

## Global Anesthesia-Related Mortality

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### Physician anesthesiologists are leaders in patient safety in the developed world.

The technology, vigilance and protocols that our specialty embrace have saved countless lives in the O.R. and everywhere that sedation takes place. It would be easy to believe that this is normative. But in low-income countries across the globe, anesthesia-related mortality rates are shockingly high, and most of them occur in healthy patients (ASA Physical Status 1-2). Most of these patient deaths would be considered preventable in a higher-income environment.

This reality is not a global secret. In fact, the global anesthesia crisis has been reported before,<sup>1,2</sup> but without action until recently. Non-communicable and chronic diseases now eclipse infectious disease as factors contributing to global mortality rates.<sup>3</sup> With this disease transition, the role of safe anesthesia and surgery has emerged as an important strategy for global health. This evolution in health care will require new global metrics to evaluate safety and demonstrate effectiveness. A quantitative, reliable, reproducible health indicator is needed – one that does not impose excessive costs on overburdened systems.

Of the health indicators routinely tracked by the World Health Organization (WHO), mortality rates are the most powerful. Even when non-specific, they provide tractable information that can be benchmarked and used as a measure of improvement. Maternal mortality rates (MMR) and under-5 mortality rates<sup>4</sup> have been particularly successful in revealing disparities in health across populations. These rates are routinely cited when describing national health outcomes and when discussing the cost effectiveness of interventions.

The perioperative mortality rate (POMR) is the proposed new indicator of safe anesthesia and surgery in low-income countries. POMR is defined as the all-cause mortality of ASA Physical Status 1, 2 or 3 patients within 24 hours of a surgical intervention with anesthesia. Like MMR and other mortality rates, the POMR is not specific to any service and will not reveal important aspects of causality. But it will reveal the shocking reality of anesthesia- and surgery-related mortality in the poorest countries.

Recently, ASA reached out to support the WHO and United Nations in releasing a World Health Assembly resolution for the prioritization of safe anesthesia and surgery. This endorsement was shared by the American College of Surgeons, the World Federation of Societies of Anaesthesiologists and the International College of Surgeons. An important next step in this global process is the mandatory collection and reporting of the POMR.

ASA and its members, in collaboration with our international partners, must demand that the WHO and its member states adopt and endorse the POMR as a descriptor of global health care effectiveness. Perioperative death in low-risk individuals is a sentinel event, and mandating the reporting of POMR will enable improvements in surgical safety.

Collection of the POMR in low-income countries will begin a quality management cycle that identifies the patients and situations of greatest risk. This will inspire ongoing and future efforts at mitigation. Loss of life due to respiratory depression and difficulties with airway management, for example, will motivate the efforts of the Lifebox Campaign to put a pulse oximeter in every operating room. Mortality related to hemorrhage will inform surgical triage, referral of high-risk patients and

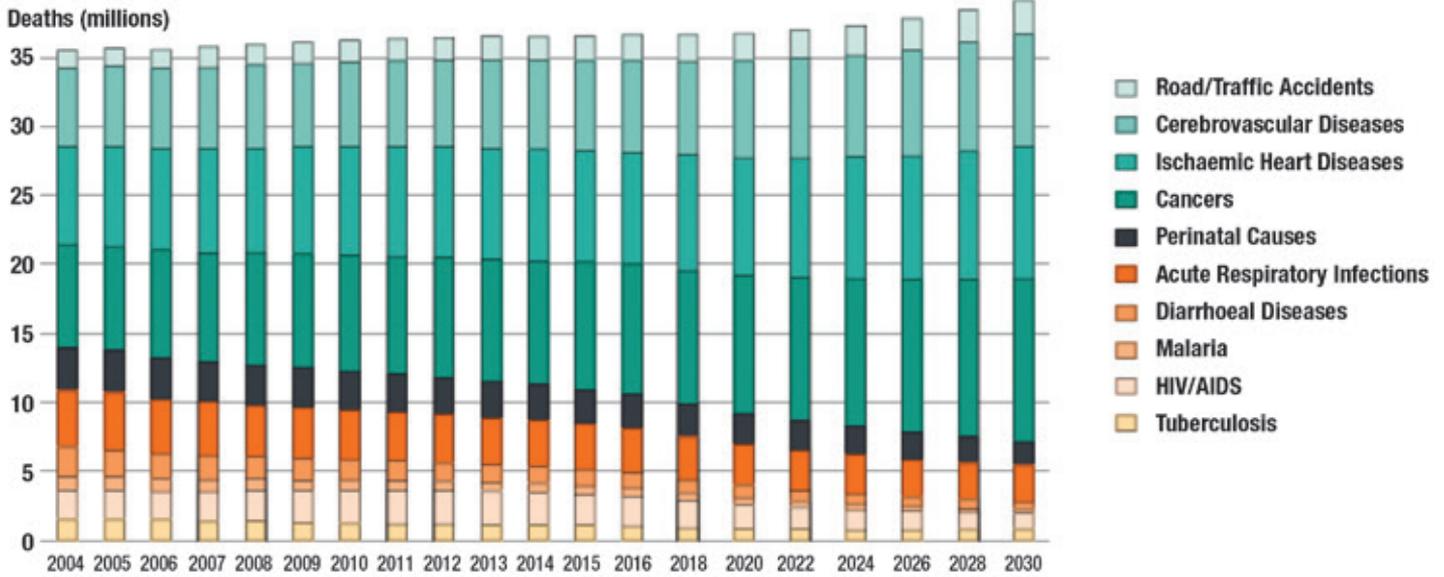


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## The Shift Toward Noncommunicable Diseases and Accidents as Causes of Death\*



\*Selected Causes

Figure 1: World Health Report 2008, accessed online at <http://www.who.int/whr/2008/en/index.html>, May 28, 2013. Permission received from the WHO for reprinting.

development of blood banks. Failures of judgment will lead to better educational programs and certification standards for local anesthesia providers.

In summary, collection and reporting of POMR will be the first, and most important, metric for a true understanding of surgical mortality worldwide. As hypothesized in Figure 2, it is likely that the most substantial gains in mortality will be achieved in countries with the lowest human development index. As suggested by the figure, continued improvements in

health care infrastructure will continue to lower mortality, but at a slower rate. This occurs because gains in safety and outcome are often “reinvested” in operating on sicker patients. Global collection and reporting of the POMR will provide the data needed to test this theory over time, and will track our ability to improve anesthesia and surgical care in the developing world.

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Figure 2: Perioperative Mortality Rates and National Resources (Dutton R. 2013)