Recommendations for safe use of medicines terminology

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Level 5, 255 Elizabeth Street, Sydney NSW 2000

Phone: (02) 9126 3600

Email: mail@safetyandquality.gov.au

Website: [www.safetyandquality.gov.au](http://www.safetyandquality.gov.au)

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# Executive summary

This document is an update and renaming of the Recommendations for Terminology, Abbreviations and Symbols used in the Medicines Documentation.1 The document has been modified by the Australian Commission on Safety and Quality in Health Care (the Commission)[[1]](#footnote-1) based on reported adverse events and international trends in ‘error-prone’ medicines terminology and informed by a literature review and environmental scan.3

Medication errors are one of the most reported clinical incidents in acute health care settings and, while rates of serious harm are low, their prevalence is of concern particularly as many are preventable. A recognised major cause of medication errors is the use of potentially dangerous abbreviations and dose expressions, with ‘error-prone’ abbreviations being used in 8.4% of in‑hospital handwritten medication orders.4

An abbreviation, term or symbol used by a prescriber may mean something quite different to the person interpreting the medicine order, for instance, for dispensing or administration; or for patients (their family and/or carers) or other prescribers. Abbreviations that are unclear, ambiguous or incomplete may be misunderstood, and have been identified as ‘error-prone’. In addition, when combined with words or numerals, the information may appear as something altogether unintended.

‘Error-prone’ terminologies are a critical patient safety issue due to the potential for misinterpretation and should never be used in any communications about medicines (verbal, digital or handwritten), including policies, guidelines, posters or presentations.

All medicines information is recommended to be presented in full within digital displays, without abbreviation.5 However, there are some situations, such as small screen devices where abbreviations are required. In addition, abbreviations and acronyms may be helpful in accelerating the entry of clinical data, such as ‘sig codes’. Any keystroke combinations or shortened forms to enable rapid data entry should be unambiguous and displayed using the full name or terminology to achieve correct digital presentation.

To eliminate the use of ambiguous ‘error-prone’ medicines terminology and promote patient safety, this document sets out:

* To identify and explain the problem with the use of unacceptable or ‘error prone’ medicines terminology
* Best Practice Principles for safe, clear and consistent terminology for medicines (summarised in Figure 1)
* Acceptable terms and dose designations for medicines
* Standardised abbreviations for circumstances where full expression is not possible.

This document promotes and underpins the use of safe, clear and consistent abbreviations and terminology for the National Guidelines for On-screen Display of Medicines Information5 and the National standard for labelling dispensed medicines.6 All three documents are applicable in all health settings.

A [Fact sheet: Recommendations for safe use of medicines terminology](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/fact-sheet-recommendations-safe-use-medicines-terminology)7 is available to support health service organisations and clinicians apply the recommendations and best practice principles. It includes the full list of acceptable terms, abbreviations and dose designations.

Figure 1: Best Practice Principles for safe, clear and consistent terminology for medicines

Best Practice Principle 1: Use plain language – avoid jargon

Best Practice Principle 2: Write or display all characters clearly – especially when handwriting medicine details

Best Practice Principle 3: Write, display or speak instructions and routes of administration in full

Best Practice Principle 4: Instructions must be clear

Best Practice Principle 5: Use active ingredient medicine names

Best Practice Principle 6: Write, display or speak medicine names and/or the chemical names of medicines in full – do not abbreviate

Best Practice Principle 7: Write or display days of the week names in full – or at a minimum the first three letters

Best Practice Principle 8: Incorporate safety features within digital systems to address unavoidable use of abbreviations

Best Practice Principle 9: Do not include the salt of the chemical unless it is clinically significant

Best Practice Principle 10: Use ‘mixed-case lettering’ for ‘look-alike, sound-alike’ medicines

Best Practice Principle 11: Express the dose, preferably as whole numbers, using words or Hindu-Arabic numbers. Apply metric units and do not use trailing zeros

Best Practice Principle 12: Use 24 hour time/clock format for time of day administration

Best Practice Principle 13: Express fractions in words – see examples in Figure 2

Best Practice Principle 14: Do not use symbols

Best Practice Principle 15: Do not use acronyms or abbreviations for medical terms and procedure names on orders or prescriptions

Best Practice Principle 16: Express numbers of 1,000 or more clearly

Best Practice Principle 17: Use acceptable circled codes on paper-based medication charts – see codes in Figure 3

# Introduction and application

## Introduction

To eliminate the use of ambiguous ‘error‑prone’ terms and promote patient safety, the Commission promotes the use of safe, clear and consistent abbreviations and terminology via a set of Best Practice Principles.

