



CANADIAN INCIDENT ANALYSIS FRAMEWORK

Section 3.6 - Analysis Process

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3.6 ANALYSIS PROCESS

3.6.1 Methods of Incident Analysis - Overview

In numerous consultations with patient safety experts and those engaged in incident analysis, it became clear that one method of incident analysis is not necessarily appropriate for all types of incidents. A literature review and environmental scan of analysis methods used in Canada and around the globe^{10, 14} confirmed the emergence of a variety of methods for incident analysis in healthcare. Access to a broad range of methods is important for users, who can select the one most appropriate for their healthcare facility, context, skills, resources and type of incident. The methods included in this framework have been designed to be flexible to accommodate use in different care settings.

This framework offers two methods for analyzing individual incidents (*comprehensive* and *concise*) and one method for multiple incidents (*multi-incident*). All methods aim to determine what happened, how and why it happened, what can be done to reduce the risk of recurrence and make care safer and what was learned.

Regardless of the method used, the basic principles and steps in the analysis process are the same (*Figure 3.1*); however, the level of detail and the scope of the review will differ with each method. Below is a short description of each method, followed by guidance on how to select the appropriate method to analyse a particular incident or grouping of incidents.

Comprehensive analysis is usually used for complicated and complex incidents that resulted in catastrophic/major harm, or the significant risk thereof. Multiple sources of information are consulted, including interviews with those directly or indirectly involved in the incident as well as experts, supplemented by a literature review. A significant amount of time and resources (human and financial) can be invested to conduct the analysis. The final report produced will include a detailed chronology of the facts, contributing factors and their influences, findings from the literature search/environmental scan, context analysis, recommended actions, and where applicable, implementation, evaluation and dissemination plans. Members of the senior leadership of the organization need to be kept apprised of progress and may be directly involved in the process.

Concise analysis is a succinct, yet systematic way to analyze incidents with no, low or moderate severity of harm. Generally the incident and analysis process are localized to the unit/program where care was delivered. The sources of information consulted are the available reports, supplemented with a small number of select interviews and a targeted review of other sources of information. The analysis is completed in a short interval of time by one or two individuals. At the end of the analysis, a report is produced that contains the facts (including a brief timeline), contributing factors, a brief context analysis, and where applicable, recommended actions and a plan for evaluation and dissemination.

Multi-incident analysis is a method for reviewing several incidents at once instead of one by one, by grouping them in themes (in terms of composition or origin). Multi-incident analysis can be used for incidents that resulted in no, low or medium severity of harm as well as near misses that took place at any location in the organization (possibly in a short interval of time). It can also be used to review a group of comprehensive and/or concise analyses. This method of analysis can generate valuable organizational and/or system-wide learning that cannot be obtained through the other methods.

Multi-patient incidents – guidelines for analysis

When the outcome of an incident impacts more than one patient (e.g. incorrect equipment sterilization for an interval of time) the decision on which analysis method is the most appropriate should be made on a case-by-case basis.

3.6.2 Selecting a Method of Incident Analysis

When selecting a method to analyze incidents, consider a number of criteria including: severity of the incident, probability of recurrence, complexity of the factors that appear to have influenced the incident, extent of the impact of the incident on the organization (unit, organization or system), as well as other contextual factors (initial findings, frequency of occurrence, regulatory mandates, internal or external pressures). In the case of near misses or incidents where the outcome is not known at the time of the investigation, the worst possible outcome should be considered. Additionally, factors such as incident analysis skills and limited resources available to analysis teams require consideration. These criteria are summarized in *Figure 3.3*. See *Section 2.2* for descriptions of complexity, area of impact and context.

Figure 3.3: CRITERIA TO CONSIDER IN SELECTING AN INCIDENT ANALYSIS METHOD

CRITERIA	COMPREHENSIVE	CONCISE	MULTI-INCIDENT
Safety Assessment Score (severity and probability) (see <i>Figure 3.4</i>)	3 and some 2	1 and some 2	1, 2 and 3
Complexity Level (degree of agreement, certainty, number of interactions)	Complicated, Complex	Simple, Complicated	Simple, Complicated or Complex
Area of Impact	Team, Unit/Program, Organization, System	Team, Unit/Program, Possible Organization	Team, Unit/Program, Organization, System, Sector, Industry
Context – Internal and External Pressures	High	Low	Low, Medium or High
Resources Required/ Available (time, financial, human)	Moderate to Extensive	Limited	Moderate to Extensive
Timelines	Weeks to Months	Hours to Days	Variable

The severity of the incident should not be the only criteria for selecting an analysis method because there are situations where an incident with a high safety assessment score may be more appropriately analyzed with a concise analysis and other situations where an incident with a low score requires a comprehensive analysis.

Safety assessment score

The US Veterans Affairs Safety Assessment Code³⁷ is one of many incident stratification tools that link the severity of the patient safety incident with its probability of recurrence. The tool applies to all incidents (harmful, no harm and near misses).

“Key factors for the severity categories are extent of injury, length of stay, level of care required for remedy and actual or estimated physical plant costs. For harmful and no harm incidents, assign severity based on the patient’s actual condition. If the event is a near miss, assign severity based on a reasonable “worst case” systems level scenario. For example, if you entered a patient’s room before they were able to complete a lethal suicide attempt, the event is catastrophic, because the reasonable “worst case” is death of the patient.

In order to assign a probability rating, it is ideal to know how often it occurs at your facility. Sometimes the data will be easily available because they are routinely tracked (e.g. falls with injury, adverse drug events, etc.). Sometimes, getting a feel for the probability of events that are not routinely tracked will mean asking for a quick or informal opinion from staff most familiar with those events. At times it will have to be your best educated guess.”³⁷

Figure 3.4: UNITED STATES VETERANS AFFAIRS SAFETY ASSESSMENT CODE MATRIX ³⁷

SEVERITY \ PROBABILITY	CATASTROPHIC	MAJOR	MODERATE	MINOR
Frequent	3	3	2	1
Occasional	3	2	1	1
Uncommon	3	2	1	1
Remote	3	2	1	1

It is important to note that the analysis methods presented here are not mutually exclusive. For example, contributing factors derived during a concise incident analysis could also be the foundation for a comprehensive or multi-incident analysis. In the event that a comprehensive analysis was recently conducted and a new similar incident occurs, a concise incident analysis may be sufficient to determine if any new contributing factors need to be addressed.