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The World Health Organization Safe Surgical Checklist: it's time to engage

Alan F Merry, Simon J Mitchell

This issue of the *Journal* includes a report from Lee et al describing the implementation of a checklist-based "Time Out Procedure" (TOP) for elective surgical procedures in three major hospitals in Christchurch in 2004.[1] Aspects of operating room practice relevant to this initiative were evaluated (in 10,330 procedures) in 2004 and then again (in 25,086 procedures) in 2008. Amongst other observations they report "good catches" of three near-misses, in two of which the wrong operation might have otherwise have been undertaken.

This initiative was remarkably forward-thinking. In 2004 (the year this work began), Berenholz, Pronovost and colleagues reported an innovative intervention, supported by a nurse-administered checklist, to improve compliance with evidence-based infection control guidelines during insertion and subsequent management of central venous lines. This reduced the rate of central line-associated bacteraemia (CLAB) from 11.3/1000 catheter days in the first quarter of 1998 to 0/1000 catheter days in the fourth quarter of 2002.[2] Pronovost's group extended this work to over 100 intensive care units in the US state of Michigan.

The mean rate per 1000 catheter-days decreased from 7.7 at baseline to 1.4 at 16 to 18 months of follow-up.[3] Four years later, Haynes, Gawande and colleagues studied the effect of introducing a three-phase Surgical Safety Checklist, developed under the auspices of the World Health Organization (WHO), to eight international sites (Auckland, New Zealand was one of these).[4]

Pooled data from all sites showed that the rate of mortality was reduced from 1.5% to 0.8% and the rate of predefined complications from 11.0% to 7.0%. In 2010 two further studies demonstrated very similar improvements in perioperative outcomes after introduction of safety-optimising strategies that included checklists as a central feature.[5 6] The improvements in all four of these studies were highly significant, but more importantly, they were clearly of a magnitude of considerable clinical significance.

In November 2010 the New Zealand Government established the Health Quality and Safety Commission. The Commission's establishment "recognised the substantial human and financial costs associated with medical errors. There was concern that only modest improvements in quality and safety had been achieved and experts argued that a strong mandate to drive quality-related activities, greater coordination of appropriate quality interventions at a national level, and strong clinical engagement, was pivotal to achieving substantial quality gains."[7]

The Commission's objectives, set out in legislation, are to lead and coordinate work across the health and disability sector for the purposes of: monitoring and improving the quality and safety of health and disability support services; and helping providers

across the sector to improve the quality and safety of health and disability support services.

Perhaps Pronovost's most important contribution to healthcare improvement has been to articulate that the delivery of healthcare is in fact a science. A primary aim of the Commission is to build the understanding and capacity needed to embed this science into everything we do in our health and disability systems. It is doing this, in the first instance, through programs with a strong evidence base and considerable potential to reduce harm cost-effectively.

It is not surprising that one of these programs includes Pronovost's approach to reducing CLAB and that another is based on ensuring that the WHO Surgical Safety Checklist is used effectively in all hospitals in New Zealand. These two initiative on their own they have the potential to avoid substantial human suffering while at the same time reducing waste of precious resources that should be directed to treating patients successfully the first time rather than picking up the pieces when things go wrong.

The key to the success of both these initiatives (and indeed of all the Commission's work) is buy-in from clinicians, and in particular from senior doctors. In this regard, Lee et al report a glass fairly full. In the second phase, the TOP forms were 98.2% completed, an improvement from 87.2% in the first phase. It is disappointing, however, that four surgeons did not want to participate in this phase.[1] Their attitude is reported as unchanged 5 years later. Furthermore, failures to complete the TOP most commonly reflected the absence of the surgeon at the critical time, and questionnaire results showed that a small number of consultant surgeons disagreed that the TOP was valuable and that all members of the surgical team have a collective responsibility in 'getting it right'.

These findings concur with our own published observation that engagement with the Surgical Safety Checklist is quite variable,[8] with some teams showing great commitment to making sure its potential is achieved while others treat it as just another burden of tick-box compliance.

Lee et al explain that the WHO checklist goes beyond their own intervention. At the heart of the WHO initiative is something much more fundamental than simply avoiding mistakes. Specifically, the WHO checklist promotes communication. It provides an explicit opportunity for each team to communicate any concerns they might have in relation to the planned surgery, which is clearly very important in planning and providing for an adequate response if things in fact go wrong. This can be as simple as ensuring a required prosthesis or a piece of equipment that might be needed if certain things occur, is in fact immediately available.

The WHO checklist requires that team members in the operating room introduce themselves. This is potentially important in empowering all who are present to speak up if they see something going wrong. It is very common, when avoidable accidents occur, for someone to say after the event that they were worried, but felt unable to mention this.

By ensuring that staff introductions occur, the checklist also facilitates directed communication in which requests or instructions are delivered to a named person

rather than the operating room at large—a technique known to improve the functioning of teams, particularly during crises.

Through all of this, if implemented constructively, there is substantial potential for enhancing teamwork in general, and it is this (in addition to avoiding mistakes) that probably leads to the surprising 30% reduction in harm that has now been demonstrated in several major studies using essentially similar approaches.[4–6] It is true that in the two more recent studies the intervention goes considerably beyond simply implementing an intraoperative checklist, but therein lies an important point.

The real opportunity here is not just to use any particular checklist; it is to engage in the underlying science of healthcare delivery. There is no edict against finding ways to extend or modify the WHO checklist in order to make it more suited to particular settings—indeed this is explicitly encouraged.

On the other hand, it does seem that the time has passed when it might be acceptable not to engage at all. As Birkmeyer, in an editorial in the *New England Journal of Medicine*, concluded "…checklists seem to have crossed the threshold from good idea to standard of care."

In New Zealand, we rightly pride ourselves on the high standards of our health services and certainly this includes our surgical services. The work reported by Lee et all is an excellent example of innovation and commitment to excellence. The Commission has accelerated the national adoption of improvement science, including the use of checklists. The onus now is on all concerned, particularly senior doctors (who have great influence on the functioning of operating room teams), to engage in these initiatives, to ensure they do not become just tick box burdens, but instead achieve their full potential.

Competing interests: Alan Merry is Chair of the Board of the Health Quality and Safety Commission and both authors have conducted research into the use of the WHO Safe Surgical Checklist.

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