Medicine name(s) should be displayed in the prescription, medication order, medicines list or selection list in full, with no abbreviation. All active ingredient names must be displayed, except for combination products with four or more active ingredients or components, which may be described by brand name. In some instances, including the brand in addition to the active ingredient should be considered. For further information on these exceptions and presentation of medicine names, refer to the materials and resources on active ingredient prescribing (AIP)8 and the National Guidelines for On-screen Display of Medicines Information.5

The Commission also supports elimination of ‘error-prone’ terminology and language to improve health and medicines literacy. This enables individuals and their carers to have appropriate information about their medicines, through various sources, including [My Health Record](https://www.digitalhealth.gov.au/initiatives-and-programs/my-health-record).

People taking medicines and their carers have the right to understand which medicines are being prescribed for them and that they are being administered as intended. Technical terms are not well understood and using codes, symbols, or an outmoded language is not acceptable.

People with low health literacy have difficulty reading and interpreting instructions and warnings about their medicines, and this can be compounded by the increasing digital display of medicines- or health-related information.9 In Australia, whilst the majority (83%) of people surveyed in 2018 felt that they were able to ‘appraise health information’, up to 17% people ‘disagreed or strongly disagreed’ they could do so.10 People with low health literacy are reported to be more likely to have worse health outcomes and adverse health behaviours, including poorer understanding of medicine instructions leading to non‑adherence and/or improper usage.11,12

## Application of the recommendations and Best Practice Principles

The Best Practice Principles and list of acceptable terms, abbreviations and dose designations apply to all medicine orders and medicines documentation and are relevant to the Australian context. This includes all handwritten, pre‑printed or electronically generated or displayed medicine‑related resources used in Australian hospitals or health services.

Verbal communications should also avoid use of abbreviations and outmoded or truncated language when relaying clinical information about a person’s medical treatment. Effective communication, in all forms, supports safe and high‑quality care.13 This includes effective communication of critical information during clinical handover.14

Since 2016, many health services have moved from paper‑based to digital medication management systems where efforts have focused on integrating principles from the Commission’s National Guidelines for On‑screen Display of Medicines Information.5 Hybrid versions of these systems may also be in use, for example, where medicine orders are digitally generated and printed to paper which is used to record administration of these medicines.

In some situations, the medicines catalogue data base that supports digital medication management systems does not align with this guidance. In these circumstances risk management principles need to be applied by health service organisations (see Risk management).

# Limitations, implementation and risk management

## Limitations, implementation and risk management

This document is not an exhaustive list of all terminologies relating to medicines. Rather, it provides standardised guidance for the most frequently used terms and abbreviations in the Australian context. The absence of a term, abbreviation or symbol does not imply that it is safe to use (see Risk management).

The Institute for Safe Medication Practices (ISMP) is a peak body based in the US focused solely on improving the safety of medication systems and medicines use. The ISMP maintains a comprehensive list of terminologies known to be ‘error‑prone’15 and The Joint Commission have published a ‘Do Not Use’ List.16

Wherever possible, all medicines information should be presented in full, with no abbreviation.4 Where full presentation is not possible due to limitations of space, such as small screen devices, then the standard terms and abbreviations described here may be used.

This guidance applies to all formats of medicines information presentation where space is provided for a full description. This includes prescriptions, medication charts, discharge summaries, My Health Record and dispensed medicine labels.

