Mothers Against Medical Error, Columbia, SC, USA

Haskell.helen@gmail.com

Cite this as: *BMJ* 2024;387:q2437
http://dx.doi.org/10.1136/bmj.q2437

Surgical adverse events in the US

After all these years, why has patient safety not improved?

Helen Haskell *president*

In late 1999, the US Institute of Medicine's report "To Err is Human: Building a Safer Health System" galvanized the nascent patient safety movement into action with its assertion that as many as 98 000 Americans died annually from medical error.[1] That alarming statistic was derived from the 1991 Harvard Medical Practice Study, a randomized chart review undertaken to create an evidence base for the controversy then raging around litigation against medical malpractice.[2] That study found that 3.7% of patients in a sample of hospital admissions in New York state had experienced serious adverse events, more than one fourth of which the researchers considered legally compensable. Overall, 48% of the events were associated with surgical procedures. A related study in Colorado and Utah a few years later showed similar percentages of surgical error, whereas a targeted follow-up study found that surgery accounted for two thirds of adverse events in hospitals in the same two states.[3 4]

In the linked study, Duclos and colleagues (doi:10.1136/bmj-2024-080480) set out to create an updated baseline for surgical adverse events in the US, broadly modeled on the original Harvard Medical Practice Study.[5] Data for Duclos and colleagues' study were derived from the 2023 SafeCare study, which used a "trigger" methodology to analyze a random sample of electronic inpatient records from 11 hospitals in Massachusetts.[6] In the subset of cases analyzed for Duclos and colleagues' study, the authors identified adverse events in 38% (n=383/1009) of surgical admissions. Nearly half were classified as major, and more than two thirds as preventable.

Since the Colorado-Utah study, research examining surgical outcomes across specialties has been sparse. Duclos and colleagues' study is therefore a valuable contribution; but its findings are not encouraging. To date, around a dozen large studies have been conducted on medical harm in the US and globally, and almost all used some version of the screening methodology employed by the Harvard Medical Practice Study.[7 8] Comparison between studies is complicated by customization and changes in the triggers used to flag events, but studies in the US have nevertheless produced remarkably consistent findings across the years. In 2010, studies of hospitals in Colorado and North Carolina found adverse event rates of 33% and 25%, respectively, with the North Carolina study showing no major improvement from 2002 to 2007.[9 10] Studies of Medicare patients by the US Health and Human Services Office of the Inspector General showed nearly unchanged rates of harm of 27% and 25% between 2008 and 2018, despite the 10 year difference.[11 12] Thus, over a period of some 17 years, medical harm may have continuously affected as many as one in three or one in four patients in US hospitals. In all these studies, surgery accounted for around one fourth of adverse events.

Many reasons have been proposed for this failure to improve, among them a culture of disrespect, inadequate nurse staffing, ineffective implementation of proven strategies, and failure to take advantage of available technology that would allow real time detection and possibly prevention of adverse events.[13-16] All undoubtedly have played a part. The major omission in patient safety, however, is the patient. Although patient engagement is growing across other parts of healthcare, little progress has been made in including patients and families in the areas where they could contribute the most: co-creating their own history and unraveling the causes and effects of errors in their care. Information in the electronic medical records used to track adverse events is often incomplete, inaccurate, or recorded by overworked providers who may have little real knowledge of the patient's case.[5] Patients in the US can now view their medical records, a privilege not available in many countries, but they cannot comment on them, even when they spot obvious errors. When an adverse event occurs, patients and families are seldom interviewed, much less consulted, even if they are the sole witnesses. Confidential analyses of root causes and "disclosures" with confidentiality clauses may do more to hide problems about patient safety than to address them. Legal settlements silence entire swaths of people with non-disclosure agreements, and they prevent in-depth examination of the causes of harm.

Newly available tools such as large language models have the potential to transform patient safety by mining electronic records. But electronic records are only as good as the information they contain. If we are truly interested in advancing patient safety, patients and families need to be empowered to weigh in on the accuracy of the accounts of their own care and participate in finding solutions. Studies like the one by Duclos and colleagues are an important foundation for meaningful solutions, but those can only be found in tandem with patients and families.

