

# The Checklist Conundrum

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The story of the patient-safety movement is one of slow progress punctuated by episodes of inspiring successes that are slow to be replicated. So it is not surprising that when promising innovations are not universally adopted, the public and policymakers are outraged and sometimes turn to regulation to ensure compliance. The surgical safety checklist is such an innovation.<sup>1</sup> The use of such checklists has been mandated or strongly encouraged by several governments, including those of the United Kingdom, the Netherlands, and Ontario, Canada.

A study reported in this issue of the *Journal* by Urbach and colleagues<sup>2</sup> shows the limitations of this approach. Assessing the outcomes of all surgical procedures performed in Ontario during 3-month periods before and after hospitals implemented a surgical safety checklist, they found no reduction in surgical mortality or complications, despite self-reported use of a checklist by 98% of hospitals. Ninety-two of the 101 study hospitals provided copies of their checklist; of these, 90% used an unmodified World Health Organization (WHO) or Canadian Patient Safety Institute checklist. Educational materials were made available to hospitals, but no team training or other support was provided.

What are we to make of this? First, it is important to state the obvious: it is not the act of ticking off a checklist that reduces complications, but performance of the actions it calls for. These actions do not merely include confirming the identity of the patient, operation, and site and ensuring that the necessary instruments, fluids, blood, and equipment are available; they also include having all team members introduce themselves and having the surgeon brief the team on the critical steps of the operation and address any concerns of the anesthetist and nursing team. The checklist is merely a tool for ensuring that team communication happens.

Second, fully implementing the checklist is difficult. Although the tasks on the checklist may seem straightforward, many do not occur in the typical operating room. The key is recognizing that changing practice is not a technical problem that can be solved by ticking off boxes on a checklist but a social problem of human behav-

ior and interaction. As Pronovost and colleagues<sup>3,4</sup> have shown, successful system change requires demonstrating the need for change, engaging institutional leadership, collecting data, and most important, providing training in teamwork so that everyone feels respected and accountable. The WHO recommends adapting the surgical safety checklist to suit local needs, an approach that furthers team building and a sense of ownership.

Third, hospitals need help to implement the checklist. Many lack the resources or expertise to organize and lead a checklist-implementation effort or to manage the changes needed, collect data, and build teams. The effective spread of checklist use is probably best accomplished by statewide or systemwide collaboratives. Originated by the Institute for Healthcare Improvement in the 1990s<sup>5</sup> and refined by the Michigan Keystone Center,<sup>6</sup> collaboratives provide local teams with direction, coaching, training, data management, and the opportunity to learn from other hospitals' experiences. The Veterans Health Administration Medical Team Training project provided such support for implementing checklists; surgical mortality in study hospitals had decreased by 18% after 1 year.<sup>7</sup>

Fourth, gaming is universal. Even in successful hospitals, there are surgeons who resist participating in checklist implementation. If a checklist is required, the person responsible for documentation will ensure that all boxes are ticked. In the absence of direct monitoring by observation, true compliance is unknown. In the United Kingdom, a recent observational study revealed that the tasks on the preincision checklist were completed in 55% of operations; for the postoperative checklist, the percentage was 9%.<sup>8</sup> In a Netherlands hospital, full compliance was observed in just 39% of operations.<sup>9</sup> However, mortality in that group of patients was 44% of the mortality among patients who underwent procedures in which compliance was not observed. The checklist only works if you use it.

Finally, full implementation takes time: time for the team to get it right and time for all units in an institution to get on board. The Veterans Health Administration found that mortality continued to decrease by 0.5 deaths per 1000 proce-

dures in each passing quarter after hospitals launched implementation of the checklist.<sup>7</sup> In the Netherlands, the rate of full compliance rose from 12% in the first quarter of implementation to 60% in the sixth quarter.<sup>9</sup>

The likely reason for the failure of the surgical checklist in Ontario is that it was not actually used. Compliance was undoubtedly much lower than the reported 98%. The fact that 90% of hospitals that provided a copy of their checklist used an unmodified WHO or Canadian Patient Safety Institute checklist indicates that the team building needed for local adaptation did not occur. Even if full implementation did occur, it is unlikely that an effect would have been seen within 3 months.

Should implementation of surgical safety checklists be required? Probably not — or at least not yet. Regulation works best when a practice of unquestioned value has become the norm. We are not there yet. Implementing the checklist is still a struggle in most hospitals. However, the process of adoption needs to be greatly accelerated. What should be mandated — and nationally funded — are large-scale state and systemwide collaboratives to motivate, train, and support local efforts to implement checklists.

Disclosure forms provided by the author are available with the full text of this article at NEJM.org.

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