### Smart pump technologies

Use of smart pump technologies has expanded and whilst the use of abbreviations is not supported, health services have found the character limits within these technologies have forced the use of abbreviations. In 2023, the Victorian Therapeutics Advisory Group (VicTAG) released a ‘Victorian Framework for Implementation of smart infusion pumps’ which provides guidance on managing the ‘20 character’ limit for the display of medicines‑related information.17

### Medicines imported from overseas

For medicines that are imported from overseas and are not registered on the TGA’s Australian Register of Therapeutic Goods, health service organisations’ medicines governance groups should apply a risk management approach to determine how medicines information should be presented (see Risk management). This includes, but is not limited to, medicines accessed through the Special Access Scheme (SAS) or TGA‑approved alternatives available during a medicine shortage. It will be important to assess safety considerations when accessing alternative products as outlined within the [Principles for safe selection and storage of medicines](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/principles-safe-selection-and-storage-medicines-guidance-principles-and-survey-tool).18

### Risk management

Given that this document is not exhaustive, health service organisations may need to consider whether additional terminologies (abbreviations and/or symbols), are also safe to use. If requests are made it is recommended that the organisation’s medicines governance group should initially review and apply the Recommendations for safe use of medicines terminology before incorporating into local policy, procedures or guidelines. It is also recommended that a risk assessment be conducted before any new or additional terminologies are approved and implemented.

The organisation’s medicines governance group should also continue to monitor incidents associated with the use of medicines terminology.

### Monitoring the use of ‘error‑prone’ terminology

Monitoring ‘error‑prone’ terminologies within health service organisations should be targeted as part of a comprehensive program of continuous quality improvement. Where uncertainty exists, and clarification must be sought to avoid potential misinterpretation and medication error, then the terminology must be deemed unsafe, unclear or ambiguous.

The National Quality Use of Medicines Indicators for Australian Hospitals Indicator 3.3: Percentage of medication orders that include error‑prone abbreviations may assist organisations to assess ongoing progress and performance.19 Use of ‘error‑prone’ abbreviations may also be monitored through the National Standard Medication Chart Audit.20

Application of the Best Practice Principles outline within the Recommendations for safe use of medicines terminology will assist health services being assessed against the National Safety and Quality Health Service Standards.

This document is valid as at November 2024 and may be modified based on issues arising from ‘error‑prone’ terminology. Requests for additions or changes to the Recommendations for safe use of medicines terminology will be considered by the Commission. Evidence or information regarding the potential safety risks should be emailed to medsafety@safetyandquality.gov.au.

# Best Practice Principles for safe, clear and consistent terminology for medicines

## Best Practice Principle 1: Use plain language – avoid jargon[[2]](#footnote-2),[[3]](#footnote-3)

Plain language, when words are written, displayed or spoken in full, is easier to understand and less likely to cause confusion, be misunderstood or be misread.

## Best Practice Principle 2: Write or display all characters clearly – especially when handwriting medicine details

Avoid cursive handwriting. To avoid misreading instructions and doses, clearly separate different elements of the medicine order so that letters do not appear to flow into the numbers that follow, and vice versa. Leave space between numbers and units of measure (for instance, a single blank space when displayed digitally), to ensure numbers do not appear to flow into the units of measure that follow. For example, 25 mg or 32 units in digital displays.

Exception when expressing percentages, for example, 5% or 0.45%.

## Best Practice Principle 3: Write, display or speak instructions and routes of administration in full

Avoid using abbreviations. In circumstances where abbreviations are required, avoid Latin abbreviations that are not universally understood. Do not use plural abbreviations except for units and description of time, for example, hours, days or weeks. Table A includes unacceptable, ‘error‑prone’ abbreviations relating to instructions and routes of administration.1,3,15,16

Whilst abbreviations or acronyms may be helpful in accelerating the entry of clinical data, such as ‘sig codes’, they should display in full. For example on a medicine label.5 See Best Practice Principle 8.

