

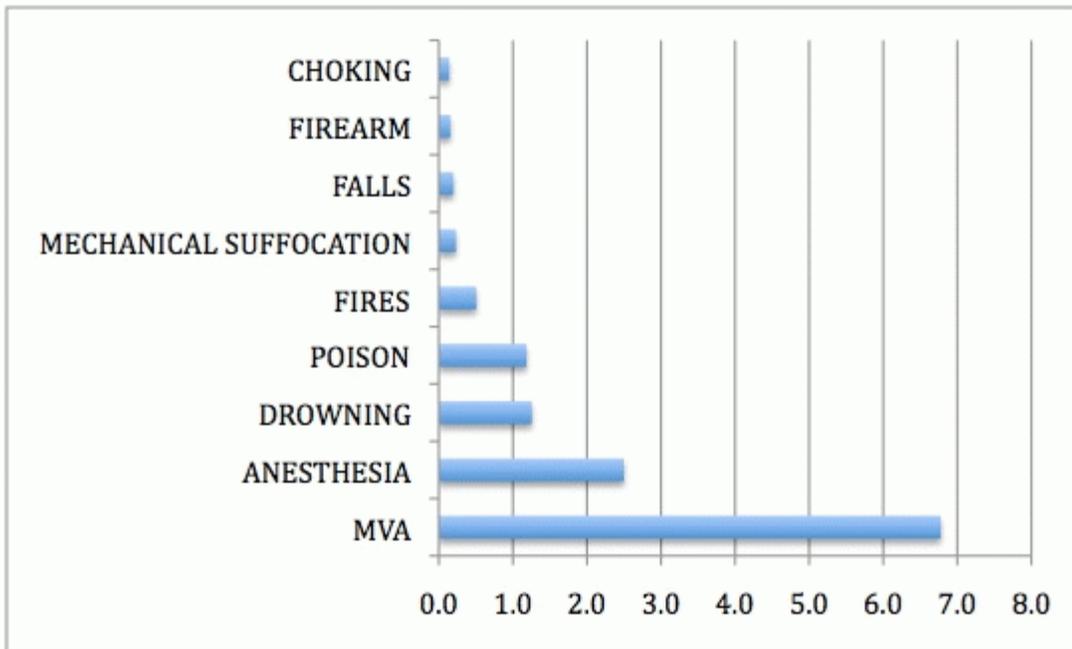
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I often hear the following told to patients and parents: “the risk of anesthesia is lower than the risk of driving here today.” Is this true? Anesthesia risks can be divided into minor (i.e. vomiting and allergic reactions) and major (i.e. cardiac arrest and death). Minor risks are more common and easily related and understood. Major risks are rare and difficult to quantify, especially for ASA I and II patients for outpatient surgery.

Data for major intraoperative events are available from three sources: institutional audit, closed claims analysis, and studies of cardiac arrest (2). Four large audits (3-6) showed the incidence of a cardiac arrest in the pediatric population between 1-7:10,000. Two sets of data have been published from the American Society of Anesthesiologists closed claims project. They did not, however, differentiate between anesthetic and non-anesthetic related causes and they describe only the number of cases and not rates (numerator but no denominator). Therefore no information regarding incidence of events can be gained.

More information regarding risk can be learned from two studies of cardiac arrest: the Pediatric Perioperative Cardiac Arrest (POCA) registry and a study done at Mayo Clinic reported by Flick (7). Results from the POCA registry were reported in 2000 by Morray (8) and again by Bhanankar (9). Morray reported an incidence of 1.4:10,000 of cardiac arrest attributed to anesthetic causes with 25% mortality. Bhanankar did not include denominator data and so is not useful for determining incidence of events. The Mayo study had a sample of nearly 100,000 anesthetics and likely had much better levels of reporting of events. Information on “denominators” such as age and ASA category were also available. The rate of cardiac arrest was 8.6 per 10,000 anesthetics (2.9 for non-cardiac surgery) and death 6.8 per 10,000 anesthetics (1.6 for non-cardiac surgery). Because the incidence of major complications is small, it is difficult to use the available data in these studies to stratify the risk for a healthy patient for an outpatient procedure. One third of cardiac arrests in the POCA registry were in ASA I and II patients, however the total number of these anesthetics is unknown. Using multivariate analysis of the POCA registry data the odds ratio of death in ASA I and II versus ASA \geq III patients is 13.0. In the Mayo study there were 26 cardiac arrests in patients having non-cardiac surgery and only two were ASA I and II patients, neither of who died. Additionally, of the 26 arrests, only six were attributed to anesthesia.

Where does this leave us? The risk for cardiac arrest and death vary depending on the study and patient group, from 1 in 200 to less than 1 in 40,000 but they at least give us a rough estimate. The risk of dying from a motor vehicle accident on the way to the hospital is around one in 10.8 million , so not really in the same ballpark. However, parents may not care about the actual numbers, but instead may just want to be reassured that the risk of a major complication from anesthesia is rare. If one would want to be accurate, looking at the risks of dying for children (see chart, numbers are per year) (8) one could safely say the risk is lower than dying form a MVA “this year.”



Incidence of death from various activities (incidence per 100,000 per year, except anesthesia, incidence per 100,000 per anesthetic). (8)
