Measuring Patient Harm in Canadian Hospitals and Driving Improvement

How the CIHI – CPSI collaborative on hospital harm can support patient safety initiatives in your organization

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@Patient_Safety
@cihi_icis
Your line will be muted
Welcome

Jennifer Rodgers
Patient Safety Improvement Lead
Canadian Patient Safety Institute
Interacting in WebEx

Click on the marker button to turn on annotation

Type your question or comment in the Q&A box
Interacting in WebEx

Use the arrow to respond.
I’m so excited.

Lorena Thies...
Hina Laaeque
CAMILO MAYA
Stephanie Craig
Dana
Betty Willis
Susan Grant
Joanne Aubin
Christine Taam
Gina Peck
Sara Jane Ver... 
Jin Ike
Anne MacLaurin
Laurie Boyer
Lynn Wamburu
The

Camilla Ab... 
Cathy Asha
Tara Walsh
Diana Ryman
Kristi Carter

Cathub Lihau
Steve Chard
Kathy Stevens...

Tyna Barwick
Toma
Melissa Botz
Lucy Paganier
Lisa Christoph...

Sylvie Baron
Hilda Chan

CPSI-ICSP
Canadian Institute for Health Information
Institut canadien d’information sur la santé
Where are you on the continuum?

- Tara
- Cathy Litwin
- Stephanie Mc...
- Joanne Aubin
- Zeeu Lomant

Participated in pioneer study or validation

- Emmanuel An...
- Camillo Nava
- Dinara Ryman
- Ena White
- Tonya Og
- Lucy
- Stephanie
- Lisa Pagnier
- Kristi Carte.
- Camila Velez
- Susan G.
- Natalie Thic...
- Guise Lacroix
- Joan
- Lisa Chizek
- Kathy Steven...
- Christine Taam
- Vanessa Walsh
- Carolyn A...
- Theresa Hc...
- Hilda Chan
- Ashley Boyce
- Brad Edie

Used data and the improvement resource to better understand harm in our hospital

Looked at our data but haven't used it yet

- Hearing about it for the first time
Our Speakers Today

Joseph Emmanuel Amuah  
Canadian Institute for Health Information

Jennifer D’Silva  
Canadian Institute for Health Information

Dr. Chris Hayes

Anne MacLaurin  
Canadian Patient Safety Institute
Measuring hospital harm
Measuring hospital harm

Definition

Acute care hospitalizations with at least 1 occurrence of unintended harm that could have potentially been prevented by implementing known evidence-informed practices

- Harm must have occurred after admission and required treatment or prolonged the hospital stay
- Harm is categorized into 31 clinical groups, each of which is associated with evidence-informed practices
- Excludes Quebec and patients with selected mental health diagnoses
### Brief history of the measure

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Initial feasibility testing and analytical exploration</td>
</tr>
<tr>
<td></td>
<td>Initiation of partnership between CIHI and CPSI</td>
</tr>
<tr>
<td>2012</td>
<td>Testing with 7 pioneer hospitals across Canada</td>
</tr>
<tr>
<td></td>
<td>Clinical review and mapping to best practices by Dr. Ben Chan</td>
</tr>
<tr>
<td>2013</td>
<td>Data quality and coding review</td>
</tr>
<tr>
<td></td>
<td>Second round of testing with pioneer hospitals</td>
</tr>
<tr>
<td>2014</td>
<td>Modified Delphi process including survey and in-person meeting</td>
</tr>
<tr>
<td></td>
<td>Review of report’s analytical findings with clinical expert advisors</td>
</tr>
<tr>
<td>2015</td>
<td>Reabstraction study conducted by CIHI</td>
</tr>
<tr>
<td></td>
<td>Chart review at 4 hospital sites for data quality check specific to codes used in the measure</td>
</tr>
<tr>
<td>2016</td>
<td>Validation of hospital data by facilities across Canada</td>
</tr>
<tr>
<td></td>
<td>Consultations on selected obstetric clinical groups</td>
</tr>
<tr>
<td></td>
<td>National report</td>
</tr>
</tbody>
</table>
# Hospital Harm

