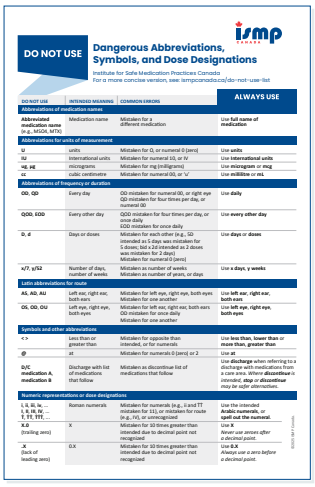
Institute for Safe Medication Practices Canada
REPORT MEDICATION INCIDENTS
Online: www.ismpcanada.ca/report/
Phone: 1-866-544-7672

A KEY PARTNER IN
CMIRPS Canadian Medication Incident Reporting and Prevention System
SCDPIM Système canadien de déclaration et de prévention des incidents médicamenteux

ISMP Canada Safety Bulletin

Volume 25 • Issue 5 • May 29, 2025

Do Not Use: Dangerous Abbreviations, Symbols, and Dose Designations – 2025 Update


DO NOT USE
Dangerous Abbreviations, Symbols, and Dose Designations
Institute for Safe Medication Practices Canada
For a more concise version, see: ismpcanada.ca/do-not-use-list

DO NOT USE	INTENDED MEANING	COMMON ERRORS	ALWAYS USE
Abbreviations of medication names			
Abbreviated medication name (e.g., MSIR, MTX)	Medication name	Mistaken for a different medication	Use **full name of medication**
Abbreviations for units of measurement			
U	units	Mistaken for 0, or numeral 0 (zero)	Use **units**
IU	international units	Mistaken for numeral 10, or IV	Use **international units**
ug, µg	micrograms	Mistaken for mg (milligrams)	Use **microgram** or **mcg**
cc	cubic centimetre	Mistaken for numeral 00, or 'u'	Use **millilitre** or **mL**
Abbreviations of frequency or duration			
OD, QD	Every day	OD mistaken for numeral 00, or right eye QD mistaken for four times per day, or numeral 00	Use **daily**
QOD, EOD	Every other day	QOD mistaken for four times per day, or once daily EOD mistaken for once daily	Use **every other day**
D, d	Days or doses	Mistaken for each other (e.g., 5D intended as 5 days was mistaken for 5 doses; bid x 2d intended as 2 doses was mistaken for 2 days) Mistaken for numeral 0 (zero)	Use **days** or **doses**
x/7, x/52	Number of days, number of weeks	Mistaken as number of weeks Mistaken as number of years, or days	Use **x days, x weeks**
Latin abbreviations for route			
AS, AD, AU	Left ear, right ear, both ears	Mistaken for left eye, right eye, both eyes Mistaken for one another	Use **left ear, right ear, both ears**
OS, OD, OU	Left eye, right eye, both eyes	Mistaken for left ear, right ear, both ears OD mistaken for once daily Mistaken for one another	Use **left eye, right eye, both eyes**
Symbols and other abbreviations			
< >	Less than or greater than	Mistaken for opposite than intended, or for numerals	Use **less than, lower than** or **more than, greater than**
@	at	Mistaken for numerals 0 (zero) or 2	Use **at**
D/C **medication A, medication B**	Discharge with list of medications that follow	Mistaken as discontinue list of medications that follow	Use **discharge** when referring to a discharge with medications from a care area. Where **discontinue** is intended, **stop** or **discontinue** may be safer alternatives.
Numeric representations or dose designations			
I, II, III, Iv, ... i, ii, iii, iv, ... T, TT, TTT, ...	Roman numerals	Mistaken for numerals (e.g., ii and TT mistaken for 11), or mistaken for route (e.g., IV), or unrecognized	Use the intended **Arabic numerals**, or **spell out the numeral.**
X.0 (trailing zero)	X	Mistaken for 10 times greater than intended due to decimal point not recognized	Use **X** *Never use zeroes after a decimal point.*
.X (lack of leading zero)	0.X	Mistaken for 10 times greater than intended due to decimal point not recognized	Use **0.X** *Always use a zero before a decimal point.*

ISSUE 5 | 2025

METHODOLOGY

To ensure the updated list remains relevant and effective in reducing medication incidents, key development steps were undertaken, as outlined in Figure 1.

