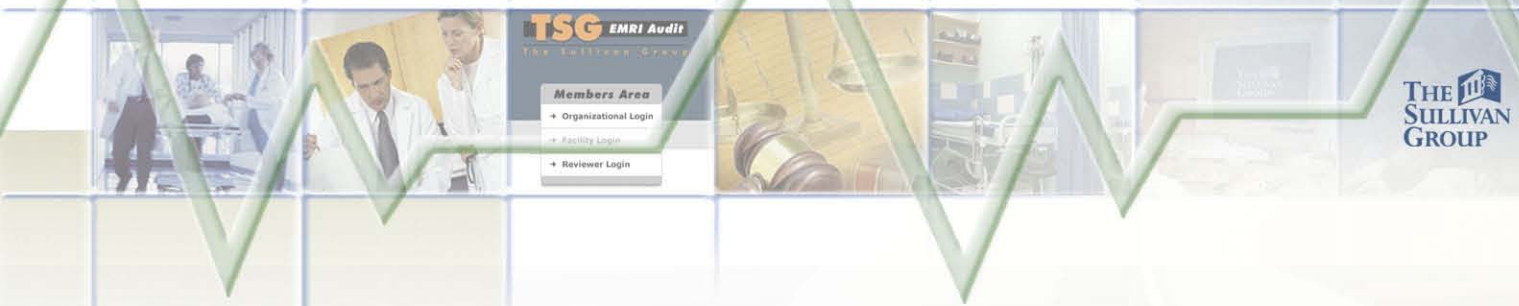


Five years ago the C-suite recognized that the ED was the front door to the hospital. People throughout the country recognized that if all else failed, every ED had an open door policy and would not turn anyone away. The "racetrack plus" design was no longer adequate. Many hospital boards addressed the growth issue and approved multiple millions for new, much larger ED footprints. In the meantime, patient holding in the ED has become a significant national problem. Many EDs developed formal hallway spaces with dedicated space numbers and call buttons.

Current EDs, especially those in metropolitan areas, have grown into something very different. Twenty years ago a typical annual volume was 15,000 to 20,000 patients. Today, annual volumes frequently range from 40,000 to 100,000, and we may reach 120 million ED visits in the U.S. in 2007. Throughput has become a high priority, and as it becomes more difficult to get into a stretcher space, errors and malpractice cases have started occurring in waiting rooms and ED hallways. There has been a significant increase in adverse events directly related to throughput.

EDs taking a team approach with an active process improvement forum are stepping up to the plate – again! Our visit to Phoenix last month was very interesting. The three EDs we visited have annual volumes of 55,000, 60,000, and 85,000 patients. They have come up with some interesting innovations, and in this issue we would like to offer some food for thought. There is no one right or wrong way to grow and develop our EDs; there is no one-size-fits-all. However, some of these ideas may represent a "fit" for your future planning process.

1. **Intake Or Rapid Medical Evaluation Units (RME).** This is a very interesting development—a new concept; perhaps a paradigm change, in ED management. EDs typically provide straight line or vertical patient management. Register – wait; triage – wait; primary nurse evaluation – wait; doctor visit, and so on. God forbid the physician should see a patient before a nurse evaluation! These new units are designed to be a middle ground between registration and the main ED. The concept is a parallel provision of services. The units are typically located very close to registration or a rapid triage station, and



include 5 to 10 stretcher spaces. They are staffed with a team that includes a registrar, a nurse, a technician, and a physician or allied health professional. The team members will work on any available patient. If the registrar and the nurse are busy, the physician will be the first responder to the next patient in the stretcher space. When the physician walks away, the clerk or nurse will respond. Roles are flexible.

RMEs work with carefully defined protocols based, as often as possible, on evidence-based management or best practice. Nurses are empowered to provide pain management and initiate care protocols. The physicians and nurses work together in an attempt to agree to and stick with protocols. These units will not work if physicians cannot agree on a common approach.

There are several potential outcomes of the trip to the intake unit:

a. Discharge directly from intake. The patient has a minor problem and receives all necessary evaluation and treatment in the RME, never reaching the main ED;
b. Medical screening and discharge. The hospital may want to decrease volume by meeting its EMTALA screening obligation and referring patients to a more appropriate source of medical care;
c. Admission to the main ED. After the initial evaluation, all ancillary testing is ordered and the patient is moved into the main room. Or when appropriate, the patient is moved into a separate holding area until a stretcher space is available;
d. Admission. It may be obvious that the patient requires inpatient or observation care. These patients never reach the main ED unless ongoing management is required.

In the three EDs we visited, the RME made a final disposition in up to twenty-five percent of the patient volume with very rapid turnaround times. Many EDs across the United States are implementing some variation of this concept.

