

# Surgical Safety Checklist is no magic bullet to prevent unsafe surgery, say researchers

August 16 2013

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A widely promoted checklist to reduce complications and deaths during surgery is not straightforward to implement in either high- or low-income countries, says new research. It is especially unlikely to be used as intended in countries where the electricity supply is unreliable, there is a lack of basic materials such as gauze, and shifts can last for up to 36 hours.

(Medical Xpress)—A study carried out by Dr Emma-Louise Aveling and Professor Mary Dixon-Woods in the Department of Health Sciences at the University of Leicester, and Peter McCulloch in the Nuffield Department of Surgical Science at the University of Oxford, has compared how the checklist was used in operating theatres in two English hospitals and one sub-Saharan African hospital.

The results of the study - which was funded by a Higher Education Innovation Fund Impact Award, the Wellcome Trust, and the Department of Health Policy Research Programme - are published today in *BMJ Open*, an open access online journal.

The results are likely to foster debate worldwide. Policy makers and the World Health Organization have supported the [checklist](#) since it was reported to have reduced the rate of deaths and complications by more than a third across eight diverse hospitals in different countries in a 2009 [pilot study](#).

Dr Aveling, who carried out the field research, says: "An important feature of the checklist is its claim to universality: it is meant to be as simple to use in a rural hospital in Namibia as it is in a private medical centre in New Zealand."

Now used in 1800 institutions worldwide, the checklist combines checks for technical items, such as administering antibiotics and using pulse oximeters (which are attached to the finger to measure oxygen to the brain), and non-technical items, such as team introductions.

Use of the checklist has been mandatory in UK hospitals since 2010. But so-called 'never events' - [patient safety](#) incidents that the checklist is designed to catch - have continued to occur in the UK and around the world.

The research team conducted extensive observations in operating theatres in the UK and an African country and interviewed clinicians and managers to see whether the checklist was used properly and fully. They found some similarities between the UK and African settings.

Although many staff welcomed the checklist, they complained about some items. And not all staff were wholly enthusiastic; some were very resistant to using the checklist properly. If these individuals were in senior positions or were very powerful in their local environments, their attitudes could undermine checks designed to promote teamwork and reduce hierarchies.

Dr Aveling says: "The checklist was designed not only to improve patient safety by increasing the reliability of technical steps, but also by strengthening communication. But if checklist implementation is not handled well, it is precisely where technical and communication issues are most problematic that the checklist, by itself, is least likely to resolve them."

The research found that in the UK settings use of the checklist was high, although not 100 per cent, for most procedures. In the African setting it was highly inconsistent - there, during staff shortages, emergencies or busy periods, the checklist was abandoned altogether. Checkboxes were ticked without tasks such as equipment counts being undertaken.

Differences were particularly marked where material resources were concerned. There was a limited range of antibiotics and no hospital policy regarding their administration; there were also too few pulse oximeters, yet operations were rarely cancelled if one was not available.

Dr Aveling commented that: "Things we take for granted in the West - reliable sterilisation, the availability of basic equipment - are rare in some low-income countries. This made the checklist difficult to implement and use correctly and completely."

Particularly disquieting was the finding that poor checklist implementation in low-income countries might not only fail to reduce patient safety risks but also introduce new risks for staff and patients.

The researchers cite the case of two staff members at the African hospital who were threatened at gunpoint and then arrested after a patient died during surgery from lack of oxygen to the brain. No pulse oximeter had been available, even though the checklist stipulates its use.

Professor Dixon-Woods, who is a Wellcome Trust Senior Investigator in

Society and Ethics, says: "The principles underlying the surgical checklist are good ones, but only now are we waking up to the serious challenges associated with implementation. On its own, the checklist is no magic bullet."

The team has made several recommendations that it hopes will make the checklist more effective across the world: surgical teams should be trained together on the use of the checklist, not separately within their disciplines; collection and feedback of data has to be improved, with further support if necessary; and senior staff need to be called on to act as 'champions' of the checklist where there is resistance to use. Most importantly, the checklist needs to be part of a broader, institution-wide campaign to improve patient safety, not just introduced in isolation.

**More information:** Aveling EL et al. A qualitative study comparing experiences of the Surgical Safety Checklist in hospitals in high and low-income countries, *BMJ Open* 2013.

Provided by Wellcome Trust

Citation: Surgical Safety Checklist is no magic bullet to prevent unsafe surgery, say researchers (2013, August 16) retrieved 25 April 2024 from <https://medicalxpress.com/news/2013-08-surgical-safety-checklist-magic-bullet.html>

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