

book reviews

The checklist manifesto: how to get things right

By Atul Gawande. Profile Books Ltd, London 2010.
209 pp. £12.99.

I came across this book after an interesting brush with a rather new, enigmatic surgical phenomenon known as the World Health Organization (WHO) surgical safety checklist. My gastroenterology colleague and I had ventured into unfamiliar territory, an operating theatre to observe a gastroscopy. A 54-year-old man had presented the day before with haematemesis and melaena and was found to have a large bleeding duodenal ulcer that my colleague had injected and clipped. However, he had ongoing melaena and the surgeons were called in to consider a surgical approach, but were keen to ensure ongoing bleeding. While awaiting the start of the procedure, we were suddenly corralled into theatre and directed by a nurse to introduce ourselves as she frenetically ticked away at a checklist. This proved to be a rather surreal experience and on release from my corral I consulted my wife, an obstetrician about this rather peculiar activity of self-introduction among surgeons. She chuckled and remarked that I had experienced what has been nicknamed the ‘WHO huddle’. That our surgical colleagues would embrace such an activity intrigued me and set me about investigating.

In this book, Atul Gawande, renown surgeon, author of *Complications*¹ and *Better*² and staff writer for the *New Yorker*, describes in his elegant style the journey that culminates in the creation and testing of the WHO surgical safety checklist.³ In his extremely readable style, peppered with examples, he starts by making the case for the extreme complexity inherent in our work with ill human beings, the inexpressible success when multiple interventions work together to save a life but also the avoidable failures that are nearly missed when pivotal interventions are forgotten. This is despite the remarkable expertise and superspecialisation that exist in 21st century medicine.

Gawande makes the case for the humble checklist, firstly drawing from the experience of the aviation industry. In 1935, after the prototype B17 crashed, test pilots devised a simple checklist to ensure all the ‘dumb stuff’ got done. The checklist aims to protect against the fallibility of human memory, distraction under pressure and to highlight the minimum necessary steps for success. However, although these checklists entered the nursing arena in 1960 in the guise of recording vitals, they were deemed too lowly and had not entered the medical arena. However, in 2001 a checklist was trialled that proved to reduce central line infections in intensive care units.

The second area explored was the construction industry. Builders of high-rise towers have to coordinate the work of multiple teams and expectations from clients, architects and engineers but still succeed in building safe, efficient buildings. ‘A

building is like a body’, says Joe Salvia the structural engineer who takes Gawande through the complexity of working multiple teams by using the construction schedule, which takes the form of a checklist. He explained how modern construction moved from the concept of the Master Builder who knew everything to multiple teams due to the complexity of knowledge, skills and specialisation, not different from medicine. When a variance or unexpected problem arose, a submittal schedule was used to enforce communication between various team leaders with a deadline to decide on an appropriate plan of action.

A final example is drawn from the food industry with the use of checklists in a restaurant to ensure reproducible quality of food being served. This provided further evidence of the efficacy of the checklist. The idea ensures consistent adherence to tiny, yet particularly important, details.

In late 2006, WHO invited Gawande to help solve the problem of the rising number of surgeries worldwide and the associated unsafe care and complications. In January 2007 a brainstorming meeting of surgeons, anaesthesiologists, nurses, patients and safety experts was convened. The benefits of surgery and the risks of complications were acknowledged but incentive approaches to improve standards, such as pay for performance or guidelines, looked ineffectual or burdensome globally. Drawing from previous public health successes, the interventions that worked were simple, transmissible and performed like a checklist that highlighted the minimum necessary steps.

Targeting the three main killers – infection, bleeding and unsafe anaesthesia – various pre-surgical checklists/team briefings were reviewed that highlighted the importance of timing antibiotics and discussing potential problems. The result was an increase in staff satisfaction and team working that is especially needed when the unexpected occurs. With the assistance of aviation experts, using previous airline disaster and near misses, the surgical safety checklist was devised and trialled by WHO at eight major hospitals internationally, set in different backgrounds.¹

Initial data on types of surgery and major complications were recorded for a three-month period prior to and after implementation of the checklist. Data collectors and staff were trained on how to use the checklist. This training included a YouTube video detailing how to, and how not to, use the checklist (still available to watch including similar videos by the National Patient Safety Agency). Teams from WHO went to the eight centres in Tanzania, India, Jordan, Philippines, New Zealand, London, Toronto and Seattle. In January 2009, the results were published in the *New England Journal of Medicine*. They showed a 47% reduction in deaths from 1.5% to 0.8% and a 36% reduction in major complications from 11% to 7% using this checklist.

The positive findings resulted in the checklist’s implementation in the UK and despite some remaining scepticism, an overwhelming 80% of staff surveyed felt it improved care and 93% would want it used for their surgery. There was better use of antibiotics, oxygen monitoring and, although it was unclear how the checklist decreased bleeding complications, greater team working scores correlated with lower complication rates.

In his penultimate chapter Gawande challenges the concept of the hero in the era of the checklist highlighting the examples of the Hudson River plane landing in January 2009 and financial investors. It is evident that the pilots of US Airways 1549 saved 155 passengers by diligently following checklist protocols after their engines failed when they struck a flock of Canadian geese not long after takeoff, safely landing the plane into the Hudson. Additionally, venture capitalists who methodically follow checklists make better investments. However, heroes today are perceived as daring audacious experts rather than those who accept the virtues of regimentation afforded by checklists. We do not like checklists because they are painstaking, lazy, embarrassing and run counter to our beliefs that the truly great are daring improvisers who shun protocols and checklists.

In conclusion, Gawande takes us through an elegantly written journey challenging our deep held beliefs in our individual autonomy, infallibility and superiority as trained superspecialists by providing clinical stories, examples and evidence of the effectiveness of the humble checklist. As physicians of the 21st

century NHS, constrained by financial limits, the European Working Time Directive, issues of effective handover and patient safety, maybe we too have a lesson to learn from our surgical colleagues and the humble checklist. I would highly recommend this very readable book to everyone interested in improving patient care.

References

- 1 Gawande A. *Complications: a surgeon's notes on an imperfect science*. New York: Metropolitan Books, 2002.
- 2 Gawande A. *Better: a surgeon's notes on performance*. New York: Metropolitan Books, 2007.
- 3 Haynes AB, Weiser TG, Berry WR *et al*. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med* 2009;360:491–9.

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Education

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