2. **Lose the Fast Track.** The "fast track" goes by many names, but the concept is always the same. Take the low acuity patients and segregate them in an

area that is prepared to address minor care. It has been an obvious solution for a number of years; once an ED reaches the 25,000 to 30,000 annual volume range, it makes sense to take 5,000 – 10,000 minor cases and triage them to a fast track. The main room can maintain its focus on emergency care.

Now grow the volume to 60,000 – 100,000, and the fast track is seeing more than sprains and strains and the acuity in the main ED is increasing. In some locations the main ED may admit up to 50% of its patients. The result is that the profile of the fast track is changing, and the physicians and nurses in the main ED are burning out. There is no down time from critical care.

The end result? Many high-volume EDs have closed the fast track, divided the ED into several racetrack-type design sections, and see both critical and minor care cases in each. The physicians and nursing staff then have the opportunity to provide a range of care, and don't burn out on a constant stream of critical patients.

Note that TSG is not recommending that you lose your fast track! It may be completely appropriate for a mid-volume ED or in your particular circumstance.

3. **Communication.** What used to happen in one racetrack may now happen in two, three, or four separate ED areas. **One of the keys to success is communication.** Someone must have a handle on movement between the units, avoid nesting or avoidance behaviors by physicians and nurses, provide a fair division of acuity between the units, and address a host of other issues that the new ED designs create. The new, larger design can significantly improve throughput, but this "little city" of emergency care must be carefully managed.

There is typically one charge nurse for the entire operation. New processes must be in place to facilitate prompt, high-quality medical care to this large volume of patients. Communication is key. There are several ways to make the mega-ED feel and function like a smaller unit. Line of sight and sound can be greatly aided by large,

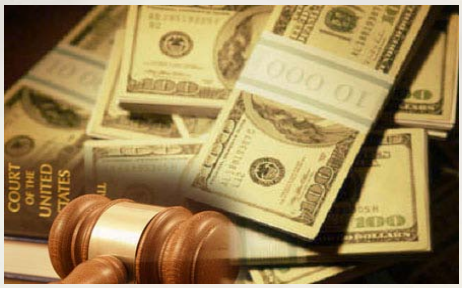
strategically placed tracking boards and user-friendly communication devices. The choice of ED information systems is critical, as the tracking board must truly facilitate ED care and throughput. Not all tracking boards are created equal!

There are a couple of commonly used communications devices that seem to stand above the rest. TSG has no association with and derives no benefit from providing this information, but in our experience, the Vocera and Spectrophone communication devices appear user-friendly and are at least acceptable by the physicians and nurses in the large EDs we have visited.

4. **Sub-Waiting Rooms.** ED waiting rooms were not built for patient volumes of 200 to 400 patients per day. The new high-volume ED usually has several waiting rooms that serve different functions. For example, the three EDs we visited in Phoenix have:

   a. A general waiting room for new patients;
   b. A second waiting room for patients that have had labs or other ancillary tests ordered by triage; and
   c. A third waiting room for patients that have been seen in the Intake or RME unit and are waiting for ancillaries or for movement into the main ED.

With today's ED volumes and problems with patients holding for admission, waiting room management is key. There are a growing number of adverse outcomes and malpractice cases coming from ED waiting rooms. Whatever the size of your ED, your process improvement group should address waiting room management.



5. **Address The Hold Problem.** Patient holding has become a national issue. Whatever the cause, and there are many, the emergency team should not be diluted by providing continuing care for ICU, telemetry, and regular admits holding in the ED. This is a risk and patient safety nightmare, particularly in high-volume EDs. This is a difficult problem without an obvious solution. However, here are a few ideas to consider:

   a. If your hospital employs hospitalists, transfer care to them on admission. Imagine an ED physician coming on shift at 0700 and assuming care for a severe DKA

patient who has been in the ED for 36 hours. There has to be a better way! Hospitalists are employed to care for admitted patients, so why not the patients admitted and stuck in the ED?

b. Increase staff for ICU holds. Nursing ratios can handle some dilution, but add a couple of ICU holds and the risks increase dramatically. ED nurses cannot handle significant ratio dilution and manage ICU holds—it's logistically impossible; patient care suffers and adverse outcomes result. The process improvement group, which includes an administrative liaison, should proactively address this growing risk. Be prepared to add nursing staff before the situation gets out of control.

6. **ED Information Systems.** A well-designed information system can pull it all together. A poorly-designed system is worse than handwritten charts and grease boards! As we move into the era of information technology in medicine, it is critical that EDs work with vendors that have taken these risk, safety, throughput, and other issues to heart, and have designed their programs to expedite, facilitate, reduce risk, improve patient safety, help meet CMS goals, and in all ways improve the lives of ED staff. TSG has a great deal of expertise in this area. If you have questions or concerns regarding ED information systems, please don't hesitate to contact us. This is perhaps the most important decision your ED process improvement group or your hospital IT committee will make in the years to come.