Development of an Updated Draft *Do Not Use* List

- **Environmental scan of academic and grey literature**
  - This captured similar lists from organizational, provincial, and international sources.[3-7]
- **Medication incident analyses**
  - Extracted reports (n = 12,411)* from a 5-year period (July 1, 2019, to June 30, 2024)
- **Open consultation with stakeholders, including patients/caregivers and health care providers**

Validation of the Updated Draft *Do Not Use* List

- **Review and validation questionnaire sent to stakeholders representing**
  - health care sectors (e.g., hospital, long-term care, community pharmacy)
  - health disciplines (e.g., physician, pharmacist, nurse)
  - patients/caregivers
  - health care leadership

Finalization of ISMP Canada's Updated *Do Not Use* List

- **Review and finalization of the list by**
  - medication safety specialists
  - ISMP Canada leadership

FIGURE 1. Steps undertaken in the development of the 2025 update of the *Do Not Use: Dangerous Abbreviations, Symbols, and Dose Designations.*

* The reports were submitted to the Consumer Reporting program, the Individual Practitioner Reporting database, the National Incident Data Repository for Community Pharmacies (NIDR), and the Canadian Institute for Health Information's National System for Incident Reporting (NSIR), all of which are components of the Canadian Medication Incident Reporting and Prevention System (CMIRPS). The analyses, conclusions, opinions, and statements expressed herein are those of ISMP Canada.

The number of incidents in which errors could be attributed, at least in part, to the communication of medication information using French-specific abbreviations, symbols, or dose designations was insufficient to identify French-language items for the list.

HIGHLIGHTS

The following items have been included in the updated *Do Not Use* list:

- **Fractional representations of frequency or duration (e.g., 2/52 to convey 2 weeks)**

  In the 2018 review of the *Do Not Use* list, fractions were described as having some association with harm or the potential for harm.[2] Since that publication, reports of medication incidents involving errors of frequency or duration have identified the use of fractional representations as a key contributing factor.
- **Roman numerals (e.g., ii to convey 2)**

  In health care, Roman numerals may be mistaken for letters or other numbers, or may be misinterpreted as a route of administration (e.g., iv [representing 4] may be mistakenly interpreted as IV [representing intravenous]).
- **Latin abbreviations for aural (ear) route of administration (e.g., AS for left ear)**

  The abbreviations for the aural route of administration (i.e., AS, AD, and AU for left ear, right ear, and both ears, respectively) may be misinterpreted as indicating administration in the eye (i.e., OS, OD, OU, respectively), or they may be mistaken for each other, resulting in treatment of the wrong ear. Previous versions of the *Do Not Use* list already included Latin abbreviations for administration into the eye.
- **Use of the abbreviation "d" to express days or doses**

  The use of "d" could be interpreted to mean days or doses (e.g., the expression "for 7 d" could be interpreted as 7 doses, instead of the intended 7-day treatment), resulting in the incorrect duration of treatment.

INTENDED USE AND RECOMMENDATIONS

Given the range of health care settings and the diversity of populations served, it is recommended that individual organizations and pharmacies adopt the *Do Not Use: Dangerous Abbreviations, Symbols, and Dose Designations* or adapt it to reflect their local context. This approach aligns with accreditation standards.[8]

The Canadian list is applicable to all health care settings in which communication about medication information takes place.

RECOMMENDATION:
Individual health care organizations and pharmacies adopt the 2025 *Do Not Use: Dangerous Abbreviations, Symbols, and Dose Designations* or adapt the list to reflect their local context.

Specifically, health care organizations and pharmacies are encouraged to do the following:

- **Adopt or adapt the *Do Not Use* list** to assist in maintaining an organization-specific list of dangerous abbreviations, symbols, and dose designations.
- **Continuously improve electronic and/or paper information systems** to reduce or obviate the need to use abbreviations (e.g., computerized prescriber order entry [CPOE], paper order sets).
- **Consider using technical functions within electronic information systems** to flag the use of dangerous abbreviations, symbols, and dose designations, and to inform preventive or corrective action.
- **Raise awareness of the *Do Not Use* list**, emphasizing how various shortened forms can be misinterpreted, thereby causing errors, as well as

the need to be as precise and complete as possible when communicating medication-related information. Communicate to staff the importance of reporting medication incidents potentially associated with dangerous abbreviations, symbols, and dose designations.

