Michael Leonard, M.D., has been deeply involved in researching, writing about, and implementing patient safety for several years. Formerly an instructor in anesthesia at Beth Israel Hospital in Boston, Dr. Leonard is currently director of patient safety for the Colorado Permanente Medical Group and is Physician Director of Patient Safety for Kaiser Permanente in Oakland, California. Forum recently spoke with Dr. Leonard about the value teamwork adds to patient safety.

**Forum: What is the link between patient safety and teamwork?**

Leonard: When clinicians don’t effectively communicate, the risk of something going wrong increases substantially. Adverse medical events are frequently the result of ineffective team communication: either not having enough information, losing it across the transitions of care, or one clinician having a different “picture” of what’s supposed to be done than others caring for the same patient. Multiple people caring for a given patient need a systematic process to facilitate communication and keep everyone in the same “movie.”

**What gets in the way of more effective teamwork among clinicians?**

First, we have the historical mindset that people have been trained to be expert individuals and act by themselves, i.e., if they’re trying hard, they can manage any situation. Currently, the complexity of the care environment has evolved beyond the ability of any one person to keep track and manage all that information. The new reality involves learning in a different way, getting teams of people together—physicians, nurses, pharmacists, and others—and working with some fundamental techniques to enhance communication and to ensure that they’re going to deliver the right care.

**What limitations affect clinicians as individual caregivers?**

One is multi-tasking—look at the traffic accidents with people trying to drive and talk on cell phones, trying to do two things at once. Another limitation is short-term memory. An individual can mentally hold about five pieces of information, but think of a clinician during a busy day with the pager going off repeatedly, talking on the phone, multiple people tugging on his sleeve, trying to write in a chart, and the patients backing up. We’re constantly exceeding the ability of our brains to manage and capture all that information. The game has rapidly changed around us and will continue to do so.

We also know fatigue has a huge impact on the ability to process complex information. Drew Dawson’s data indicate that 24 hours without sleep is equivalent to a blood alcohol of 0.10. But physicians routinely work after they’ve been on call all night, nurses work double shifts, et cetera. Since fatigue certainly does affect their performance—and their potential for error—we need to be wiser about our staffing and how we schedule people.

Stress is another factor. In one study, surgeons were asked whether extreme stress, emergency situations, or difficulty in their personal lives, affected their performance. About two thirds said, “absolutely not.” The human factors literature argues strongly to the contrary. For example, we know that a well-trained physician, nurse, or pharmacist, can take the correct drug vial off the shelf 999 times out of 1,000 in a calm, relaxed environment. But in a stressful environment, say a patient’s had a cardiac arrest or somebody in front of them is blue because they can’t breathe, the error rate may go as high as 25 percent. Acute stress actively degrades performance. The best answer we have to work collaboratively as a team with clearly defined goals so we can keep ourselves and our patients safe.

**How can clinicians manage their limitations?**

Once we accept that we’re working in an environment that often will surpass our individual capabilities, then we can create a safer environment where we can work collectively, talk together, and have a common vision. Here’s a simple example of setting the stage nicely before embarking on a clinical challenge. We recently began doing a new procedure, an endovascular aortic graft, which involves putting a $20,000 graft inside a patient’s aorta (instead of a traditional aortic aneurysm repair). It’s a complex procedure: 15–20 people in the cardiac cath lab—which is not where we normally work—lots of people we didn’t know. When the chief of vascular surgery walked in the room, the first thing he said was:

“I have no pride invested in this case. I just want to get it correct. If any of you see me doing the wrong thing, or if you have any ideas of how we can do this better, please speak up. We’re all here to do the right thing. We’re all learning, so let’s work together.”

He then introduced himself by his first name to every individual in the room. He flattened the hierarchy, established relationships, and created an environment in
which it was going to be a lot easier for people to speak up. That’s how somebody can create teamwork, or create a mindset that helps people work together effectively.

**How do you “sell” teamwork to a clinician who is skeptical, or simply feels too busy?**

We show them that by investing a small amount of time upfront in effective communication, building the team, and creating a common mental model, that their clinical day is going to be simpler, safer, and easier for all involved.

One example comes from briefings in operating rooms. When we first launched our briefings project in Kaiser Orange County [California], the surgeons were saying, “Why should I care? Why should I do this?” What we were talking about was a one- to two-minute focused conversation in the operating room before they started the operation. The “wake up” for the surgeons was the realization that the other OR staff frequently did not share the clear picture they had relative to the procedure, and through briefing—getting everyone on the same page—they were far more likely to have the correct equipment, people, and skills present to get the job done well.