<table>
<thead>
<tr>
<th>Health Care–Medication-Associated Conditions</th>
<th>Health Care–Associated Infections</th>
<th>Patient Accidents</th>
<th>Procedure-Associated Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anemia — Hemorrhage</td>
<td>Urinary Tract Infections</td>
<td>Patient Trauma</td>
<td>Anemia — Hemorrhage</td>
</tr>
<tr>
<td>Obstetric Hemorrhage</td>
<td>Post-Procedural Infections</td>
<td>Patient Accidents</td>
<td>Obstetric Hemorrhage</td>
</tr>
<tr>
<td>Obstetric Trauma</td>
<td>Gastroenteritis</td>
<td></td>
<td>Obstetric Trauma</td>
</tr>
<tr>
<td>Birth Trauma</td>
<td>Pneumonia</td>
<td></td>
<td>Birth Trauma</td>
</tr>
<tr>
<td>Delirium</td>
<td>Aspiration Pneumonia</td>
<td></td>
<td>Patient Trauma</td>
</tr>
<tr>
<td>Venous Thromboembolism</td>
<td>Sepsis</td>
<td></td>
<td>Device Failure</td>
</tr>
<tr>
<td>Altered Blood Glucose Level With Complications</td>
<td>Infections Due to Clostridium difficile, MRSA and VRE</td>
<td></td>
<td>Laceration/Puncture</td>
</tr>
<tr>
<td>Pressure Ulcer</td>
<td></td>
<td></td>
<td>Pneumothorax</td>
</tr>
<tr>
<td>Electrolyte and Fluid Imbalance</td>
<td></td>
<td></td>
<td>Wound Disruption</td>
</tr>
<tr>
<td>Medication Incidents</td>
<td></td>
<td></td>
<td>Retained Foreign Body</td>
</tr>
<tr>
<td>Infusion, Transfusion and Injection Complications</td>
<td></td>
<td></td>
<td>Post-Procedural Shock</td>
</tr>
<tr>
<td>Health Care–Medication-Associated Conditions</td>
<td></td>
<td></td>
<td>Selected Serious Events</td>
</tr>
</tbody>
</table>

**Health Care–Associated Infections**

- Urinary Tract Infections
- Post-Procedural Infections
- Gastroenteritis
- Pneumonia
- Aspiration Pneumonia
- Sepsis
- Infections Due to Clostridium difficile, MRSA and VRE
Hospital harm rates may never be 0

- It may not be possible to prevent every individual occurrence of harm
- Clinicians selected these clinical groups because evidence shows that these types of harm can be reduced by implementing evidence-informed practices
Clinical groups to be revised

Following feedback from validation with stakeholders and consultations with experts, the following clinical groups are being revised before the next private release:

- A01/D01 - Anemia — Hemorrhage
- A03/D03 - Obstetric Trauma
- A05 – Delirium
- A07 – Altered Blood Glucose Level with Complications
- B14: Gastroenteritis
- B17: Sepsis
- B18: Infections Due to *Clostridium difficile*, MRSA or VRE
- C19: Patient Trauma
- D23: Wound Disruption
Next steps

- **Incorporate Validation Feedback**
- **Develop Preliminary Risk-adjustment for Hospital Harm**
- **Hospital harm measure, In-Hospital Infections indicators (Private release)**
- **In-Hospital Infections indicators (Public release)**

- **Fall 2016**
- **Winter 2017**
- **Spring 2017**
Questions?
Pan-Canadian results
Patient harm in Canadian hospitals? It does happen.

Hospitals are generally safe, but sometimes harmful events happen that affect patients. Many of these events are preventable.

How often does it happen?

In 2014–2015, 1 in 18 hospital stays in Canada involved at least 1 harmful event (138,000 out of 2.5 million hospital stays).

