

# Medication Safety Culture Indicator Matrix (MedSCIM): Going Beyond the Numbers and Using Incident Reports to Assess Medication Safety Culture

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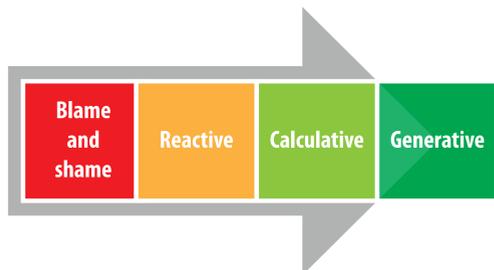
## Objectives

- To develop an innovative strategy and an analytic framework by leveraging medication incidents as a data source to assess safety culture through a qualitative approach.
- Based on available patient safety studies, a safety culture maturity model was developed as a framework to guide patient safety improvements and to assess safety culture in healthcare settings.

## Methodology

- Two independent analysts conducted a qualitative analysis examining 200 medication incidents from two ISMP Canada incident reporting databases.
- Themes that were suggestive of a positive safety culture were identified and subsequently led to the development of an analytic framework.
- Medication Safety Culture Indicator Matrix (MedSCIM) was consolidated and validated by obtaining input from an inter-professional patient safety expert panel, consisting of a physician, a registered nurse, and a pharmacy technician.

**FIGURE 1.** Maturity in understanding medication safety: Increasing level of positive safety culture<sup>2</sup>



## Results

### Medication Safety Culture Indicator Matrix (MedSCIM)

MedSCIM is a 3x4 matrix (Table 1) that uses qualitative analysis to assess a medication incident on two dimensions:

- Core Event: Degree of Documentation**
  - Describes a medication incident based on its narrative integrity and completeness of documentation to allow sufficient interpretation and understanding of the event
  - Assigns the medication incident with a numeric score of 1 to 3 (Table 2)
- Maturity of Culture to Medication Safety (Figure 1)**
  - Analyzes the medication incident report based on the reporter's view of patient safety concepts and principles, the perceived attitude towards patient safety, and understanding of system-based solutions
  - Assigns the medication incident with a ranking system of A to D (Table 2)

Each medication incident is assigned a cumulative safety culture level based on the above two indices, which reflect the overall safety culture level (Table 3). Through qualitative analysis methodology, MedSCIM evaluates medication safety culture by assessing the overall quality of medication incident reports.

MedSCIM provides an alternative method of assessing medication safety culture within an organization. It allows for a more comprehensive picture of the current state of medication safety culture in an area of interest or an institution.

**TABLE 1.** Medication Safety Culture Indicator Matrix (MedSCIM): Medication safety culture defined by colours with red as a negative, yellow as neutral, and green as a positive safety culture.

		Maturity of Culture to Medication Safety			
		Grade D: Blame and Shame	Grade C: Reactive	Grade B: Calculative	Grade A: Generative
Core Event	Level 1: Report fully complete	1D	1C	1B	1A
	Level 2: Report semi-complete	2D	2C	2B	2A
	Level 3: Report not complete	3D	3C	3B	3A

### MedSCIM Continuing Education Workshop

The principles of the MedSCIM were taught through an educational workshop offered by ISMP Canada, titled, "Going beyond the numbers: Using incident reports to assess medication safety culture", where participants were encouraged to go beyond the conventional limits of analyzing medication incidents in the typical quantitative approach. Participants had the option of bringing de-identified medication incidents from their own practice to apply the MedSCIM framework and gained hands-on experience.

### Limitations

- MedSCIM is a recently developed safety culture assessment framework that requires further research for validation in various practice settings.
- MedSCIM is susceptible to sampling bias secondary to low reporting rates and the voluntary nature of incident reporting in most healthcare institutions.

## Conclusion

- MedSCIM is an innovative framework that uses medication incidents to evaluate and gain insights into the medication safety culture of a healthcare setting.
- An ISMP Canada educational workshop with interactive components that enables application of the MedSCIM framework was developed to share this knowledge with healthcare providers.
- To promote patient safety, more resources must be available to better understand and measure patient safety culture. MedSCIM offers a novel approach to understand safety culture through the lens of medication incident reporting and analysis.

### References

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**TABLE 2.** Definition for MedSCIM Dimensions and Outcomes

MedSCIM INDEX	OUTCOME	DEFINITION
Core Event	Level 1: <b>Report fully complete</b>	The medication incident provides sufficient information to describe the medication incident and contributing factors.
	Level 2: <b>Report semi-complete</b>	The medication incident provides sufficient information to describe the medication incident. No information is provided about contributing factors.
	Level 3: <b>Report not complete</b>	The medication incident provides insufficient information to allow meaningful qualitative analysis.
Maturity of Culture to Medication Safety <small>(Modification of Ashcroft et al.<sup>2</sup>)</small>	Grade A: <b>Generative</b>	The medication incident uses a systems-based approach to describe the root cause and develop possible solutions to prevent future recurrence.
	Grade B: <b>Calculative</b>	The medication incident uses a systems-based approach to describe the root cause. No solutions are offered to prevent future recurrence.
	Grade C: <b>Reactive</b>	The medication incident is treated as an isolated incident. No solutions are offered to prevent future recurrence.
	Grade D: <b>Blame and Shame</b>	The medication incident focuses on human behaviours instead of a systems-based approach.

**TABLE 3.** Examples of Medication Incidents Scored on MedSCIM

Safety Culture Level	MedSCIM Rating	Core Event	Maturity
<b>Low (1)</b>	<b>2D</b>	<b>Level 2</b> (Report semi-complete)	<b>Grade D</b> (Blame and Shame)
<b>Case Example:</b> A patient's daughter called the pharmacy and claimed the pharmacy shorted the patient 9 tablets of clopidogrel. The technician who counted the prescription was informed of the error and all other staffs were told counting is to be done correctly.			
<b>Medium (2)</b>	<b>2C</b>	<b>Level 2</b> (Report semi-complete)	<b>Grade C</b> (Reactive)
<b>Case Example:</b> The wrong dose of hydromorphone was sent from the pharmacy. The pharmacy was supposed to send 0.5 mg tablets but 1 mg tablets were sent.			
<b>High (3)</b>	<b>1A</b>	<b>Level 1</b> (Report fully complete)	<b>Grade A</b> (Generative)
<b>Case Example:</b> The patient identified methylphenidate 54 mg was given instead of the usual 36 mg. The pharmacy recognized the DINs were very similar (02247733 and 02247734) and only differed by one digit. The staff believed as the prescription was being checked, the single digit difference was overlooked. To prevent these types of errors, the staffs will not place two medications side-by-side where the DINs vary by only one digit.			

### Disclosures

Authors of this poster have the following to disclose concerning possible personal or financial relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Calvin Poon – Nothing to disclose, Atsushi Kawano – Nothing to disclose, Lindsay Yoo – Nothing to disclose, Roger Cheng – Nothing to disclose, Certina Ho – Nothing to disclose

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