CLINICAL REVIEW

Medical Error in Canada: Issues Related to Reporting of Medical Error and Methods to Increase Reporting

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ABSTRACT

Medical errors and adverse events have a substantial impact on healthcare outcomes in Canada. Reports including *The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada*, published in 2004, and *Self-reported medical errors in seven countries: Implications for Canada*, published in 2009, provide important insight regarding errors. The former study provided the first national estimate of adverse events in Canadian hospitals, and showed that approximately 37% of total adverse events or 70,000 cases were potentially preventable. This paper reviews these landmark reports and suggests that to prevent future errors, healthcare organizations must first ensure that they have effective reporting mechanisms in place. There are significant issues related to the reporting of errors including a "blame and shame" culture; disagreement on the use of mandatory versus voluntary reporting; lack of central and standardized collection mechanisms; and various human, material, and financial barriers. Organizational, provincial/territorial, and national level strategies can be implemented to increase error reporting. These strategies involve shifting from "blame and shame" to a culture of safety, openness, and trust; focusing on education and communication; investing in information technology; and revising current policy.

INTRODUCTION

In 1999, the Institute of Medicine released a report entitled *To Err is Human: Building a Safer Health System*, which showed that 44,000 to 98,000 Americans died each year because of medical errors.[1] Five years later, the first Canadian study examining the adverse event rate in Canada was published. This report entitled *The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada* found an overall incidence of 7.5%, excluding pediatric, obstetric, and psychiatric admissions.[2] While it appears that there have been no other comparable Canadian reports published since this study, significant attention has been given to this issue. For example, the recent report *Self-reported medical errors in seven countries: Implications for Canada* showed that in 2007, 17% or 4.2 million adult Canadians believed that a medical error occurred when they received healthcare services in the previous two years.[3] More specifically, several factors were found to be associated with an increased risk for self-reported medical errors, including extensive prescription drug use, the presence of a chronic condition, and lack of physician time with the patient.[3] This paper provides an overview of *The Canadian Adverse Events Study* and argues that mistakes can lead to improved health care if they are learned from, to prevent medical errors in the future. A high rate of error reporting would provide good learning opportunities; however, there are significant issues that discourage reporting. Examples of such issues are a "blame and shame" culture; disagreement on the use of mandatory versus voluntary reporting; lack of standardized collection mechanisms; and various human, material, and financial barriers. To address these issues, various organizational, provincial/territorial, and national-level strategies are presented. It is believed that error reporting will increase if there is leadership support from various levels to foster a cultural shift, improve education and communication, and advocate for appropriate legal changes.

LITERATURE REVIEW

The electronic database *PubMed* and search engine *Google Scholar* were utilized to identify references materials using the following key words: "medical error(s)," "adverse events," "reporting," "barriers," "strategies" and "Canada." Various journals such as *Healthcare Policy* from Longwoods *Publishing* and *Healthcare Management Forum* from the

Canadian College of Health Service Executives were also searched. In addition, resources and publications listed on the Canadian Patient Safety Institute website were considered. Finally, the listed references of assorted journal articles were scanned in order to find relevant research material.

TERMS DEFINED

Several terms related to medical error are often used synonymously and create some confusion. In order to provide clarification, some definitions are provided. Adverse events are unintended, negative outcomes directly linked to the healthcare services provided to patients.[4] They can be preventable or non-preventable. Medical error represents "the failure to complete a planned action as it was intended or when an incorrect plan is used in an attempt to achieve a given aim."[4] In other words, a medical error occurs when a mistake results in a preventable adverse event. A near miss occurs when a potential error is caught before a bad outcome occurs.[4] As the terms "medical errors" and "preventable adverse events" are often used synonymously in medical literature, this paper will also use these two terms interchangeably.

MEDICAL ERROR IN CANADA

The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada provided the first national estimate of adverse events in Canadian hospitals in 2004.[5] The researchers specifically examined five provinces (British Columbia, Alberta, Ontario, Quebec and Nova Scotia). In each of these provinces they randomly selected one teaching hospital, one large community hospital, and two small community hospitals. Specialty hospitals such as pediatric or psychiatric hospitals were excluded. From each of the chosen hospitals, a random sample of charts for the fiscal year 2000 were selected, screened, and reviewed for preventable adverse events.

The study found an overall adverse event incidence rate of 7.5%, excluding pediatric, obstetric, or psychiatric admissions.[2] In other words, of the 2.5 million hospital admissions in Canada in 2000, approximately 185,000 were associated with an adverse event. The most common types of adverse events were surgical-, drug- or fluid-related incidences. In addition, the study found that approximately 37% of total adverse events or 70,000 cases were potentially preventable.[2] Furthermore, in the mortality rate was 20.8%.[2] It was believed that approximately 10,000 to 24,000 of these deaths were highly preventable.[2] Finally, although not fully comparable, the preventable adverse event rate of 37% in Canada was lower than rates reported in studies in England and Australia but higher than the rate found in France.[2] Comparable rates on preventable adverse events were not available for the United States.