- **Periodically review the *Do Not Use* list** to identify any abbreviations, symbols, or dose designations that may warrant inclusion or removal to reflect medication incident analysis findings, changes in practice, upgrades to electronic information systems, and/or updates to formularies.

CONCLUSION

ISMP Canada updated the *Do Not Use* list through a multi-input process that included an environmental scan, incident analyses, and stakeholder consultations from health care sectors and regions across Canada. The list of dangerous abbreviations, symbols, and dose designations considers reported harm (actual or potential), and the frequency of use and/or misinterpretation when communicating medication-related information. Organizations and health care providers are encouraged to adopt or adapt this evidence-informed list to meet the needs of information users in their own care environments.

ACKNOWLEDGEMENTS

ISMP Canada gratefully acknowledges the consumers, health care providers, community pharmacies, and organizations who have reported medication incidents for analysis and shared learning.

REFERENCES

1. Eliminate use of dangerous abbreviations, symbols, and dose designations. ISMP Can Saf Bull. 2006 [cited 2025 Feb 3];6(4):1-3. Available from: https://ismpcanada.ca/wp-content/uploads/ISMPCSB2006-04Abbr.pdf
2. Reaffirming the "Do Not Use: Dangerous Abbreviations, Symbols and Dose Designations" list. ISMP Can Saf Bull. 2018 [cited 2025 Feb 3];18(4):1-4. Available from: https://ismpcanada.ca/wp-content/uploads/ISMPCSB2018-05-DoNotUseList.pdf
3. ISMP list of error-prone abbreviations, symbols, and dose designations. Plymouth Meeting (PA): Institute for Safe Medication Practices; 2024 [cited 2025 Feb 7]. Available from: https://online.ecri.org/hubfs/ISMP/Resources/ISMP_ErrorProneAbbreviation_List.pdf
4. Recommendations for terminology, abbreviations and symbols used in medicines communication. A rapid literature review. Sydney (AU): Australian Commission on Safety and Quality in Health Care; 2023 Jun [cited 2025 Feb 3]. Available from: https://www.safetyandquality.gov.au/sites/default/files/2023-08/recommendations_for_terminology_abbreviations_and_symbols_used_in_medicines_documentation_-_a_rapid_literature_review_0.pdf
5. National medication chart user guide (third edition). Wellington (NZ): Health Quality & Safety Commission; 2021 Jan [cited 2025 Feb 7]. Available from: https://www.hqsc.govt.nz/assets/Our-work/System-safety/Reducing-harm/Medicines/Publications-resources/NMC_user_guide_update_2021.pdf
6. Cheung S, Hoi S, Fernandes O, Huh J, Kynicos S, Murphy L, Lowe D. Audit on the use of dangerous abbreviations, symbols, and dose designations in paper compared to electronic medication orders: a multicenter study. Ann Pharmacother. 2018;52(4):332-337.
7. Samaranayake NR, Cheung DST, Lam MPS, Cheung TT, Chui WCM, Wong ICK, et al. The effectiveness of a 'Do Not Use' list and perceptions of healthcare professionals on error-prone abbreviations. Int J Clin Pharm. 2014;36(5):1000-6.
8. HSO required organizational practices: 2024 handbook. Ottawa (ON): Health Standards Organization; 2024 May [updated 2024 Jul].

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 Healthcare Excellence Canada (HEC). The goal of CMIRPS is to reduce and prevent harmful medication incidents in Canada.

Funding support provided by Health Canada. The views expressed herein do not necessarily represent the views of Health 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.ismpcanada.ca/report/
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.

Stay Informed

To receive ISMP Canada Safety Bulletins and Newsletters visit:

www.ismpcanada.ca/safety-bulletins/#footer

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

Contact Us

Email: cmirps@ismpcanada.ca
Phone: 1-866-544-7672