ISMP Canada Safety Bulletin

Medication Safety in Long-Term Care: Measuring Quality Improvement Over 12 Years

- *The Medication Safety Self-Assessment for Long-Term Care (MSSA-LTC) describes the characteristics of a safe medication system so that interdisciplinary teams can*
  - *objectively assess their local practices;*
  - *implement quality improvement initiatives; and*
  - *evaluate their efforts over time.*
- *In a 12-year review of results submitted to ISMP Canada, mean total self-assessment scores improved with repeated application of the MSSA-LTC. Elements with the greatest improvement were quality processes and risk management, staff competence and education, and drug information.*

Recently, the Public Inquiry into the Safety and Security of Residents in the Long-Term Care Homes System (otherwise known as the Long-term Care [LTC] Inquiry or Gillese Inquiry)[1] conducted a detailed examination of patient safety, medication-related harm, and medication management systems in Ontario LTC homes.[2]

Analyses and other work informed the inquiry's deliberations; a review of LTC medication safety practices here, and in other countries, revealed Canada's leadership in certain areas. An example is the analysis and shared learning from the Canadian Medication Incident Reporting and Prevention System (CMIRPS).

ISMP Canada has developed a number of knowledge translation activities, including the Medication Safety Self-Assessment for Long Term Care (MSSA-LTC) program. This program is intended to help long-term care (LTC) homes identify opportunities for enhancing their medication management systems, as well as to guide quality improvement initiatives and evaluate progress over time.[3] The practices listed in the MSSA-LTC relate to potential system improvements based on analyses of medication incidents reported to the CMIRPS.[3,4]

A 12-year review of data submitted to the MSSA-LTC program was undertaken to inform an update to the resource in 2019. This bulletin summarizes a retrospective quantitative analysis of the data to determine the impact of repeat MSSA-LTC and to identify the specific safety elements benefiting from reassessments.

METHODOLOGY

This analysis was based on MSSA-LTC data voluntarily submitted to ISMP Canada by LTC homes across Canada from the time of the program's inception in 2006 until August 31, 2018. The MSSA-LTC consists of 10 key elements, which are further subdivided into 20 core distinguishing characteristics and 129 self-assessment items. Each item is assigned a score, and item scores are weighted according to their influence on medication safety.[3]

The mean total scores were calculated for every assessment, as well as for each key element, characteristic, and item. Only LTC homes that completed 3 or more assessments were included in subsequent analyses, to allow for evaluation of trends in the data. The mean total scores for the most recent ("last") assessment were also calculated for those that completed 3 or more assessments (e.g., based on the fifth assessment for those that completed 5 assessments and the eighth assessment for those that completed 8 assessments). The degree of improvement was determined as the difference between means for the first and last assessment scores. The findings were independently reviewed by 2 analysts.

SELECTED FINDINGS

Overall, 813 LTC homes completed a total of 2418 assessments (Figure 1). The majority (59.3%) of these homes completed 1 or 2 assessments. Data for the remaining 331 homes (40.7%) were investigated further to determine the impact of continuing to repeat the MSSA-LTC.

Analysis showed an upward trend in mean total score observed for these homes (Figure 2). The greatest improvement occurred between the first and second assessments.

An overall upward trend in mean score from the first to the last assessment was also observed for each of the 10 key elements (Figure 3). The 3 key elements with the greatest improvement between the first and last scores (in order, by magnitude of change) were key elements X, VIII, and II. These are highlighted in the graph and described in greater detail below. Relevant characteristics and items within these 3 key elements were also examined to help understand the specific safety measures that contributed to these improvements.