Competing interests: The BMJ has judged that there are no disqualifying financial ties to commercial companies. The author declares the following other interests: None

Provenance and peer review: Commissioned; not externally peer reviewed.

1 Kohn LT, Corrigan JM, Donaldson MS, eds. *To err is human: building a safer health system*. National Academies Press, 2000.
2 Leape LL, Brennan TA, Laird N, etal. The nature of adverse events in hospitalized patients. Results of the Harvard Medical Practice Study II. *N Engl J Med* 1991;324:-84. doi: 10.1056/NEJM199102073240605. pmid: 1824793

3 Thomas EJ, Studdert DM, Burstin HR, etal. Incidence and types of adverse events and negligent care in Utah and Colorado. *Med Care* 2000;38:-71. doi: 10.1097/00005650-200003000-00003. pmid: 10718351

4 Gawande AA, Thomas EJ, Zinner MJ, Brennan TA. The incidence and nature of surgical adverse events in Colorado and Utah in 1992. *Surgery* 1999;126:-75. doi: 10.1067/msy.1999.98664. pmid: 10418594

5 Duclos A, Frits ML, Iannaccone C, etal. Safety of inpatient care in surgical settings: cohort study. *BMJ* 2024;387:e080480.

6 Bates DW, Levine DM, Salmasian H, etal. The safety of inpatient health care. *N Engl J Med* 2023;388:-53. doi: 10.1056/NEJMsa2206117 pmid: 36630622

7 Shojania KG, Thomas EJ. Trends in adverse events over time: why are we not improving?*BMJ Qual Saf* 2013;22:-7. doi: 10.1136/bmjqs-2013-001935 pmid: 23509344

8 Griffin FA, Resar RK. IHI global trigger tool for measuring adverse events (2nd edn). IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2009. www.ihi.org.

9 Classen DC, Resar R, Griffin F, etal. 'Global trigger tool' shows that adverse events in hospitals may be ten times greater than previously measured. *Health Aff (Millwood)* 2011;30:-9. doi: 10.1377/hlthaff.2011.0190. pmid: 21471476

10 Landrigan CP, Parry GJ, Bones CB, Hackbarth AD, Goldmann DA, Sharek PJ. Temporal trends in rates of patient harm resulting from medical care. *N Engl J Med* 2010;363:-34. doi: 10.1056/NEJMsa1004404. pmid: 21105794

11 U.S. Department of Health and Human Services Office of Inspector General. Adverse events in hospitals: National incidence among Medicare beneficiaries. OEI-06-09-00090, November 2010. https://oig.hhs.gov/oei/reports/oei-06-09-00090.pdf

12 U.S. Department of Health and Human Services Office of Inspector General. Adverse events in hospitals: A quarter of Medicare patients experienced harm in October 2018. OEI-06-18-00400, May 2022. https://oig.hhs.gov/reports/all/2022/adverse-events-in-hospitals-a-quarter-of-medicare-patients-experienced-harm-in-october-2018/

13 Leape LL, Shore MF, Dienstag JL, etal. Perspective: a culture of respect, part 1: the nature and causes of disrespectful behavior by physicians. *Acad Med* 2012;87:-52. doi: 10.1097/ACM.0b013e318258338d pmid: 22622217

14 Lasater KB, Muir KJ, Sloane DM, McHugh MD, Aiken LH. Alternative models of nurse staffing may be dangerous in high-stakes hospital care. *Med Care* 2024;62:-40. doi: 10.1097/MLR.0000000000001990 pmid: 38848137

15 Berwick DM. Constancy of purpose for improving patient safety — missing in action. *N Engl J Med* 2023;388:-2. doi: 10.1056/NEJMe2213567 pmid: 36630628

16 Classen D, Li M, Miller S, Ladner D. An electronic health record–based real-time analytics program for patient safety surveillance and improvement. *Health Aff (Millwood)* 2018;37:-12. doi: 10.1377/hlthaff.2018.0728. pmid: 30395491