Close calls in patient safety: Should we be paying closer attention?

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That day in the operating room, it was the anesthesiologist who noticed the error. He was supposed to be holding a vial of 0.9% sodium chloride. Instead, he was holding succinylcholine, a potent neuromuscular blocker that causes respiratory paralysis.[1] The mix-up was potentially lethal, but his realization spared the patient actual harm. That might have been the end of the story, and it usually is. For most close calls such as this one, there is no systematic effort to answer the questions "How did this happen?" and "Might it happen again?"

Over the past decade, the increased focus of policy-makers, health care leaders and providers on patient safety has begun to pay dividends.[2] Managers are more aware of the problem of patient safety, understand better that errors result from systemic flaws rather than the isolated actions of individual people and have embraced the need to collect information about safety problems. This emphasis on reporting incidents was championed in the US Joint Commission's Sentinel Event Policy, which has mandated the investigation of so-called sentinel events that result in serious harm since 1995.[3]

However, "close calls" (also known as "good catches" or "near misses"), incidents in which an adverse event nearly occurs but is prevented by design or luck, remain largely ignored in these efforts. This is troubling, because analysis of close calls offers several advantages over the current focus on actual events causing harm. Close calls occur more often — as many as 300 times for each actual adverse event.[4] This frequency offers a wealth of information to help identify systemic flaws, such as confusing wristbands or medication labels, which could eventually contribute to real harm if left unchecked. As human-error expert James Reason noted, it is latent conditions, rather than the isolated acts of individual people, that often presage error.[5] To not learn from them now, with systems to collect and analyze reports, is to invite suffering later.

A frequently mentioned drawback to investigating and analyzing close calls is their sheer number, with many events going unreported. However, 100% reporting is unnecessary, because the purpose of incident reports is to expose latent errors rather than provide a validated measure of safety.[2] A reporting system that falls well below 100% can expose countless system flaws waiting to cause harm. However, if the sample of close calls reported is not representative of all close calls that occur, such a system could potentially lead to focusing on safety hazards that are more readily reported but less important. Thus, a system is needed for prioritizing incidents worthy of investigation and analysis among the high volume of those reported. For example, a recent study of close calls in radiology assigned each close call a "hazard score" based on its frequency, means of detection and the number and robustness of barriers between the error and harm. Such a categorization prevents organizations from drowning in a sea of reports, allowing them to focus on those close calls most likely to cause harm.[6]

Close calls have a unique advantage. Because no damage actually occurs, reporters and participants in the event do not face the liability and disciplinary action that discourage reporting in cases of actual harm. Fear of litigation, even in well-designed, confidential systems, has a chilling effect on the reporting of sentinel events.[7] When studying close calls, participants are freed from the spectre of litigation and can learn from the incident in a more open and constructive manner. Reporters are also spared the personal trauma of having to report after causing harm; the affirmative act of reporting a problem before it can hurt a patient may mitigate the distress and feelings of powerlessness that come from nearly harming a patient.

A focus on close calls offers one more indirect but crucial benefit — awareness of error. Medical

Key points

- Close calls occur more often in health care than events that cause actual harm and can provide valuable information to identify systemic flaws and recovery strategies.
- Because no actual harm occurs, health care workers may find it easier to report close calls than incidents that cause harm.
- Reporting efforts should focus on both close calls and adverse events, because both can be used by health care organizations to make system changes that improve patient safety.

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culture has long suffered from what James Reason dubbed the illusion of "trained perfectibility."[5] Training inculcates caregivers with the notion that perfection can, and must, be attained. When errors occur, as they inevitably do in any human system, they are considered the result of either incompetence or bad luck. Such an environment discourages open discussion of error. Without reflection, learning is not possible. Expanding the focus of reporting from adverse events to close calls would help change this paradigm by shedding light on the myriad instances in which errors occur. Confronted with such a frequency of near harm, caregivers will better recognize the role of system flaws in errors and be more eager to seek solutions.

Close-call reporting systems have shown promise in identifying systemic flaws. In Pennsylvania, which established the first statewide close-call reporting system in 2004, a hospital bracelet mix-up that nearly resulted in a patient's death prompted an investigation. The result was the standardization of hospitals' colour-coded bracelets, which hitherto had varied in meaning — what had meant "resistant organism" in one hospital had meant "do not resuscitate" in another.[8]

The investigation of the succinylcholine mix-up, which occurred in a Canadian hospital, showed that the 2 dramatically different medications were being stocked in nearly identical bottles. Neuromuscular blocking agents in Canada now carry a red-coloured warning label on the cap to help prevent similar mix-ups. A few years later, a nurse in another Canadian hospital reported the following:

> As she was walking back to the patient's bedside, she noticed white lettering on the red cap that read "WARNING: PARALYZING AGENT." This prompted her to realize she had selected the wrong vial. Incorrect administration and serious patient harm were thus averted.[1]

Buoyed by success stories such as these, the use of incident reporting systems, including systems devoted to close calls, has grown in the past decade. Countries including Canada, the United Kingdom and Sweden have national systems to catch errors. In Canada, the Medical Event Reporting System for Transfusion Medicine (MERS-TM) was designed specifically for a field in which close calls outnumber harmful events by at least 5 to 1.[9] At Johns Hopkins, our Patient Safety Net system receives more than 1000 incident reports each month, over 90% of which represent close calls. These no-harm events are submitted to their own dedicated review committee. In one case, hydroxyzine was ordered for a patient, but hydralazine was dispensed by the inpatient pharmacy. Investigation showed that the 2 drugs were stocked in adjacent bins in the pharmacy. Pharmacy staff were alerted to the event, tall-man lettering (i.e., writing part of a drug's name in upper case letters to help distinguish sound-alike, look-alike drugs from one another) was instituted, and the bins were physically separated from each other.

Recent guidance from the Joint Commission suggesting that it might soon require close calls to be reported underscores the trend toward greater use of such a critical resource. Proposed revisions to the commission's current policy suggest that close calls be added to reviewable sentinel events as potentially informative events worthy of root-cause analysis.[10] However, there are fewer regulatory requirements that govern the nature and extent of the investigation. In cases of close calls, there is more discretion and a smaller-scale inquiry may be appropriate.[11]

Questions remain as to how best to implement patient safety reporting systems, but we believe the question of whether health care leaders should expand close call reporting has been answered in the affirmative. For an organization to say in public "we will not investigate and take corrective action until a serious injury or major damage occurs" is unacceptable. Today, this is how health care organizations handle most incidents; tomorrow, we must do better.

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