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Reaffirming the "Do Not Use: Dangerous Abbreviations, Symbols and Dose Designations" List

- *The 2006 "Do Not Use" list of abbreviations, symbols, and dose designations is reaffirmed.*
- *The practice of using fractions for duration and/or frequency is strongly discouraged.*
- *Organizations are encouraged to increase knowledge translation efforts about the "Do Not Use" list, to eliminate dangerous abbreviations, symbols and dose designations, especially in the primary and complementary care sectors.*

Download the "Do Not Use" list:
https://www.ismp-canada.org/download/ISMPC_List_of_Dangerous_Abbreviations.pdf

In 2006, ISMP Canada published a list of dangerous abbreviations, symbols, and dose designations,[1] which has since been widely referenced in healthcare organizations to inform safe medication practices (e.g., Health Standards Organization's Medication Management Standards). The list, which included commonly misinterpreted abbreviations that were involved in harmful medication errors reported in Canada, was adapted from a similar initiative by ISMP in the United States. Reports of medication incidents resulting from the use of abbreviations, symbols, or dose designations in Canada have continued to be monitored. This bulletin presents ISMP Canada's analysis and decision to reaffirm the Do Not Use: Dangerous Abbreviations, Symbols and Dose Designations list.

Background

Abbreviations are commonly used in healthcare to communicate information.[1-3] However abbreviations, as well as symbols and dose designations, are only helpful when their intended meaning is fully understood by all persons who will be deciphering the information and when there is no potential for misinterpretation.[1] The use of shortcuts when writing medication orders can result in unrecognized or misconstrued abbreviations leading to mistakes during the reading, interpretation, and processing of prescriptions.[4,5] Certain abbreviations in particular appear to be more error-prone, and the resultant errors may lead to serious or even fatal outcomes.[1,5,6]

The "Do Not Use" list becomes increasingly important as patients and their caregivers are given greater access to health information (e.g., through electronic portal access to health records and medication lists). Eliminating dangerous abbreviations, symbols, and dose designations will contribute to clear communication, especially at transitions of care.[6]

Methodology

An environmental scan of academic and grey literature since 2006 was undertaken to identify abbreviations, symbols and dose designations of concern. The scan captured initiatives developed by agencies such as the Australian Commission on Safety and Quality in Health Care[7] and the Health Quality Council of Alberta.[8]

The Canadian healthcare community was invited to submit abbreviations, symbols, and dose designations of concern to ISMP Canada, which were captured in ISMP Canada's Individual Practitioner Reporting (IPR) program. Reports of all concerns and medication incidents related to the use of abbreviations were extracted from 3 ISMP Canada reporting databases (IPR, Community Pharmacy Incident Reporting, and Consumer Reporting) and the National System for Incident Reporting† (NSIR) for the period January 2006 to January 2018.

Key phrases used to identify relevant literature in the environmental scan and incident reports in the reporting databases included "abbrev*", "dangerous", "error prone", "designat*", "acronym", and "short form". A total of 6239 incidents were reviewed, of which 248 relevant incidents were selected for further analysis. In addition, 33 abbreviation-related queries and reports received by ISMP Canada's information support service were analyzed. Abbreviations on the original list were reviewed to determine if they continue to pose a potential risk of harm.

Analysis and Findings

The environmental scan and database analysis showed that the abbreviations, symbols, and dose designations included on the original "Do Not Use" list continue to contribute to harmful medication incidents in some healthcare settings, such as in the primary and complementary‡ care sectors.

The analysis identified several additional abbreviations and symbols as having some association with harm or the potential for harm. In particular, the use of a fraction (e.g., #/24, #/7, #/52) to denote duration and/or frequency has been misunderstood and has led to a number of harmful errors.

> *Incident example:* The written tapering directions for a corticosteroid were that the doses be given for "2/7" and then "1/7". The intended meaning was that the prescribed dose be given "for 2 days" and then "for 1 day", but the instructions were interpreted to mean treatment "for 2 weeks" and then "for 1 week". The patient received a longer duration of therapy than was intended and experienced adverse effects for which admission to hospital was required.

The use of route designations such as SL, SQ, and SC, use of the abbreviation "d" to represent days or doses, and use of the ampersand symbol (&) to denote the word "and" were also scrutinized.

Table 1 shares selected findings of this analysis.

Numerous activities (e.g., audits of medication orders) and knowledge translation initiatives (e.g., e-learning modules) in acute care hospitals have had success in emphasizing the benefits of reducing or eliminating the use of dangerous abbreviations, symbols, and dose designations.

A recent Canadian hospital audit found the rates of dangerous abbreviation use on electronic medication orders was significantly less than on paper orders (0.4% vs. 24.1%, respectively).[3] Complementing these initiatives, there have also been improvements in medication labelling and packaging following the release of Health Canada's Good Label and Package Practices Guides.[9,10]

Despite improvements in the acute care sector, dangerous abbreviations, symbols, and dose

† The NSIR, provided by the Canadian Institute for Health Information, is a component of the Canadian Medication Incident Reporting and Prevention System (CMIRPS) program. More information about the NSIR is available from: http://www.cmirps-scdpim.ca/?p=12

‡ Complementary care refers to the use of non-mainstream practices together with conventional medicine. Complementary care may include the use of natural products and mind and body practices. National Center for Complementary, Alternative, or Integrative Health: What's in a Name? https://nccih.nih.gov/health/integrative-health#types

Table 1: Selected Findings and Analysis Comments

FINDING: Use of fractions to denote duration and/or frequency (e.g., #/24, #/7, #/52)

ANALYSIS COMMENT: Subject to misinterpretation.