Figure 1: Number of long-term care (LTC) homes and number of times the Medication Safety Self-Assessment for Long-Term Care (MSSA-LTC) was completed between 2006 and 2018 (n = 813).
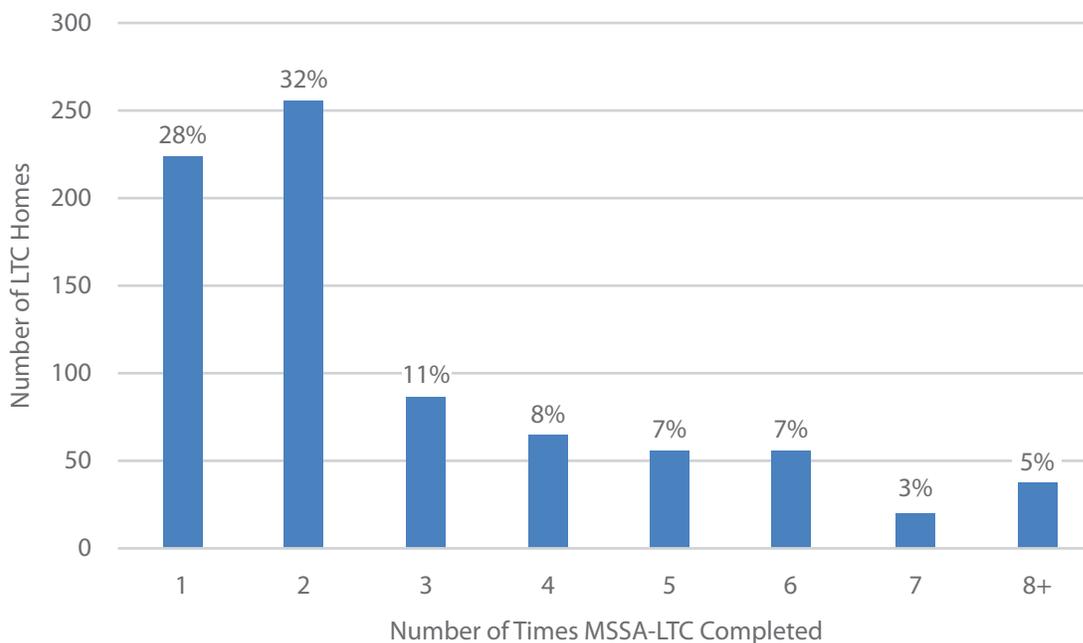
Figure 2: Mean total score on successive assessments for long-term care homes that completed the Medication Safety Self-Assessment for Long-Term Care (MSSA-LTC) at least 3 times between 2006 and 2018.
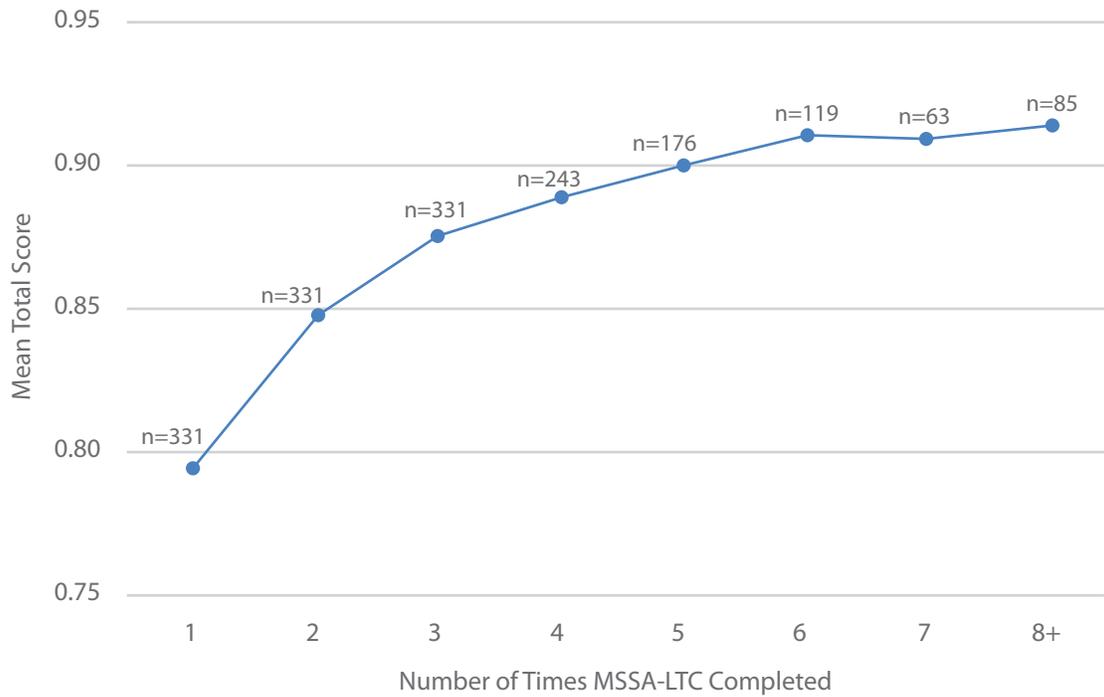
