Using a Checklist to Avoid Simple Errors of Omission

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The article published in this issue of *Academic Radiology* describing PRODUCT (1) reports the outcome of a fluoroscopy checklist and also contains a discussion of the use of a fluoroscopy checklist based on a pneumonic. In fact, checklists have been increasingly used in medicine for the following reasons. First, their purpose is to prepare the stage so that a critical step in a procedure is not omitted. Second, a checklist ensures that practice guidelines are introduced and followed. Guidelines can be established by analyzing the essential and universal actions of experts in performing a task. It is important that several experts are interviewed or watched as there are often steps inserted for reasons of superstition but which are not critical to the outcome of a process. And third, a checklist ensures that a step that is necessary is not omitted. This last item is particularly important in the case of an overly confident novice or in a tedious procedure, where the obvious may be omitted or forgotten because it is obvious to ensure outcome.

Checklists represent a form of task analysis in which the obvious is often incorporated with the not so obvious to ensure that steps are not forgotten. Thus, checklists initially were an air safety procedure to ensure that a step was not omitted and that standardized guidelines were followed. Therefore, checklists can exist to standardize actions, incorporate guidelines, and avoid omission of a key point. Checklists are also useful for self-checking of performance, self-assessment, and self-evaluation. What better way to organize the approach to a problem and to support success than to have the necessary steps readily available to the learner.

There are several inherent problems with guidelines. One is that in the rush of excitement, as in an emergency situation, the checklist may not be available or may not pertain to the situation at hand. Because checklists are a weak replacement for common sense, they do not belong in every situation. If dependence on a checklist is strong, it may actually hinder performance in a time-critical situation. This is often the case in a medical emergency, unless there is someone present who has been especially trained in an essential procedure. This situation supports simulation training of key medical personnel to respond to an emergency situation.

Reference is often made to the story of successful resuscitation of a child who was submerged in frigid water for a period. It was essential to her successful survival that key services in the destination hospital be prepared for her arrival, and a very simple solution to this problem was to notify the hospital with communication about the situation and expected arrival time to avoid the inevitable “last-minute” rush to prepare for the necessary and some unnecessary procedures (2,3).

Checklists have been showing up in critical care and surgery recently as a useful quality improvement and quality assurance measure.

In 2001, Peter Pronovost, a critical care and anesthesia specialist, gave the idea a try. He designed a checklist to address only one problem: line infections.

1) Doctors washed their hands first with soap,
2) The patient’s skin area was cleaned with chlorhexidine antiseptic,
3) The patient was covered with sterile drapes,
4) The person inserting the line should wear a sterile mask, hat, gown, and gloves, and
5) A sterile dressing was placed over the catheter site when the line was inserted. Despite this being a routine procedure, on keeping a written tally, it turned out that at least one step was omitted in one-third of line insertions. And what was revolutionary was that nurses were encouraged to follow the procedure to check for a skipped step, they were to then stop the line insertion and inquire about the skipped step; they also could ask if a line was kept longer than it ought to be or if it was ready to be removed because it was unnecessary.

The outcomes were monitored for 1 year, and the results in terms of savings to the hospital and in terms of decreased infections were astounding. As Gawade states “The results were stunning. Within three months, the rate of bloodstream infections from these I.V. lines fell by two-thirds. The average I.C.U. cut its infection rate from 4 percent to zero. Over 18 months, the program saved more than 1,500 lives and nearly $200 million” (4,5).
Since then, checklists have been mandated in Ontario, Canada, to monitor Surgical Safety (6), by the World Health Organization as a monitor of postoperative complications (7) and in numerous other venues of healthcare, often with amazing results. Remember that a checklist requires enough humility on the part of the physician to accept lack of perfection and the need for improvement.

REFERENCES


5. Pronovost, P., Vohr, E., Safe patients, smart hospitals: how one doctor’s checklist can help us change health. 2010