> *Example:* 6/24
> Intended to mean "every 6 hours" but was mistaken as "6 times daily".
>
> *Example:* 2/7 and 1/7
> Intended to mean "2 days" and "1 day" but was mistaken as "2 weeks" and "1 week".
>
> This finding is presented as an Early Warning to be monitored for potential future inclusion in the "Do Not Use" list.

FINDING: "&" (ampersand) used to denote "and"

ANALYSIS COMMENT: Symbol may be mistaken as the number "2", or the intent may be unclear. Symbol may be difficult to interpret when handwritten.

> *Example:* QID & PRN
>
> Intended to mean "4 times daily and as needed" (i.e., 4 times daily on a scheduled basis with additional doses on an as-needed basis) but was mistaken as "4 times daily as needed" because the symbol "&" was unclear and was overlooked by the practitioner.

FINDING: "SS" used to denote "single strength"

ANALYSIS COMMENT: The old apothecary designation for "half" is "ss" (derived from the Latin word "semis" or "semisos", meaning half); "SS" may be mistaken as the number 55 or the lowercase abbreviation "ss".

> *Example:* "Septra SS ŧ"
>
> Intended to mean "Septra single strength *1* tablet" was mistaken as "Septra single strength *half* tablet".

FINDING: "SL" used to denote "sublingual"; "SC" or "SQ" used to denote "subcutaneous"

ANALYSIS COMMENT: May be mistaken for one another. "SQ" is also mistaken as meaning "5 every".

> *Example:* Lorazepam SL
>
> Intended to mean "lorazepam sublingually" but was mistaken as "lorazepam subcutaneous".

FINDING: "d" used to denote "doses" or "days"

ANALYSIS COMMENT: Unclear or ambiguous meaning.

> *Example:* Lactulose 15 mL po bid x 2d
>
> Intended to mean "for a duration of 2 doses" but was mistaken as "for a duration of 2 days".

FINDING: Abbreviations to denote formulations

ANALYSIS COMMENT: Abbreviations which are not part of the approved drug name (e.g., CR, LA, SR) should not be used.

> *Example:* "Dilaudid IR" was misread as "Dilaudid IV" and the drug was administered intravenously.
>
> Because the oral formulation of the drug with brand name Dilaudid is available *only* as an immediate-release product, the modifier "IR" is not required, and its presence actually reduced the clarity of the order in this incident.

designations remain in use in the healthcare system. A recent ISMP Canada Safety Bulletin[5] highlighted the need for healthcare practitioners in both the primary and complementary care sectors to avoid the use of dangerous abbreviations, symbols and dose designations.

Recommendations and Conclusion

Recommendation: **the practice of using fractions for duration and/or frequency is discouraged.** The analysis identified incidents resulting in patient harm associated with the use of fractions to denote duration and/or frequency. This finding is presented as an Early Warning to be monitored for potential future inclusion in the "Do Not Use" list.

Recommendation: **knowledge translation efforts to eliminate dangerous abbreviations, symbols and dose designations need to continue, especially in the primary and complementary care sectors.** Continued awareness and reporting of abbreviations, symbols, and dose designations that might lead to harmful incidents is encouraged.

The "Do Not Use" list considers reported harm (actual or potential), and the frequency of use and/or misinterpretation of abbreviations, symbols or dose designations. After analysis and review of new data and findings from the environmental scan, **the list has been reaffirmed**.

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Name Change: M-Eslon IR to M-Ediat

A concern about the brand name of an immediate-release morphine product (M-Eslon IR) was shared with practitioners in a 2017 issue of the ISMP Canada Safety Bulletin and conveyed to the manufacturer, Ethypharm Canada. The name M-Eslon has been strongly associated with an extended-release formulation. Therefore, the use of the same brand name for the immediate-release product, along with overlapping dosage strengths, posed a risk for a selection error.

Ethypharm Canada has changed the brand name of the immediate-release morphine product to M-Ediat.

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

February 2018 - Newsletter:

New Symptoms: Could They Be Related to Your Medications?

SafeMedicationUse.ca

This newsletter recommended that consumers ask their healthcare provider if one or more of their medications could be the cause of a new symptom. Consumers and healthcare providers need to be aware that a medication side effect might sometimes be the cause of the new symptom and mistakenly be treated as a new health problem.

SafeMedicationUse.ca received a report about an elderly consumer with muscle pain in his legs. The consumer was planning to ask his doctor for pain medication. His granddaughter (a pharmacist) knew that muscle pain was a common side effect of his high-dose statin medication. She consulted with the doctor and a decision was made to lower the dose instead of adding a pain medication. The muscle pain lessened within a month.

Tips for Practitioners:

When considering treatment for new symptoms:

- Ask patients about recent changes to their medications, including over-the-counter medications, supplements, and natural health products. Help your patients to keep their medication list up to date.
- Have a high index of suspicion that the cause of new symptoms may be due to an adverse effect and/or drug interaction of current medications.

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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.

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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.

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