The greatest upside to the surgeons—what won them over and made briefing “the way they do business”—was the realization that this small investment of time in effectively communicating with the team prevented about 90 percent of those magic moments in the middle of a case where things come to a screeching halt because something essential is missing and everyone has to wait while the equipment, supplies, or person is obtained. Briefings were effective because the people doing the work saw a significant return on the investment of their time to make sure everyone knew what the game plan was.

**What was the improvement there?**

The surgeon, the anesthesiologist, the nurse, and the scrub nurse or technician all engaged in a one- or two-minute conversation about what were they going to do, what equipment they would need, what they would need from each other, and any special factors. The surgeon would go first and say, “This is what I need you all to know when I’m doing a case.” And then it was everybody else’s turn to say to the surgeon, “This is what we all need to know from you.” The striking part here was the looks of interest and outright surprise on their faces. The surgeons had no idea that it’s a big deal to the nurses whether the surgeon is on call (the nurses want to know if they’re going to have to answer the surgeon’s pager 45 times in the next three hours). Realizing that frequently the doctors did not know the names of the others they were working with, they also incorporated having everyone write their names on the magic marker board where they count the instruments and sponges, and the physicians agreed to use their names. Familiarity was the key: it’s much easier to talk to somebody with whom you have a relationship.

A year into this OR briefing project they had substantial results; in fact, they had the highest scores across Kaiser Permanente in perceptions of safety climate and teamwork in the operating room. An unanticipated, but wonderful, benefit has been reduced nursing turnover—19 nurses the year prior and none since. Eighty percent of the nurses in those operating rooms said they were comfortable speaking up and that they felt that their input would be welcome. That’s probably a record percentage for the operating rooms that I’ve worked in.

**Do physicians and nurses communicate differently?**

Yes, and this is important to reconcile if doctors, nurses, and others are going to effectively communicate. Nurses are trained to be narrative and descriptive; the end result is that they describe things with broad brushes. Physicians, on the other hand, want the headlines: “What’s the problem? What’s the fix?” So what happens millions of times a day in American health care is that a nurse picks up the phone and starts to describe a situation with a patient, painting a broad narrative picture. Meanwhile, the physician on the other end of the phone is thinking, “What do they want? Tell me what the problem is and we’ll fix it.” That’s the fundamental mismatch in how these people are communicating.

One tool we have used widely to bridge this difference is the Situational Briefing model, or SBAR (Situation, Background, Assessment, and Recommendation). SBAR is helpful for the nurses when they pick up the phone, because they know that after they describe the situation:

- **Situation:** I’ve got Mrs. Jones, who is acutely short of breath; and
- **Background:** She’s got chronic lung disease, has been sliding downhill, and now she’s suddenly worse; then they have to get to the assessment: “I don’t have any breath sounds on the left side of her chest. I think she’s got a pneumothorax;” and finally, the recommendation: “I need you here now. I believe she needs a chest tube pronto.”

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SBAR not only ensures that everybody gets what they want, but also helps develop critical thinking: when people pick up the phone, they have this model in their mind of what they actually have to deliver. SBAR is an effective bridge for a group of people who interact all daylong, but who are trained to communicate differently.

What is the difference between novice and expert decision makers?

An “expert”—an internist, surgeon, or nurse who’s worked in medicine for 10, 15, 20 years—makes decisions by pattern matching. When they see a patient or a clinical situation, they have a large mental library of experience to match against. They can walk into a clinic or emergency room and their gestalt is, “This patient’s sick,” and then they start to fit the patterns in order to get to, “Bingo! It’s this, and I’m going to do these things, and this is how we’re going to verify or ensure that we’re correct.” It is a rapid process, and quite accurate if the expert continues to match against. They can walk into a clinic or emergency room and their gestalt is, “This patient’s sick,” and then they start to fit the patterns in order to get to, “Bingo! It’s this, and I’m going to do these things, and this is how we’re going to verify or ensure that we’re correct.” It is a rapid process, and quite accurate if the expert continues to match against.

For “novices” (medical students, interns, new nurses, nursing students, or even traveling nurses) the mental file folder is empty. They need to use a procedurally-driven process in making decisions, which is quite slow and prone to error. One example is a brand new intern clutching her Washington University manual of medical therapeutics as if life itself emanates from it—because she doesn’t know how to make decisions. What she does have is a “cookbook” that says, “If a patient has heart failure, do the following 12 things.”