Note
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
Harmful events occur across all types of care

<table>
<thead>
<tr>
<th>Patient profile</th>
<th>Proportion of all admitted patients</th>
<th>Harm rate (per 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical*</td>
<td>19.8%</td>
<td>7.6</td>
</tr>
<tr>
<td>Medical</td>
<td>56.6%</td>
<td>6.2</td>
</tr>
<tr>
<td>Obstetric</td>
<td>11.7%</td>
<td>4.2</td>
</tr>
<tr>
<td>Newborns</td>
<td>11.9%</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Notes**
* Surgical patients had a procedure in a main operating room within the first 24 hours of admission.

Data from Quebec as well as data for some mental health patients has been excluded.

**Source**
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
No single category accounts for majority of events

There are 4 categories of harmful events — 2014–2015 breakdown.

- **37%**
  - Health care and medications (like bed sores or getting the wrong medicine)

- **37%**
  - Infections (like surgical site infections)

- **23%**
  - Procedure-related (like bleeding after surgery)

- **3%**
  - Patient accidents (like falls)

Notes
The percentages for the categories of harm represent the proportion of hospitalizations where there was at least 1 occurrence of harm within each category.
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
“Never events” are not the most common

**Note**
Data from Quebec as well as data for some mental health patients has been excluded.

**Source**
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
Some patients experience more than 1 harmful event

Of the 138,000 hospitalizations involving a harmful event, 1 in 5 (~30,000) involved more than one occurrence of harm.

Note
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
Complex patients are at higher risk of harm

<table>
<thead>
<tr>
<th>Complexity score</th>
<th>Rate of harm for medical patients (per 100)</th>
<th>Rate of harm for surgical patients (per 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>2.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Medium</td>
<td>6.4</td>
<td>12.4</td>
</tr>
<tr>
<td>High</td>
<td>17.5</td>
<td>29.0</td>
</tr>
</tbody>
</table>

Notes
See the technical report for information on how complexity scores are determined.
Obstetric and newborn patients have been excluded from this analysis, as they represent a different patient population and the majority are low complexity.
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
1 in 8 hospitalizations with a harmful event ends in death

Although the data can not determine whether a harmful event led to the patient’s death, ~17,300 patients with at least 1 harmful event died in hospital

Notes
Obstetric and newborn cases are included in the overall rates but are not reported separately as death is rare in these patient populations.
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
Additional resource use

Reducing harmful events could free up resources for unmet needs

Patients who experience harm spend *additional* days in hospital:
more than 1,600 beds each day

The *additional* dollars used to care for patients experiencing harm:
$685 million

Note
Data from Quebec as well as data for some mental health patients has been excluded.

Source
Discharge Abstract Database, 2014–2015, Canadian Institute for Health Information.
Questions?
Working with the hospital harm tools
Is your organization any safer now than it was 10 years?

Yes
HOW DO YOU KNOW
Is Canadian healthcare any safer now than it was 10 years? How do we know?
Patient harm in Canadian hospitals? It does happen.

Hospitals are generally safe, but sometimes harmful events happen that affect patients. Many of these events are preventable.

How often does it happen? In 2014–2015, 1 in 18 hospital stays in Canada involved at least 1 harmful event (138,000 out of 2.5 million hospital stays).

What kinds of harmful events happen? There are 4 categories of harmful events — 2014–2015 breakdown.

- **37%** Health care and medications (like the wrong dose or getting the wrong medicine)
- **37%** Infections (like surgical site infections)
- **23%** Procedure-related (like bleeding after surgery)
- **3%** Patient accidents (like falls)

Note: All numbers exclude Quebec and selected mental health diagnoses.

What can be done about this? We are collecting data on how often these events are happening, using a new hospital harm measure. And we are providing information on how these events can be prevented. Hospitals, along with patients and families, have a hand in helping make care safer for all.