Table A: Unacceptable, ‘error‑prone’ abbreviations relating to instructions and routes of administration

|  |  |  |
| --- | --- | --- |
| Unacceptable abbreviations  | Recommended alternative | Issue |
| 2º, 2h, 2 hrly | ‘every 2 hrs’ or ‘every 2 hours’ | Can be confused with other unsafe abbreviations, noting that ‘2 hrly’ is an exception to other similarly expressed dose frequency or timings |
| 4/24, 6/24, 8/24, etc. | ‘every 4 hrs’, ‘every 4 hours’, etc. | Can be confused with other unsafe abbreviations if not displayed/written clearlySee Table D for acceptable abbreviations for dose frequency and timing |
| ac and pc | before food and after food | Latin term that is not always understood by all peopleShould be written in full |
| cc  | mL | Use of ‘cc’ is poorly understood and use of this abbreviation risks lack of consistency with accepted and standard abbreviation |
| D | daily | Can be interpreted as day or dose, or mistaken for a number  |
| D/C  | ‘discharge’ or ‘discontinue’, whichever is intended | Uses of term risks causing premature discontinuation of medicines if discharge is the intended meaningCan be mistaken for ‘discharge’ or ‘discontinue’ |
| E, e | eye or ear | Can be mistaken for ‘ear’ when ‘eye’ is intended or for ‘ear’ when ‘eye’ is intended |
| gm | gram, g | See Best Practice Principle 5 and Table F for acceptable abbreviations for dose designations |
| gutte, gtt | drops | Latin term that is not always understood by all people  |
| HS, hs | Half‑strength or bedtime | Latin term that is not always understood by all peopleCan be mistaken for ‘half‑strength’ or ‘bedtime’, whichever is intended |
| IN | intranasal | Can be mistaken as ‘IM’ (intramuscular) or ‘IV’ (intravenous) |
| INH, inh | inhale, inhalation | Can be mistaken for other routes of administration |
| IO | intraosseous | Can be mistaken as ‘10’ (ten) or ‘oral’ |
| IP | intraperitoneal | Can be confused with ‘IV’ |
| IR | N/A | IR or ‘immediate release’ can be confused for other unsafe abbreviations Exception: ‘IR’ may be included if it is a part of a medicines’ brand name only (i.e. not a part of the active ingredient medicine name). |
| IVI  | IV | Can be mistaken as ‘IV 1’ |
| LE, RE | left ear or eye, right ear or eye | Can be mistaken for ‘ear’ when ‘eye’ is intended or for ‘ear’ when ‘eye’ is intended |
| M | morning, mane | Can be mistaken for million or thousand |
| mcg, ug, µg | microgram, MICROg, microg | Can be mistaken as milligram (mg) |
| midi | midday | Latin term that is not always understood by all peopleShould be written in full |
| N, ON | night, nocte | Should be written in full |
| NIA, NIM | nurse-initiated analgesia, nurse‑initiated medicine | Can be mistaken for each other Should be written in full |
| OAT, OST, OSTP | opioid agonist therapy or ‘treatment program’ | Should be written in fullWhen prescribing, include the specific medicine’s active ingredient name and details |
| OD, od, O.D. | ‘once a day’ or ‘daily’ | Can be mistaken as ‘right eye’ (OD‑oculus dexter), leading to oral liquid medicines being administered in the eye Can also be mistaken as ‘BD twice daily’ or ‘QID four times a day’, for instance, instead of once a day the intended dose could be given twice or four times a day in errorSee  D for acceptable abbreviations for dose frequency and timing |
| OJ | orange juice  | Can be mistaken as ‘OD’ or ‘OS’ (ocular sinister), right or left eye, respectively, and the risk that medicines meant to be diluted in orange juice may be given in the eye |