What’s critical when experts work with novices—which happens every day—is for the expert to slow down a little bit and realize that the novice cannot perform on their level and keep up with them. The expert needs to explicitly state—to the point that seems overly obvious—what is going on: “This is the problem. This is how we’re going to fix it, and this is how we’re going to know if we’re right.” The expert on the team needs to go through that process, otherwise he or she ends up wondering, “This novice is kind of useless. I’m just going to fix the problem,” and the novice on the team ends up wondering (but not learning) “How did he know that?” The experts need to go out of their way to include the novices in the process, so they can become experts. Otherwise they are not teammates, but rather independent operators at different skill levels often not on the same page.

We show them that by investing a small amount of time up front in effective communication, building the team, and creating a common mental model, that their clinical day is going to be simpler, safer, and easier for all involved.

What skills influence clinicians’ operating in a team structure?

There are specific teamwork skills for people in medicine that appear to be universally applicable across health care from open-heart surgery to the ICU to the outpatient clinic. One, which I’ve already discussed, is briefing: getting a group of clinicians to set the stage and communicate effectively. Another is assertion. Assertion is usually not a big deal for physicians because they’re at the top of the food chain, but it’s a huge issue for people lower in the hierarchy. What we’re talking about is how we can give less empowered people a mechanism for speaking up when they see something wrong. We don’t want somebody standing in the room saying to herself, “This is a mistake,” but unable to tell people. When we’ve looked at survey data—using Brian Sexton’s survey—a high percentage of nurses say it would be difficult to speak up if they saw a physician making a mistake. In the JCAHO data on wrong site surgeries, the majority of the time someone in that OR knows the wrong thing is being done and can’t find a way to say so.

A while back in my institution, an anesthesiologist and a circulating nurse took an awake patient to the operating room for shoulder surgery and proceeded to put in a nerve block on the wrong shoulder. The scrub nurse knew they were wrong, and started talking to them, but in an oblique way (nicknamed “hint and hope” in the aviation world)—which is quite typical. Their perception was, “We don’t know what she’s talking about. She’s being a pain in the neck. We’ll talk to her later.” So they continued on and performed a successful procedure on the wrong side. Afterwards, the scrub nurse’s version was “I told him he was doing the wrong thing and he wouldn’t stop.”

What else?

Situational awareness is another universal team skill. How do we keep everyone on the same page, and what are the red flags that tell you that you’re getting off in the margins? (For example: things are going sour with the patient and it gets quiet, as opposed to enhancing and increasing the communication. Or you get the sense of “it
doesn’t feel right”—as an expert the pattern you are matching is telling you things didn’t go well the last time you saw this.) Ideally, these skills tie together: everyone’s on the same page, if someone sees (or senses) something that makes them uncomfortable, they have a standard way to openly communicate that to the rest of the team.

The last skill I’ll talk about today is debriefing. This is an opportunity for individual, team, and organizational learning. At the end of the day or a procedure, the people involved can spend two to three minutes talking about “How did it go?” The more specific the debriefing, the more value it has. “What went well, what was difficult, what could we have done differently, and what did we learn.”

“A great study on the incorporation of minimally invasive cardiac surgery reveals that teamwork and human factors played a large role in the teams that had the fastest learning curve and the best clinical outcomes. The key components were having dedicated individuals on the team who put a lot of value on debriefing. At the end of each procedure, they would say, “What did we learn? How could we do it differently? How are we going to come back to the table next time?”

What are some of the clinical teamwork skills that clinicians can use everyday in primary practice?
The University of Utah family practice program is using the first appointment slot of each day to have an all staff briefing. The effect, so far, is that the time for a patient to go through their system has been cut in half simply by the staff spending a little time at the beginning of the day to get on the same page, to look at who’s coming in, the jobs, the challenges, and how they can approach those together.

Another technique being used at a number of Kaiser primary care clinics is the five red flags, which can be customized for any particular team or care environment. These are fundamental sources of risk—different for every setting—deserving teamwide attention. For example:

- What are the five medications our patients are on that increase the risk of having a problem?
- What are the five conditions that we cannot afford to miss in our clinic (like acute heart attack or MI)?
- What are the five tests we can’t afford to lose?, or
- What are the five ways that the ball gets dropped?

This exercise creates a common conversation in an outpatient clinic where they say, “This is the stuff that causes problems and puts people at risk. These are the things we want to think about every time.” It also creates a common mental model and a common safety net across that care environment.

Where do you go with this?
Our next phase in the OR is using direct observation to try to collate actual individual task performance and teams behaviors. Ultimately, the Holy Grail, is to demonstrate the impact of briefings on clinical outcomes. We are also seeing more and more evidence that if we invest in improving the environment for the people delivering care, everybody wins.

References