DISCUSSION

It was initially assumed that there were numerous national studies on medical errors in Canada. Surprisingly, it appears that the first significant study of adverse events in Canadian hospitals was *The Canadian Adverse Events Study* in 2004, and since then there have been no comparable national-scale studies. Obviously, there is a need for further research to fully explore this complex problem in Canada. For example, other settings besides hospitals such as long-term care centres should be closely examined. Furthermore, there is only minimal data available to assess the full financial impact of medical mistakes.[6] Long-term positive and negative implications of adverse events reporting should also be fully investigated.

The Canadian Adverse Events Study outlined some of the implications of negative outcomes. More specifically, researchers estimated that patients in the study who experienced an adverse event stayed an additional 1,521 days in hospital.[1] According to the Canadian Institute for Health Information (CIHI), if this rate were applied nationally, it would mean that more than 1.1 million days could be attributed to adverse events.[4] In addition, a staggering number of cases and deaths were preventable. Learning the mechanisms that underlie these errors is a necessary step toward reducing their incidence and the associated costs. A starting point to ensure such learning is to promote a high rate of error reporting via a reliable reporting mechanism.

ISSUES RELATED TO REPORTING OF MEDICAL ERROR

Cultural Barriers

The current "blame and shame" culture strongly contributes to under-reporting of errors.[7] Fear of being singled out, punished, and facing lawsuits and other punitive measures discourages professionals from openly reporting errors.[4] While "blame and shame" certainly reduces reporting, there are other cultural issues as well. For example, many doctors believe that errors are an inevitable and unmanageable feature of work and hence that error reporting is unnecessary.[8] Furthermore, in some cases reporting is discouraged by administration, and doctors are concerned about the increased potential for managers to interfere in the regulation of quality of care.[8] These beliefs have a strong influence on rates of error reporting.

Lack of Coordination and Consistency

There are few coordinated, standardized, and comprehensive mechanisms to collect and analyze information on patient safety and medical errors in Canada.[7] While the health care industry recognizes the importance of standardization as an indicator of quality and safety, variations exist across the board.[9] A possible explanation for such inconsistencies is that organizations may be unsure of what information on error and safety is pertinent to gather and disclose. Thus, greater coordination and communication is required to have systematic, simplified, and standardized reporting mechanisms in place. Information systems and information technology can be utilized to assist in this process. The role of information technology will be discussed further later in this paper.

Mandatory versus Voluntary Reporting

There is some debate as to whether a mandatory reporting system has greater value than a voluntary system.[10] Those opposed to a voluntary system argue that only mandatory systems can fully and reliably capture medical errors and adverse events. Those opposed to a mandatory system argue that the confidentiality of reporters may not be protected and hence people will be more reluctant to report.[1] There is also some disagreement regarding the value of reporting near misses. Those who support it argue that near misses provide learning opportunities, and that professionals are more likely to discuss them as they have fewer worries about liability. Opponents of such reporting argue that near misses can be difficult to identify and may complicate the standardization of reporting systems.[1]

Other Challenges

Research has shown that lack of time, workload, competing priorities, and shortage of human, monetary, and technological resources are barriers to the reporting of errors.[7] Reporting is also affected by organizational size and complexity. In smaller organizations, for example, it may be easier to report errors whereas in larger institutions, it is perhaps more difficult to discover and discuss errors. Finally, staff may not think about identifying errors or they may not know how to properly report errors.[7]

METHODS TO INCREASE REPORTING: ORGANIZATIONAL LEVEL

Cultural Shift

Organizations need to promote a culture of safety, openness, and trust rather than "naming, blaming, and shaming" individuals.[11] Individuals would be more willing to report errors if they were encouraged to share information and did not have to worry about being chastised. Nonetheless, a balance is required between a blame-free approach and accountability to the public. Hence, the culture must also be just, "where the inevitability of human error is recognized, but reckless acts are not tolerated."[10]

Several recommendations are offered to achieve such a balance. One is that blame will not be assigned to individuals following reporting, "subject to limited qualifications such as failure to report safety hazards or critical incidents, and premeditated or intentional acts of violence against people, equipment or property."[11] Another recommendation is that a voluntary and anonymous reporting system be used for near misses or errors that resulted in minimal patient harm.[3] Such reports are kept confidential from public scrutiny but are openly discussed within the organization. Furthermore, no one is penalized in any way. Mandatory reporting systems will be discussed in greater detail later in this paper, but it is sufficient to note here that such reporting should be used for serious preventable adverse events.

