Anaesthesiologists: are we a risk?

The short answer to this question is: “Most definitely!” The subsequent question is: “How much of a risk are we?” And the answer to that (as with many things in anaesthesia) is: “That depends…..”

Many factors may make us as anaesthesiologists appear as a risk but, in broad terms, these can be divided into two categories:

- **Human error**, which is defined as performance that deviates from the ideal. In our case, this may take the form of cognitive or procedural error. Cognitive errors are usually thought-process errors in decision making, and may be attributed to the individual or to the anaesthetic team. They usually cause morbidity or mortality. Procedural errors occur when the wrong drugs are administered, or if mistakes are made with nerve blocks or other similar procedures. These errors also result in morbidity or mortality.

- **Impairment**, due to a host of different factors, such as illness, fatigue, sensory deficits (vision and hearing) and substance abuse. Stress and burnout in anaesthesiologists has recently been highlighted, and may result in some form of “impairment” to performing one’s job properly.

The crude measure of these risks can be looked at in general terms of anaesthetic safety, which can be defined as: “No patient should be harmed by anaesthesia.” In other words, this is the anaesthesiologist’s role in anaesthetic mortality and morbidity. So, how good or bad or “risky” are we, as a specialty, and how are we doing in South Africa in comparison with other countries? Is there room for improvement?

If one looks at anaesthesia mortality studies in the Western world, the striking fact is that they are not standardised, particularly in terms of definitions. Nevertheless, anaesthesiologists have played a leading role and continue to do so, in causing deaths due to anaesthesia. Beecher and Todd conducted a well-known study of anaesthetic deaths in the US from 1948 to 1952, and called them a “public health problem”. In 1992, Alan Merry published the oft-quoted study in which he and his co-workers studied first-time CABG patients, identifying anaesthesiologist number 9 as being a particularly high risk. In Australia and New Zealand, Gibbs and Borton reported the incidence of death as being 0.07 per 10 000 in 2002. Lienhart and co-workers, in France, studied deaths due to anaesthesia in 2006, and found an incidence of 0.12 per 10 000. They also identified “root causes” contributing to deaths. These included team factors, such as communication, supervision and seeking help, individual factors, such as experience, competence and judgment, and also work environment factors. All of these contribute to human error.

Anaesthesia mortality studies in South Africa have also not been standardised, but mortality due solely to anaesthesia has improved from 9.3 per 10 000 in the Orenstein report from 1936, to 0.7 per 10 000 in Harrison’s study in 1990. My own recent, unpublished work indicates a rate of 0.4 per 10 000. Harrison’s comments after studying anaesthetic mortality over a 30-year period were: “Skills and clinical judgment for airway management had not changed with time, but haemodynamic control, dependent on intellectual responses to information derived from ever-improving vital function monitoring, had changed.”

When Keats was asked to comment on whether human error has decreased in the causation of anaesthetic deaths, he replied in an editorial in 1990: “Anaesthesia mortality has decreased because of our efforts toward improving anaesthesia care. Alternatively, anaesthesia mortality has not decreased because most are caused by errors, and no progress has been made in error reduction.”

When one looks at morbidity from anaesthesia, the studies vary even more than the mortality studies. Minor (postoperative nausea and vomiting and sore throats), intermediate (wrong drugs and postdural-puncture headache) and major (spinal cord injury and brain damage) morbidities have been described, many attributable to the anaesthesiologist and to human error. In South Africa, we have no such published studies, particularly with relation to procedural errors.
Earlier this year, Stiegler et al published a fascinating article on cognitive errors detected in anaesthesiology. After consulting with experts in the specialty, they identified the six most important cognitive errors as being the following, and gave common examples of each. I have quoted directly from their article:

- Anchoring. “Focusing on one issue at the expense of understanding the whole.”
- Availability bias. “Choosing a diagnosis because it is in the forefront of your mind due to an emotionally charged memory of a bad experience.”
- Premature closure. “Accepting a diagnosis prematurely, and failing to consider a reasonable differential of possibilities.”
- Feedback bias. Misinterpretation of no feedback as positive feedback.” (One has never had a particular complication because one has never asked the patient about it.)
- Confirmation bias. “Seeking information that confirms the desired or suspected diagnosis.” (Not believing one’s monitors.)
- Framing effect. “Subsequent thinking is swayed by leading aspects of initial presentation.”

The most common cognitive errors in this pilot study, looking at anaesthesia residents operating in simulated emergencies, were anchoring and availability bias.

Much has been written about impairment in anaesthesiologists. We do not know the incidence of impairment in our specialty in South Africa, but Australia, New Zealand and the United Kingdom have documented substance abuse statistics which indicate that this component of impairment is an enormous, worldwide problem. Many of us have anecdotal evidence of the problem, and the difficulties we have in dealing with it.

Impairment is not confined only to substance abuse. Anaesthesiologists are also prone to illnesses, such as diabetes, hypertension and vascular and neurological disease, and, if left untreated, these may well render us impaired. In addition, the slow and insidious loss of vision and hearing with age may unknowingly impair us, as was illustrated by Katz in his fascinating article when looking at ageing in anaesthesiologists.

Stress, burnout and fatigue are not as easy to quantify as other forms of impairment, but still contribute to not performing at one’s best and possibly making errors. In the United Kingdom, the AAGBI has set an age limit for night-call duties, as it has been shown that the ability to recover from night calls is markedly reduced with age, particularly when considering fatigue.

In conclusion, to answer the original questions, I would like to propose the following response:

- It is currently almost impossible to quantify how much of a risk we are, but statistics indicate we are a risk.
- We need to audit our performance in South Africa, particularly in areas such as critical incidents.
- We need to research and address the issues of cognitive errors, identifying possible patterns, as well as addressing common issues such as communication problems.
- Work environment factors need urgent attention, particularly in the public sector.
- Our anaesthetic community needs to set up processes and a support structure for impairment amongst anaesthesiologists.

Christina Lundgren
Editor-in-Chief

References