| OS, OD | left eye, right eye | Latin terms that are not always understood by all people (OS – oculus sinister and OD – oculus dexter)Can be mistaken for ‘once a day’ or ‘daily’ See Table E for acceptable abbreviations for routes of administration |
| Q1H, Q4H, Q6H, Q8H, etc. | ‘hourly’, ‘every 4 hrs’, ‘every 4 hours’, etc. | Latin term that is not always understood by all peopleCan be confused with other unsafe abbreviationsSee Table D for acceptable abbreviations for dose frequency and timing |
| QD, qd, Q.D. | ‘daily’ | Latin term that is not always understood by all peopleCan be mistaken for ‘QID’, for instance, instead of once a day the intended dose could be given four times a day in errorSee Table D for acceptable abbreviations for dose frequency and timing |
| QDS, qds | ‘four times a day’ | Latin term that is not always understood by all peopleCan be confused with other unsafe abbreviationsSee Table D for acceptable abbreviations for dose frequency and timing |
| Qhs | ‘at night’, ‘daily at bedtime’ | Latin term that is not always understood by all peopleCan be mistaken for ‘every hour’See Table D for acceptable abbreviations for dose frequency and timing |
| QOD, qod | ‘every second day’, ‘on alternate days’ | Latin term that is not always understood by all peopleCan be confused with other unsafe abbreviationsSee Table D for acceptable abbreviations for dose frequency and timing |
| SCI, SC, sc | subcutaneous, subcut | Can be confused with other unsafe abbreviations, for instance, mistaken for ‘SL’ (sublingual) |
| SL | sublingual, subling | Can be confused with other unsafe abbreviations, for instance, mistaken for ‘SC’ (subcutaneous) |
| SS | single strength | Can be confused with other unsafe abbreviations, for instance, ‘SSI’ (sliding scale insulin) |
| SSRI, SSI | sliding scale (regular) insulin | Can be mistaken as ‘Selective Serotonin Reuptake Inhibitor’ or ‘Strong Solution of Iodine’ |
| tid | tds | Can be confused with other unsafe abbreviations or acceptable latin abbreviations, for instance, mistaken for ‘bd’ (twice daily), especially in handwritten documentation |
| TIW, tiw | three times a week  | Latin term that is not always understood by all peopleCan be confused with other unsafe abbreviations, for instance, mistaken for ‘tid’ (three times daily) or ‘twice a week’, especially in handwritten documentation |
| TOP, top | ‘topical’ | Can be mistaken for other routes of administration or ‘TAB’ (tablet), especially in handwritten documentationSee Table E for acceptable abbreviations for routes of administration |
| TPT | ‘transpyloric tube’ | Can be mistaken for other routes of administration and/or confused with ‘TPLT’ which is often abbreviated for ‘transplant’ and is not an acceptable abbreviationSee Best Practice Principle 16 and Table E for acceptable abbreviations for routes of administration |
| U or u  | unit(s) | Can be mistaken as the number ‘0’ or ‘4’, causing a 10‑fold overdose or greater, for example, ‘8U’ seen as ‘80’ or ‘4u’ seen as ‘44’Can be mistaken as ‘cc’ so dose given as a volume instead of units, for example, ‘4u’ seen as ‘4 cc’ |
| IU | unit(s), [international unit(s)]  | Use plural form where appropriateCan be mistaken as ‘IV’ (intravenous) or the number ‘10’Exception: As an example, the amount of bleomycin can be referred to in ‘international units’. Other exceptions such as ELISA units and D antigen units, should be explicitly stated.  |