Leadership

Fostering an environment of openness and trust requires support from the senior administrative and clinical leadership.[12] Leaders need to recognize the important role of front-line staff and encourage them to be more proactive and vigilant in reporting errors. Committees comprised of representatives from all levels of the organization should be assembled to propose and implement strategies for error-reduction and reporting. Managers must also communicate to staff that mistakes allow for learning opportunities that can serve to improve quality of care.[10] If employees are reassured that they will be treated fairly, this will assist in increasing reporting.

Education and Communication

Research has shown that education on the importance of reporting errors, and the process for doing so, effectively increases reporting.[6] Organizations can regularly hold training seminars, presentations, and interactive discussions. For example, one study which surveyed over 3,000 physicians showed that while only 18% of doctors had received some education or training on disclosing errors to patients, almost 86% were somewhat or very interested in receiving such education or training.[13] Besides staff, patients and their families can also be encouraged to report errors.[11] Pamphlets and posters highlighting patient safety and communication methods can be utilized. As the awareness of staff, patients, and the public increases, so too will the reporting of errors.

Information Technology

Information technology (IT) can be utilized to increase the rate of error reporting. For example, healthcare organizations can use their own websites to share information on patient safety. Furthermore, confidential electronic systems could be set up for patients and staff to report errors via email. Organizations can invest in other IT systems as well. For example, a study showed that after the implementation of the Bar Code Medication Administration system, there was a significant increase in the number of medication errors reported.[14] Another example is using web-based "patient occurrence reporting."[15] A study found that after an organization converted from a paper form to the web-based reporting system, the number of submissions increased by 83.5% and there was a reduction of 79.5% in event-to-submission time.[15] While investments in such systems is likely expensive, the long-term pay-off in the form of increased reporting, improved patient safety, and reduced healthcare costs would be worth the investment.

METHODS TO INCREASE REPORTING: PROVINCIAL/TERRITORIAL AND NATIONAL LEVELS

Leadership, Education, and IT

Many of the strategies at the organizational level can be applied at the provincial, territorial, and federal levels to increase reporting. For example, professional colleges and associations can work together to educate healthcare

professionals about properly dealing with medical errors. Furthermore, when accrediting organizations, Accreditation Canada can closely examine whether effective reporting systems are in place and provide direction on more standardized mechanisms. In addition, federal, provincial, and territorial departments of health can work together "to create a comprehensive information technology infrastructure to support a network of reporting systems."[11] For instance, the Canada Health Infoway initiative and the Canadian Medication Incident Reporting and Prevention System (CMIRPS) can be aligned with the efforts to develop a national IT system.[5] Leadership is required at the national level to ensure that such systems are standardized and centralized.

It is important to note that some progress at the national level has been achieved. In 2005, the Canadian Patient Safety Institute (CPSI) and its partners across Canada began the campaign "Safer Healthcare Now," with more than 1,000 teams and 300 healthcare organizations. As a result, participating organizations achieved modest successes including a 50% reduction in ventilator-assisted pneumonia rates and central-line blood stream infections, as well as reductions in medication discrepancies and surgical site infections.[9] While there is much room for improvement, such campaigns at the national level are effective at enhancing patient safety.

Legal Changes

Legal changes within all Canadian jurisdictions may also be necessary to create an environment and culture that is conducive to error reporting. For example, Saskatchewan has passed legislation that protects individuals and organizations "from disclosing information about critical incidents and reports of those incidents."[11] British Columbia also has similar legislation in place which allows healthcare professionals to review and investigate an adverse event but ensures that such discussions are protected from the courts.[6]

Finally, mandatory reporting systems should be used for serious preventable adverse events. Such systems should be operated by provincial/territorial authorities. Saskatchewan already requires mandatory reporting of adverse events to its provincial health department.[10] Mandatory reporting offers the public protection; ensures that all serious events are reported and investigated; and holds individuals and organizations accountable if required.[3]

CONCLUSION

The rate of medical errors in Canada, especially preventable errors, is high. Much work is needed to cut unnecessary costs caused by errors and to ensure that avoidable tragedies do not continue to occur in the healthcare system. An increase in the reporting of errors will provide valuable learning opportunities to address and prevent mistakes. The reporting of medical errors will significantly increase with a cultural shift from "blame and shame" to a culture of safety, openness, and trust; support from leadership at the various levels to foster such a cultural shift; focus on education and communication; investment in information technology; and legal changes. Finally, there is much room for further research to fully explore this complex problem. For example, while the positive aspects of adverse events reporting have been generally discussed in this paper, it is important to consider possible negative consequences such as an increase in civil actions against hospitals and medical staff, an increase in insurance premiums for physicians, and patient dissatisfaction with the healthcare system. Thus, the long-term positive and negative implications of adverse events reporting deserve further investigation.

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