Figure 3: Mean score for each key element of the Medication Safety Self-Assessment for Long-Term Care (MSSA-LTC) for homes that completed the assessment at least 3 times.
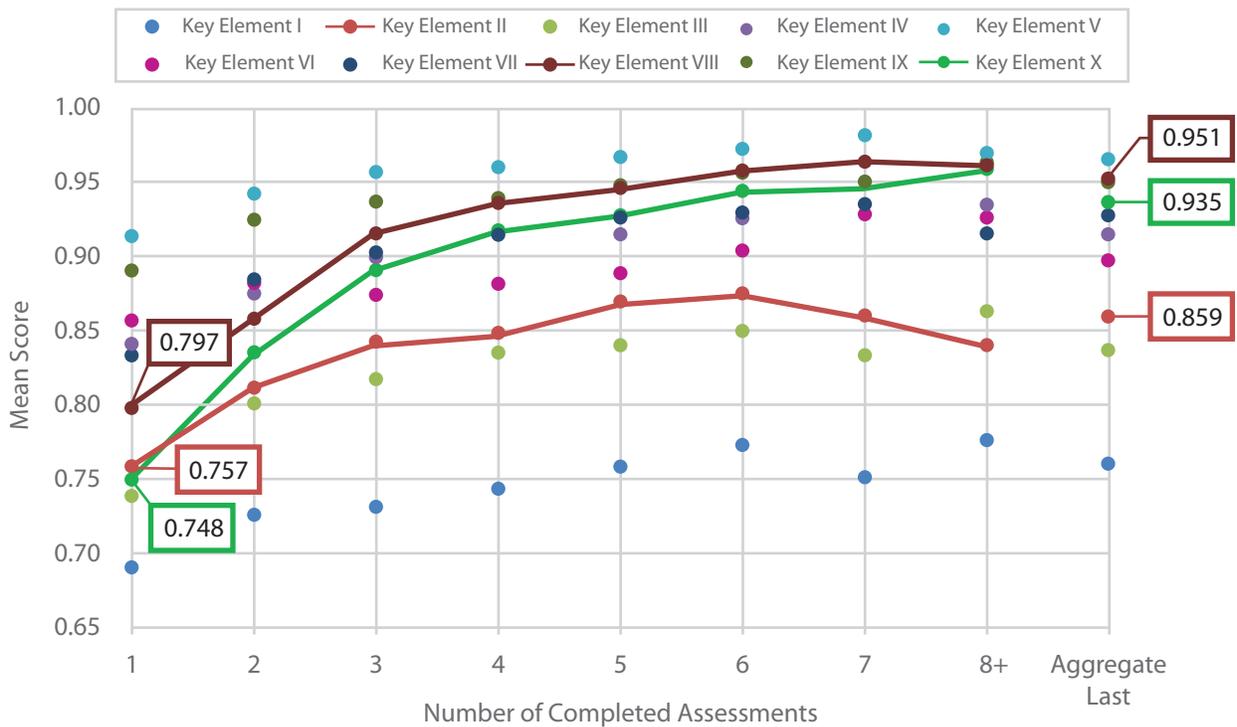
Note: The data points labelled "Last" refer to the means of the most recent assessment for each LTC home, regardless of how many assessments were completed. For the 3 key elements with the greatest improvement between first and last assessments (key elements X, VIII, and II), numeric values are presented for the first and last data points, and the trend lines for successive assessments are shown.