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<table>
<thead>
<tr>
<th>Incident Reporting System</th>
<th>Chart Review (Trigger Tool)</th>
<th>Culture Surveys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific Process/Outcome Measures</td>
<td>Patient Complaints</td>
<td>Critical Incident Rate</td>
</tr>
<tr>
<td>Externally Reported Indicators</td>
<td>Administrative or Claims Data</td>
<td>Hospital Harm Measure</td>
</tr>
</tbody>
</table>

**Process Flow**

1. Identify and prioritize need/idea
2. Understand the system and current state
3. Define and Plan Improvement
4. Select and Test Change Ideas
5. Implement and Sustain
6. Spread

**Continuous monitoring, performance measurement and evaluation**
Questions?
Hospital Harm Improvement Resource
Linking the measure to improvement: *Hospital Harm Improvement Resource*

**Purpose**

- Demonstrate ability to take action by providing resources to support organizations in making improvements in the safe delivery of care
- Make information readily available to teams to support their quality improvement efforts

Available online at [www.patientsafetyinstitute.ca](http://www.patientsafetyinstitute.ca)
Who on the call is familiar with the Hospital Harm Improvement Resource?
What is in the Hospital Harm Improvement Resource?

- General patient safety tools and quality improvement resources
- Tips on how to use the hospital harm data
- For each clinical group
  - An overview of the clinical group and goal for improvement
  - Evidence-informed practices to reduce the likelihood of harm
  - Outcome and process improvement measures
  - Associated Accreditation Canada standards and Required Organizational Practices
  - Links to additional resources
Helpful Tips
1. Prioritize clinical groups

- Clinical groups with a high volume of patients.
- Severity of harm including never events, serious reportable adverse events, serious safety events and critical incidents.
- Clinical groups that align with:
  - QI work already underway or planned in the organization.
  - Provincial/territorial or regional priorities or ministerial directives.
  - Priorities identified through the accreditation or risk assessment process.
  - Priorities from patient safety incident reporting and learning systems, patient safety or quality assurance reviews or patient complaints.
2. Conduct Chart Reviews

- Verify data/cases of harm
- Identify specific populations/units in the hospital for improvement
- Determine which codes contribute the majority of harm
- Identify factors that contribute to the harm
- Identify specific needs for improvement:
  - Charting/coding practices
  - Implementation of evidenced informed practices
  - or both
3. Perform Chart Audits

- Conduct a chart audit to compare documented care against best practice
- Use the results of the audit to identify specific practice improvements

**Example: Falls Prevention Audit**

<table>
<thead>
<tr>
<th>A. Type of Fall Risk Assessment</th>
<th>B. Was Patient Designated “At Risk” for Fall and What Risk Factor (Select the Most Detaile)</th>
<th>C. Modification Review Completed</th>
<th>D. Patient Has Documented Falls Prevention Plan</th>
<th>E. Completed Fall Risk Assessment Following a Significant Change in Medical Status</th>
<th>F. Patient was Restrained at Any Time in the Reporting Period</th>
<th>G. How Many Times did Patient Fall in Reporting Period (If 0 End Audit Here)</th>
<th>H. Was Patient Assessed for Harm on Discovery of Fall?</th>
<th>I. Harm from Fall (If “Death” End Audit Here)</th>
<th>J. Completed Fall Risk Assessment Following Fall?</th>
<th>K. Monitored for 24-48 Hours after Fall?</th>
<th>L. Falls Prevention/Injury Reduction Plan Reviewed/Revised after Fall?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen</td>
<td>Full</td>
<td>No Risk</td>
<td>Not Recorded</td>
<td>No Risk</td>
<td>NO</td>
<td>0</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Full</td>
<td>Full</td>
<td>No Risk</td>
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<td>0</td>
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<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>
Use the chat box to tell us some of the team members you have engaged with (or intend to engage with) while working with the Hospital Harm measure.
Where would you like to get to?

- Preliminary knowledge of the project/read the report
- Look at our data but NOT use it for improvement
- Use data to better understand harm in our hospital
- Use data and the Improvement Resource to help drive change and improvement
Questions?
Please respond to the poll questions that have now opened you will have 5 minutes to complete.
Thank you

Learn more at:


Contact us at:

hsp@cihi.ca

info@cpsi.ca