Over the past 15 years, hospital chart reviews, as used by Ross Baker and associates in the Canadian Adverse Events Study,[1] have been accepted as a barometer of health care safety, yet they tell us vanishingly little about the situation in which the vast majority of patient contacts occur: the interface between patients and primary care practitioners or emergency physicians. Lack of treatment of hypertension or hyperlipidemia, insufficient emphasis on preventive medicine, and overprescribing or underprescribing of medication are a few examples of frontline errors that will not be captured in a chart review.

A neglected but extremely common type of error results from cognitive failure. Such errors underlie delayed or missed diagnosis, the commonest source of litigation for physicians. Quintessentially within the domain of the physician, diagnosis involves thinking, a private and invisible process. Furthermore, medical decision-making has been ill-served by traditional, quantitative models. No paradigm of clinical decision-making adequately describes real-world "flesh and blood" decisions, which can present significant hazards to patients. These cognitive failures will also be seriously underestimated in hospital chart reviews.

Baker and associates[1] suggest that a trend toward more AEs in teaching hospitals may have been due in part to lower quality of care. In this respect, 2 major issues need fleshing out. First, care in teaching hospitals is often given by trainees suffering from fatigue, sleep deprivation and an accumulated sleep debt,[2] all of which compromise performance[3] and thereby contribute to error. It is still not uncommon to find Canadian residents in some disciplines working more than 100 hours/week, a workload that would be considered unsafe and unacceptable in any other industry. Second, these trainees are often inexperienced junior staff members, charged with providing clinical services that may lie beyond their level of expertise.

A final point: surgeons might be forgiven for feeling singled out through the inevitable comparisons made in this type of study. Surgery is a much more tangible business than other realms of medicine, and surgical errors of omission and especially commission are usually much more highly visible than those in other disciplines.[4] Comparing medicine and surgery serves little purpose other than to draw attention to this tangibility and visibility.

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In Table 1 of their recent article reporting results of the Canadian Adverse Events Study, Ross Baker and associates[1] show that AE rates were lower in the United States and higher in Canada, Britain, Australia and New Zealand.

However, such differences between countries may be due more to differences in the medical systems rather than differences in the quality of patient care. The United States has a very different medical environment, partly because of the highly litigious nature of US culture.[2] The fear of being sued may reduce the incidence of hindsight bias[3] in US studies, since physicians may order more tests than are strictly necessary, which makes it more difficult for researchers such as Baker and associates to second-guess their decisions.

In addition, people of lower socioeconomic status consume more medical resources than wealthy people.[4] It may be that economically disadvantaged people with complex ailments cannot obtain care in the United States. Given that these people are at greater risk of an AE,[5] this difference might reduce the apparent rate of AEs in the United States simply because these people never receive care at all.

Such differences in medical cultures may not be well captured by these types of studies. Therefore, we should be cautious in comparing AE rates between the United States and Canada.

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Ross Baker and associates[1] adopt and reinforce a social intolerance toward AEs as events of innocent origin. In the complex environment of acute health care, it is very easy for errors to occur, and the health care system is well behind other high-risk industries in its attention to basic safety principles. Strategies to reduce clinical risk should not include punitive actions against those who have made mistakes, but rather action to change the systems in which the mistakes occurred.[2] The key to reducing clinical errors is to make it difficult to do the wrong thing and easy to do the right thing.[3]

Making a profound change in the culture surrounding medical error and shifting the emphasis from silence to safety are the goals of a new program at Vancouver's St. Paul's Hospital, the only Canadian centre participating in a collaborative project of the Boston-based Institute for Healthcare Improvement.[4] In the United Kingdom, "a mandatory no-name, no-blame national system for reporting 'failures, mistakes and near misses'" was to be implemented in 2002 under the National Patient Safety Agency.[5] It is now time to start evaluating the effects of these and similar programs in preventing medical errors. Furthermore, the results of such assessments should be widely disseminated for the benefit of patients in developing countries as well as those in developed countries.

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[Three of the authors respond:]

The Canadian Adverse Events Study[1] used a chart review to determine AEs experienced by hospital patients. We agree with Peter Zed and Richard Slavik that this method, which has been used in other studies, underestimates the rate of AEs. However, these underestimations are not limited to medication-related AEs. Other events, including errors of omission, are also less likely to be identified by this method. Moreover, although our results include data from some patients who received care in the emergency department and were then admitted to hospital, further exploration of AEs in emergency departments and other settings is certainly needed to fully assess patient safety in these environments.

Maurice McGregor suggests a number of reasons why our results should be interpreted with care. Our methods relied on a structured review of written records and, as in previous studies, the reliability of such assessments is moderate. However, there are clear differences between patients who experience AEs and those who do not. Patients who have an AE stay in hospital on average 6 days longer than those who do not.[1] The burden of injury for these patients is also substantial. Although most of the AEs we identified occurred during the index hospital stay, McGregor correctly points out that 31% occurred before this admission.

Pat Croskerry and Sam Campbell note that we observed a higher rate of AEs in teaching hospitals. We believe that the greater complexity of care, provided by greater numbers of caregivers, may contribute to the higher rate in this setting. However, the rate of preventable AEs, an important indicator of quality, was not significantly different across hospital types.

Chris Delaney and colleagues suggest some of the reasons that may explain why AE rates reported from the United States are lower than what we observed in Canada. To these reasons we would add the fact that the US studies were carried out on patients who received care in 1992[2] and 1984,[3,4] whereas our study considered patients who received care in 2000.

We agree with Ediriweera Desapriya that a change from the culture of blame and shame to one of learning and improvement is essential. Knowing where and why AEs occur will guide improvement, while a focus on changing the system rather than blaming those involved in AEs is the critical strategy for improving patient safety.

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