Key Element X – Quality Processes and Risk Management

The greatest improvement with repeated assessment occurred for key element X (absolute difference in mean score of 0.187 [18.7%] between first and last assessments). This result was primarily driven by improvements for characteristic #17 (adoption of a nonpunitive system-based approach to error reduction) and characteristic #18 (encouraging reporting and analysis of incidents, both internal and external, to support safe practitioner performance). Within characteristic #18, item 121 had the greatest improvement; this item refers to creating a dedicated multidisciplinary team or a safety committee to routinely review medication incidents and to guide quality improvement activities.

Key Element VIII – Staff Competence and Education

Key element VIII focuses on regular evaluation of practitioners' competency and continuing staff education. This key element had an absolute improvement in mean score of 0.154 (15.4%) between the first and last assessments, establishing it as the key element with the second best improvement with repeated assessment. The primary driver for this improvement was characteristic #14, more specifically item 90. Item 90 emphasizes that information about incidents is to be shared at orientation and continually thereafter, and that system-based strategies to reduce the risk of such incidents are to be communicated to all staff.

Key Element II – Drug Information

With an absolute difference in mean score of 0.102 (10.2%) between the first and last assessments, key element II, which focuses on drug information, had the third best improvement with repeated assessment.

This key element contains characteristic #2 (essential drug information is readily available in useful form and considered at all steps of the medication process) and characteristic #3 (standardization and automation of communication of drug orders and information to minimize the risk for errors). Within characteristic #2, the greatest improvement occurred for item 24 (pharmacy computer system allows staff to create an alert if one is not present) and item 19 (current protocol and guidelines for high alert medications [e.g., insulin, narcotic agents, cytotoxic agents] are readily accessible by clinical staff). The decline in mean score between assessment 6 and 8+ is of interest and will be further explored.

DISCUSSION

Although for most key elements, the greatest improvement was observed between the first and second assessments, Figure 1 depicts a trend of continued improvement with the third and subsequent assessments. The extent of improvement between the first and second assessments may relate to "simpler" items being prioritized and addressed promptly, with longer-term, more expensive, and more complex system improvements (e.g., electronic prescribing, bar coding) being implemented over a period of years, if at all.

Key elements X and VIII, which show the greatest improvement, both relate to adopting a proactive approach to medication safety and enabling a strong patient safety culture. Key element X focuses on system-level initiatives, whereas key element VIII emphasizes support for healthcare practitioners to facilitate the implementation of such initiatives in practice.

The improvements observed with repeated self-assessments suggest that LTC homes are working to engage their staff in quality improvement processes and are establishing a learning environment that encourages the sharing of incidents.

The LTC environment presents unique challenges for the provision of safe medication systems.[5] Reporting and learning about medication incidents in this care setting are important both for identifying opportunities to enhance medication safety.[6]

LIMITATIONS

This quantitative analysis represents data that have been voluntarily submitted by LTC homes to ISMP Canada within a quality improvement framework. Data submitted voluntarily are subject to reporting bias, given that the results of the MSSA-LTC relate, ultimately, to a *self-assessment*, with scores being rated subjectively. In addition, the personnel who complete the assessments within a given LTC home may change over time.

Two versions of the MSSA-LTC have now been published; the second version incorporated the removal of certain items and the addition of others. However, these changes represent a small proportion of the number of self-assessment items (n = 129) and thus were expected to have a minimal impact on overall results.

Another limitation of measuring improvement in medication safety measures using the MSSA-LTC is that some of the system-wide changes needed to meet the medication safety criteria (e.g., bar coding) may take years to implement. Such improvements may not be captured with repeated completion of the MSSA-LTC at shorter rather than longer intervals (e.g., comparing results obtained every 3–5 years rather than annually).

CONCLUSION

The MSSA-LTC program provides a quality improvement tool for the enhancement of medication safety systems over time. Its intent is to help LTC homes identify medication system vulnerabilities and guide them toward safer medication practices.[3] Although the greatest progress, in terms of total score and scores for most key elements, was observed between the first and second assessments, the 331 LTC homes that completed 3 or more assessments showed continued improvements with repeated assessments.

