

## On Errors

Your outstanding issue regarding medical errors (November/December 2000) is provocative.

Hofer and colleagues<sup>1</sup> address the issue of what a medical error is in the context of its effect on outcomes. Unquestionably, the bottom line is outcomes, but to paraphrase Gertrude Stein, “an error is an error is an error.” In practice, I suggest that *medical error* be defined as an act of “omission or commission that, if an adverse event subsequently occurred, could be considered to be causally linked, unless this potential had been addressed given the limitations of the system(s) at the time of occurrence.” That an adverse event did not occur should not change the definition. We could then study the probability that a particular error results in a bad outcome prospectively rather than by flawed retrospective analysis.

The use of intensivists does improve survival in ICUs.<sup>2</sup> However, it also increases the likelihood that no one physician takes responsibility for the total coordination of care. Survival to leave the ICU may not be the only, or best, “outcome” in some cases. The increasing number of handoffs of patient care and information in the complex modern hospital plus reliance on specialists has fragmented care. Specialists often ignore their basic medical training when applying their special skills and may not feel obliged to comment on other aspects of care.

Strictly speaking, Fisher and Welch<sup>3</sup> are correct that ensuring “. . . that every diabetic gets an annual eye, foot, and urine examination. . .” is not the key to caring for the patient. However, these tests are important tools in the process of doing so. It’s how we use these elements that determines the outcome. In a vacuum, they are “distractions”—in the real world, they are stepping stones to improved management.

The aviation safety and reporting system has been held up as a model for health care to emulate. It has reduced fatalities and injuries per mile flown. Still, we see increasing reports of such events as misses, pilot fatigue, and poor maintenance, all of which have the potential to cause accidents. My guess is that if we worked in the aviation industry, we’d be aware of many more that aren’t reported. As Larson<sup>4</sup> suggests, we have made significant progress in reducing bad outcome due to errors from 4.6% to 2.9% in less than 2 decades. While the industrial model of quality improvement is conceptually useful, we did not build the human machine, and it’s a far cry from the airplane, the refrigerator, or the

widget. We are just learning how it ticks while trying to do preventive maintenance and repair work.

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### References

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2. Young MP, Birkmeyer JD. Potential reduction in mortality rates using an intensivist model to manage intensive care units. *Eff Clin Pract.* 2000;3:284-9.
3. Fisher ES, Welch HG. Is this issue a mistake? [Editorial] *Eff Clin Pract.* 2000;3:290-1.
4. Larson EB. First do no harm—To err is human. *Eff Clin Pract.* 2000;3:294-6.

I share the concern of Drs. Hofer, Kerr, and Hayward that the “error movement” in health care may result in ill-conceived measurement and classification of human error. I am particularly concerned that a flawed foundation for error classification and reporting will lead to misdirected and discouraging application of “fixes” to symptoms rather than causes.

The term *error* is a loaded one. Removed from the context of its use in human performance science, the word *error* is ripe for misapplication and is an understandable source of confusion. I believe that the intent of the “error movement,” as launched by the Institute of Medicine’s report, is to support objective measurement and timely improvement of human, technical, and organizational performance in service to the patient’s well-being. There are pragmatic approaches to fulfilling this objective that can be further improved by use of error taxonomy as a diagnostic tool. The potential for continual systems improvement provided by a taxonomic examination of human performance is invaluable. I am confident that medical professionals and human factors scientists and practitioners will transcend misunderstandings, in part through the development of a common language as our collaboration deepens. A common desire to serve human welfare is a powerful reason to learn from one another and unify our efforts.

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#### THE AUTHORS RESPOND

*Dr. Matz argues that the absence of an adverse event should not change the definition of an error. We agree with that point, and particularly with his argument on the need for prospective data on the relationship between process and outcome. However, we disagree that a failed process should always be called an error. The term error has negative connotations and strongly implies a need for corrective action. We would reserve this term for process failures that have evidence of a reasonably strong causal link to (bad) outcomes. As we say in the paper, we cannot measure error directly—rather, we measure attributes of structure, process, and outcome, and we infer error through an argument that is made about the strength of the links between them. When that argument is weak, there is little to be gained by calling a process failure an error. In fact, there is much to lose because you will use resources to fix process failures with little evidence that you are doing anything worthwhile.*

*We generally agree with Mr. Brown, particularly on his point about the dangers of encouraging fixes of symptoms rather than causes, which we think echoes the point we make in the above paragraph. We believe that our recommendations constitute the “pragmatic approach” Mr. Brown calls for.*

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*Dr. Matz suggests that performance measures (such as annual eye, foot, and urine examinations) are an intervention that will help lead to improved patient care. Although we agree that this is possible, we also consider an alternative hypothesis: that it distracts physicians from more important work. In other words, we should not assume that performance measurement necessarily leads to better care.*

*The patient safety and quality movements naturally focus on measures of process. As physicians are acutely aware, the evidence base for the measures varies widely (is dietary counseling as important as prescribing aspirin following an MI?), as does the validity of the measurement process (How do you know dietary counseling happened? Because the words dietary counseling appear in the chart?). However well intentioned, in the past decade we have witnessed phenomenal growth in the amount of resources devoted to measurement. We believe the time has come to be sure we are not making a different kind of mistake: checking off boxes and “buffing” charts and being distracted from the patients themselves.*

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