These three EDs are "in process". They have implemented an impressive array of changes that appear designed to address the high volume issues. We cannot address the full laundry list of innovation in this newsletter; however, we will continue to bring new ideas, and "best of breed" to your attention in the future.

Some of the ED physicians we spoke with remain skeptical regarding the Intake Unit, the loss of the fast track, and other issues, but they have embraced the change. Innovation is mandatory. In time, the status quo will not be sufficient to adequately address the changes around us. Quality will suffer, and this will result in medical errors and adverse patient outcomes.

Adequate design and process are critical risk and safety issues. They should be a regular agenda item for your ED process improvement group ■

A Life Saved

One of our client organizations recently published a story in its national newsletter regarding a life saved through the use of the TSG EM Risk Initiative™. A 50-year old male presented to the ED with a complaint of substernal chest pain. He had a history of hypertension and elevated cholesterol. Medications included statins for the cholesterol and antihypertensives. The ECG revealed non-specific changes with no old ECG for comparison. The physician ordered a chest pain profile, aspirin, morphine, and nitrates. He discussed the case with a cardiologist, developed an initial impression of coronary artery disease, and planned to take the patient to the cath lab for further evaluation and possible intervention.

Approximately 45 minutes later lab results were returned and found to be unremarkable. The primary nurse went into the patient's room to reevaluate and prepare the patient for transport to the cath lab. At that time, the patient denied chest pain but complained of pain in his upper back, lower back, and abdomen.

The nurse and physician recently completed the TSG course on "Thoracic Aortic Dissection: Medical Error and Risk Reduction." The nurse recognized the significance of this pattern of pain moving from the chest into the low back and abdomen. This movement of pain is not characteristic of an acute coronary syndrome, but it is characteristic of the continuation of an aortic dissection from the chest above the diaphragm, into the abdominal area or low back, below the diaphragm.

This fact pattern is a common feature in our analysis of "failure-to-diagnose" thoracic aortic dissection cases. With no striking changes on the ECG and normal cardiac markers, these patients are often discharged with low back pain, or abdominal pain, etiology unknown. If you consider the big picture, only dissection down the length of the aorta can explain this movement or migration of pain.

The nurse immediately alerted the physician to this change. They both agreed that the presentation was now more consistent with aortic

pathology and ordered a CT of the chest. CT revealed a Type 1 dissection of the aorta, extending from the aortic root well past the diaphragm. The emergency physician contacted the CV surgeon and the patient had a successful surgical intervention.

This is a great outcome and a great lesson. The nurse and physician taking the course together taught the nurse to recognize the pain pattern and empowered her to alert the physician regarding the change and its significance. This is a dramatic change from an all too common ED silo mentality. The team approach may well have saved this patient's life ■

Team Building With Computer-Based Training

Approximately one year ago, TSG received a call from one of our client hospital EDs that developed a program designed to coordinate the risk and safety computer-based training for ED physicians and nurses. The plan was that physicians and nurses take the same risk and safety course and then meet at month's end and discuss the high risk area, build consensus around protocol and order sets, and discuss other relevant issues.

TSG visited that department to watch the process in action. The Medical Director, together with his Nursing Director, decided to take this team approach to education. In February the physicians took the CME "Ectopic Pregnancy: Medical Error and Risk Reduction" course; the nurses took the CE "Ectopic Pregnancy: Medical Error and Risk Reduction" course. At month's end, during the ED team meeting, which included most of the physicians and nurses, the group:

1. Discussed the course and the approach to women with abdominal pain and vaginal bleeding;
2. Reviewed their EMRI audit scores on women with vaginal bleeding;
3. Discussed triage of these patients, protocol development, and order sets;
4. Invited a staff obstetrician to provide a short presentation on ectopic pregnancy and managing women treated with methotrexate; and
5. Invited a radiologist to present a short discus-

sion on the latest in ultrasound techniques to evaluate ectopic pregnancy.

Consider the power of that session as an educational tool, a team-building tool, and an outstanding opportunity to build bridges with other hospital departments. It was not long afterwards that two nurses in this department recognized that a physician failed to order an ultrasound in a woman with vaginal bleeding. The nurses explained to the physician that the B-HCG was over 1500, well above the discriminatory zone, and that the patient needed an ultrasound.

When was the last time you had a nurse explain to you that your patient's beta was above the discriminatory zone and you should order a pelvic ultrasound to rule out an ectopic? Since that time, TSG has strongly promoted this coordinated educational approach.

Many of our client EDs now have physicians and nurses take the same risk and safety courses at the same time.

Although the computer-based training is one part of the TSG approach to risk and safety, this ED took a novel and powerful approach to using the CBT tool. If you have any other ideas on creative use of TSG or other risk and safety tools, please share them with us and we will make them available through our on line ED Toolbox, this newsletter, or our risk and safety tools.

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