It is recognized that several technological items within the MSSA-LTC require substantial investment and resource allocation; as such, it is anticipated that continued quality improvement efforts in the LTC setting will result in the implementation of these important medication safety initiatives in the years to come.

References

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This segment of the bulletin describes a recent SafeMedicationUse.ca publication from ISMP Canada's Consumer Program.

January 2019 - Newsletter:

Natural Health Products—Improving Labels for Safety

Information on the label of a natural health product (e.g., vitamins, herbal remedies, traditional medicines) gives consumers important information to determine its appropriateness, as well as how to use the product properly and safely.

ISMP Canada completed an analysis of more than 300 reported errors involving the product labels of natural health products. The analysis identified 3 main areas of concerns:

- confusing labelling of ingredients
- confusing labelling of dose
- warnings not prominently displayed

The findings from this analysis were supported by a short survey by Patients for Patient Safety Canada. Most consumers who responded reported buying the wrong natural health product or over-the-counter medication at some time in the past. Reasons for buying the wrong product included:

- the information printed on the label was too small
- the product selected was confused with another product
- the information and warnings were unclear or confusing

Health Canada is implementing a *Plain Language Labelling Initiative* that will require manufacturers to:

- present information in a standardized format within a Product Facts table (similar to the Nutrition Facts table on food products);
- ensure readability by means of a required minimum font size; and
- use plain language that is easy to understand.

This work is an important step toward improving the safety of natural health products. For more information, see Health Canada's website at:
https://www.canada.ca/en/health-canada/services/self-care-framework.html.

Read the full consumer newsletter at:
https://safemedicationuse.ca/newsletter/NHP-labels.html

Consumers Can Help Prevent Harmful Medication Incidents

SafeMedicationUse.ca

Med Safety Exchange – Webinar Series

Wednesday, March 27, 2019

Join your colleagues across Canada for complimentary bi-monthly 50 minute webinars to share, learn and discuss incident reports, trends and emerging issues in medication safety!

For more information, visit
www.ismp-canada.org/MedSafetyExchange/

ismp CANADA
Institute for Safe Medication Practices Canada
Institut pour la sécurité des médicaments aux patients du Canada

cpsi icsp
Canadian Patient Safety Institute
Institut canadien pour la sécurité des patients

CMIRPS ❄ SCDPIM
Canadian Medication Incident Reporting and Prevention System
Système canadien de déclaration et de prévention des incidents médicamenteux

The Canadian Medication Incident Reporting and Prevention System (CMIRPS) is a collaborative pan-Canadian program of Health Canada, the Canadian Institute for Health Information (CIHI), the Institute for Safe Medication Practices Canada (ISMP Canada) and the Canadian Patient Safety Institute (CPSI). The goal of CMIRPS is to reduce and prevent harmful medication incidents in Canada.

HIROC

The Healthcare Insurance Reciprocal of Canada (HIROC) provides support for the bulletin and is a member owned expert provider of professional and general liability coverage and risk management support.

ismp CANADA

The Institute for Safe Medication Practices Canada (ISMP Canada) is an independent national not-for-profit organization committed to the advancement of medication safety in all healthcare settings. ISMP Canada's mandate includes analyzing medication incidents, making recommendations for the prevention of harmful medication incidents, and facilitating quality improvement initiatives.

Report Medication Incidents

(Including near misses)

Online: www.ismp-canada.org/err_index.htm
Phone: 1-866-544-7672

ISMP Canada strives to ensure confidentiality and security of information received, and respects the wishes of the reporter as to the level of detail to be included in publications. Medication Safety bulletins contribute to Global Patient Safety Alerts.

Stay Informed

To receive ISMP Canada Safety Bulletins and Newsletters visit:

www.ismp-canada.org/stayinformed/

This bulletin shares information about safe medication practices, is noncommercial, and is therefore exempt from Canadian anti-spam legislation.

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