

Quality Improvement and the Journey To Zero Preventable Harm

October 5, 2016

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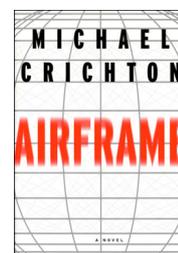
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Figure 1. Author Michael Crichton describes preventable harm in the air.

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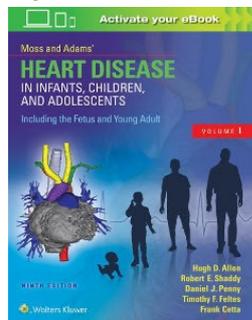
In this month's *Pediatrics in Review*, their team present us with two more articles that underscore the importance of aiming for "zero" preventable harm: the review "[Core Principles of Quality Improvement and Patient Safety](#)," by Drs. McClead and Thomas

Bartman, and the *In Brief* column on "[Sentinel Events / Patient Safety Events](#)," by Drs. McClead and Michael Brady. Both are "must" reading!

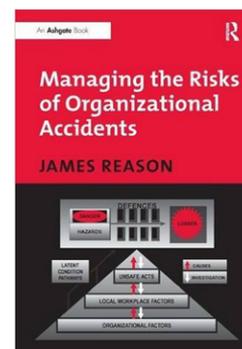
There are parallels in other industries. "[Airframe](#), published in 1995 (Alfred A. Knopf) by the genius (and unfortunately late) medical writer [Michael Crichton](#), discusses a disaster on a trans-Pacific flight. The industry tries to find a scapegoat, but instead of the obvious pilot error (the captain let his son fly the plane while he left the cockpit for a necessary stop), it was found that the plane wing malfunctioned in turbulence because it had a defective bolt made offshore, the company saved money, the wing malfunctioned, the union had a stake in the manufacture, and the list goes on.

This is a great novel that shows that most errors — manufacture or medical — have several leading factors.

Figure 3. In his 1997 book James Reason likened preventable disasters to holes lining up in Swiss cheese Figure 2. In Moss and Adams [Heart Disease in Infants, Children and Adolescents](#) (9th ed.), Reason's Swiss cheese model is adapted to illustrate the potential for medical error.



Brilli, McClead, et al, show a diagram in Moss and Adams', taken from James Reason's 1997 book. It depicts a disastrous chain of preventable events with a model showing several parallel slices of Swiss cheese.



If the holes line up, each supporting event leads up to a disaster. Any repositioning of any of the slices would prevent

the holes from lining up and stop the process. What if the new intern had been directly supervised? Such is quality improvement.

Also worthy of mention is the work of Dr. [Marc de Leval](#), a cardiac surgeon at [Great Ormond Street Hospital](#) in London, who was getting poor results with his heart surgery patients: They left the operating room in fine condition, but several died later.

Instead of continuing without pause, he recognized a problem. Coincidentally while watching a **car race**, he was impressed with the coordination of pit-stop race crews and their quiet efficiency. He had them visit his facility, and they were appalled at the inefficiency of ICU handoffs and poor coordination of care from one station to the next.

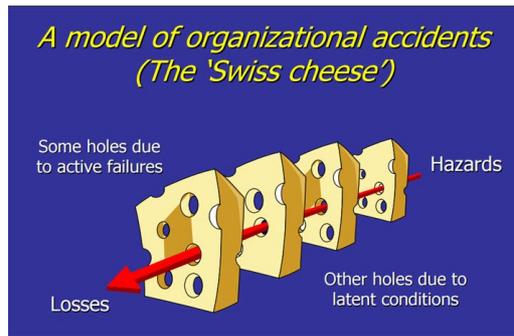


Figure 4. The Swiss cheese model of system accidents, developed by James Reason.

He retooled his team against their model, went to other successful centers and learned from their approaches, and his results became spectacular. This was before we had a term for quality improvement and patient safety.

One inescapable conclusion is that ALL hospitals must have leadership that understands how to develop and implement meaningful change for quality improvement in medicine.

Change is not easy, but if we do not recognize (i.e., ignore) and implement a safety environment, the unacceptable preventable mortalities will continue.

Further Reading

- [High Reliability Pediatric Septic Shock Quality Improvement Initiative and Decreasing Mortality](#)
- [Patient Safety and Quality Improvement: Medical Errors and Adverse Events](#)
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