

# The importance of a holistic approach to medication incident reporting and analysis

By Grant Fuller and Certina Ho

**A**s a part of the efforts to improve patient safety and promote continuous quality improvement, many organizations have mandated participation in medication safety programs. A key component of these programs is the reporting and analysis of medication incidents. It is therefore important that healthcare practitioners understand the different methods available to analyze medication incidents and the value of a comprehensive approach to incident analysis.

Two broad approaches exist for examining medication incidents: quantitative and qualitative analyses. Quantitative analysis provides an overview of medication incident data using descriptive statistics (e.g. frequency distribution tables of common medications involved in incidents). Qualitative analysis consists of a more in-depth review of the narrative data from medication incident descriptions.

When analyzing groups of medication incidents, both quantitative and qualitative approaches offer valuable information and shared learning opportunities. However, they are also subject to limitations (Table 1).

A thorough incident analysis requires: 1) a detailed description and understanding of the incident(s); 2) identification of the underlying contributing factors; and 3) documentation and dissemination of recommendations for system-based improvements. Using either approach in isolation of the other may lead to steps that are essential to a comprehensive incident analysis being omitted. Statistical trends may be missed by examining incident narratives alone and recurring themes from incident descriptions may go unnoticed by focusing only on the quantitative data. A combination of both approaches, quantitative and qualitative, is necessary to gain the full picture of med-

## Quantitative Analysis

<b>Benefits</b>	<ul style="list-style-type: none"> <li>• Offer a quick summary of incident rates</li> <li>• Allow monitoring of trends</li> </ul>	<ul style="list-style-type: none"> <li>• Allow identification of case-specific contributing factors</li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Does not address case-specific contributing factors</li> </ul>	<ul style="list-style-type: none"> <li>• Does not identify incident rates</li> <li>• Can be time-consuming</li> </ul>

Table 1. Benefits and Limitations of Common Incident Analysis Approaches

ication incidents and ultimately learn from them.

## CASE EXAMPLE AND DISCUSSION

As part of an examination of medication incidents reported to ISMP Canada, a quantitative analysis was initially conducted on 267 incidents that were associated with patient harm in a province. Of the 267 incidents, four were classified by the reporters as associated with severe patient harm. The incident narratives were then examined qualitatively; one of the severe harm incident descriptions is paraphrased below:

“A patient took Ciprofloxacin 500 mg for 7 days as per the physician’s prescription. On the last day of therapy, the patient felt symptoms of tendinitis in both legs. The pain worsened each day for a week. The patient sought care from a walk-in clinic.”

While this event was classified by the reporter as associated with severe patient harm, it is clear upon analyzing the narrative of the incident that the patient experienced an adverse drug reaction (ADR) rather than a medication incident. An ADR is a non-preventable side effect of a medication (i.e. an undesirable effect that may occur under normal use conditions of a medication), with tendinitis/tendon rupture being a rare but known side effect of the fluoroquinolone drug class (e.g. Ciprofloxacin). This contrasts with the definition of med-

ication incidents, which are preventable cases of inappropriate medication use. This distinction is important as the inclusion of ADRs in medication incident data offers very limited value to incident analysis of which the goal is to reduce preventable patient harm by generating improvements to the medication-use system. While ADRs should be reported to programs where they can be shared with healthcare practitioners and the pharmaceutical industry (i.e. MedEffect Canada <https://www.canada.ca/en/health-canada/services/drugs-health-products/medeffect-canada.html>), their inclusion in a medication incident reporting and learning system can be misleading.

The above case example was categorized as one of the four or 25% of the severe harm reports in a group of 267 incidents that were associated with patient harm in a province. Solely looking at the quantitative analysis of this data set may distract the province’s attention from truly preventable medication incidents or areas of improvements in the medication-use system. Our qualitative analysis of the narratives of the same data set also revealed other discrepancies that were not caught by the quantitative approach. These included duplicate incident reports, incomplete reports, and reports that were misclassified as being associated with patient harm – from our interpretation of the incident description provided by the reporters,

these would be better classified as “no harm” incidents or “near misses”.

Most healthcare professionals intend to report medication incidents as accurately and completely as possible for the purpose of shared learning. However, practitioners who report medication incidents are human: they may be fatigued, unfamiliar with the reporting systems, or very distraught after discovering an incident, etc. A holistic view to medication incident reporting and analysis is necessary to ensure that any recommendations being considered should be able to address the underlying contributing factors that may have led to the incidents.

## CONCLUSION

It is the expectation of those who were involved in medication incidents and those who took the effort to report them that incident analysis findings and recommendations be shared in order to prevent similar events from occurring. To fulfill this expectation would require a commitment of time, resources, and expertise needed for comprehensive incident analyses. Summarizing the quantitative data with descriptive statistics, charts, and graphs is not enough. A deeper look at the narratives surrounding the incidents is also needed. Adopting a holistic approach to incident reporting and analysis offers a valuable opportunity for healthcare professionals to improve our medication-use system and prevent future patient harm. ■

Grant Fuller is a PharmD Candidate at the School of Pharmacy, University of Waterloo. He is currently a Medication Safety Analyst co-op student at the Institute for Safe Medication Practices Canada (ISMP Canada); and Certina Ho is a Project Lead at ISMP Canada.]