Research on handoffs from other industries gives some preliminary clues on what might be helpful in health care.

Emily Patterson, PhD, research scientist at the Veterans Administration’s Getting at Patient Safety (GAPS) Center and Ohio State University, has examined handoffs in 4 industries with high consequences for failure: NASA, nuclear power plants, a railroad dispatch center, and an ambulance dispatch center. In a 2004 article, she describes handoff strategies used in these industries and suggests implications for health care. A second exploratory study looked at how often the strategies were used on 4 acute care nursing units.

OR Manager interviewed Patterson about her research.

Q Would you briefly describe your findings?

Patterson: Our findings indicate there are a number of strategies employed in these 4 high-reliability settings, presumably to make handoffs more effective, efficient, and robust. It is interesting to note that many of these strategies were not formalized in policies and procedures. Even so, they were used consistently by different people, indicating these are a clear and well-understood social norm.

At a more detailed level, we found that 19 of 21 handoff strategies were employed in at least 1 of the 4 domains at least on an “as needed” basis. The 2 strategies not observed in any of the settings were read-backs and providing information in a consistent order based on content. From these findings, those 2 strategies don’t seem to be useful in these settings. Several of the strategies are also employed in nursing handoffs on acute care units.

As you would expect, we did see strategies to reduce the loss of information during a transfer. Some of the most interesting strategies improved quality and safety. Some provided an interesting opportunity to improve the robustness of handoffs. For example, one person might recognize that another person had not realized that a patient had an allergy. The literature indicates that one of the best ways to address this type of “fixation error” is to have a new person come in with a fresh perspective. Handoffs are a way to do that.

Q How would you characterize your findings and their applicability to health care?

Patterson: Overall, I hope the findings can jump-start efforts to improve handoffs in health care. We did the research with that intent. But there are several concerns. In general, health care is more diverse and complex than the settings we studied. In addition, any change to any complex setting often has unanticipated, negative consequences that need to be monitored and managed. For example, if an acute care nursing unit at shift change decides to change from listening to an audiotaped update to face-to-face oral interactions, the charge nurse may not be aware of information shared on the audio tapes, such as which patients are on do-not-resuscitate orders. Similarly, nursing assistants may have more difficulty predicting which patients need fingerstick readings. Nurses may need to provide additional updates to the charge nurse or nursing assistants, or forms may need to be created to capture this information in a different way.
What could OR leaders take away from your research that could be helpful in improving handoffs in surgery?

Patterson: Although I have little experience with the OR environment, I think that there are some strategies that might be worthy of consideration. One strategy is to include the outgoing team’s stance toward changes to plans and contingency plans. For example, if the circulating nurse has thoughts about troubles a patient might have postoperatively and how to address them, the nurse would include that information in the handoff update. This would reduce unnecessary variation and aid anticipation. This provides the opportunity for error checking by the team receiving the patient.

Another strategy is to delay the handoff of responsibility for a patient during critical activities. For example, in a unionized facility, the contract may require nurses to take breaks at certain times. Organizations with this requirement might consider negotiating language to allow flexibility for nurses to delay breaks if a case is in a critical phase.

I would avoid the 2 strategies that were not observed in any of the settings we looked at—read-backs and providing handoff information in a consistent order based on content. There appear to be trade-offs in using them that are not judged to be worth it.

JCAHO has recommended standardizing handoffs, including the opportunity to ask and respond to questions. Does your research speak to these recommendations?

Patterson: All 4 settings used a face-to-face oral update with questioning, and all found it valuable. One reason was that they want the opportunity to ask and respond to questions. We categorized the kinds of questions and found they were to initiate new topics, obtain more details, confirm an understanding, and perform error checking.

As with all of these strategies, it is unclear whether these should be applied to any particular health care setting. It is also unclear what the unintended consequences of change might be.

Our preliminary study of shift changes on nursing units suggests there is immense variability in how handoffs are conducted. Thus, any standardization would require a lot of change, and we worry about the unintended consequences.

In addition, the research base on handoffs is remarkably little right now, so we do not really understand the reasons for this variability. There might be important reasons why different settings have different approaches. A one-size-fits-all approach might not be the best one for patient safety.

A handoff is not just a data exchange. Rather, it is distillation of what is important. It is a conversation that has a lot of subtle cues and complexity. We need to allow people to provide the most important information in the order they think will most help the person receiving it accomplish the goal. So I would not say that a prescriptive approach is warranted based on this approach. For example, I would not like to see checklists; required items in particular orders; or required durations, locations, language, or enforced structures for handoffs. Handoffs are efficient and effective precisely because they focus on “the important stuff,” and this material is rarely known or knowable in advance.

Have you examined how technology might help improve handoffs?

Patterson: We have not specifically researched this. Overall, handoffs are a communication event between 2 people that distills information in a way that aids anticipation for the person taking over responsibility.

If technology is used to supplement communication, such as an overview display about a patient, I think that could be useful. On the other hand, if technology is used to change a human-human interaction into a human-technology-human interaction,
there are several worries. This is because complexity of handoffs is high, there are a variety of subtle cues and much of the content is not formal data—instead, it is a description of problems and potential problems and often conflicts and uncertainties. I have heard talk of using PDAs to do handoffs, by typing in information and sending it to someone else’s PDA. I wouldn’t want to see that sort of thing where you are replacing human-human interactions.

The VA’s GAPS Center web site is www.gapscenter.org

References