## Best Practice Principle 4: Instructions must be clear

Avoid vague terminology such as ‘take as directed’ (MDU).21 Clear directions are necessary to check the medicine dose for dispensing and administration and to support effective counselling. In addition, the maximum dosage in 24 hours must accompany a ‘when required’ (PRN) medicine order.5

## Best Practice Principle 5: Use active ingredient medicine names

The full medicine name(s) should be displayed in the prescription, medication order/order set, medicines list or selection list, with no abbreviation.

All active ingredient names must be displayed together with the relevant strength for combination products, except those with four or more active ingredients and those listed on the [List of Excluded Medicinal Items](https://www.health.gov.au/our-work/active-ingredient-prescribing/lemi-lmbc/lemi)22, which may be described by brand name.

For example:

* A medicine with three active ingredients, such as Trizivir® tablets, should be expressed as abacavir 300 mg + lamivudine 150 mg + zidovudine 300 mg.

Prescribing a medicine by brand name in addition to the active ingredient name is preferrable in some circumstances, for clinical reasons and/or patient safety.7 These medicines are listed in the [List of Medicines for Brand Consideration](https://www.health.gov.au/our-work/active-ingredient-prescribing/lemi-lmbc/lmbc).23

For some medicines, it may be preferable to include the brand name, to avoid miscommunication of the medicine between clinicians, to prevent selection error, and to ensure accuracy when interpreting and dispensing the prescription.

For example:

* lithium carbonate (Lithicarb®), lithium carbonate modified release (Quilonum®)
* insulin aspart (Novorapid®) [See [Fact Sheet: Safer insulin prescribing](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/fact-sheet-safer-insulin-prescribing)]24
* morphine [as sustained release pellets in a capsule] (Kapanol®) and morphine [controlled release tablets] (MS Contin®).

For some medicines, formulations are not interchangeable as different brands of the same active ingredient are not therapeutically equivalent.

For example:

* warfarin, use Coumadin® or Marevan®
* insulin aspart, use Fiasp® or Novorapid®.

Refer to the [List of Medicines for Brand Consideration](https://www.health.gov.au/our-work/active-ingredient-prescribing/lemi-lmbc/lmbc) for other examples where preparations of certain medicines are not interchangeable.23

## Best Practice Principle 6: Write, display or speak medicine names and/or the chemical names of medicines in full – do not abbreviate

To prevent error and confusion, and align with the requirements for active ingredient prescribing (AIP)8, avoid abbreviating medicine names entirely. Also refer to Table B for a list of common ‘error‑prone’ or unacceptable abbreviations for medicine and chemical names.

Abbreviating medicine names or the chemical names of medicines can lead to error. For example, ‘HCT’ for ‘hydrocortisone’ has been mistaken for ‘hydrOCHLOROTHIAZIDe’. This also includes antiretrovirals which must ALWAYS be expressed in full by using the complete active ingredient name(s) except those on the [List of Excluded Medicinal Items](https://www.health.gov.au/our-work/active-ingredient-prescribing/lemi-lmbc/lemi)22 with four or more active ingredients which may be described by brand name in accordance with Best Practice Principle 5.

Whilst exceptions may exist, it is also preferable to write, display or speak the medicine class in full. For example, PPI = proton pump inhibitor.

For protocols with multiple individual medicines, prescribe each medicine separately and in full.

Avoid use of acronyms or abbreviations, for example, ‘CHOP’ for chemotherapy.25 Noting that each protocol must be distinguishable and prescribing needs to include the full details of all the medicines, including active ingredient names.

Exceptions may be made for modified‑release (MR) products.

For handwritten medicine orders in particular, the description used in the brand name to denote the release characteristics should also be included with the active ingredient name when prescribing a medicine. For example, ‘tramadol SR’, ‘carbamazepine CR’.

This applies to slow‑release (SR), controlled‑delivery (CD), controlled‑release (CR), extended‑release (XR), long acting (LA), osmotic controlled‑release, continuous‑release or other modified or time‑release formulations, for instance, hydrodynamically balanced system with controlled release (HBS).

Table B: Common ‘error‑prone’ or unacceptable abbreviations for medicine names and chemical names that should be written in full

|  |  |
| --- | --- |
| Unacceptable abbreviations  | Recommended alternative |
| 5‑FU | fluorouracil |
| 6‑MP | mercaptopurine |
| ADF | Augmentin Duo Forte® |
| APAP | paracetamol |
| ASA | acetylsalicylic acid |
| AZA | azATHIOPRINE |
| AZT | zidovudine |
| CBD | cannabidiol |
| CBN | cannabinol |
| DEX | dexAMETHasone or dexmedeTOMIDine or dexamfetamine |
| EPO | epoetin |
| G‑CSF | granulocyte colony stimulating factor, or active ingredient name of the medicine: filgrastim, lenograstim, lipegfilgrastim or pegfilgrastim |
| G5W, D5W | 5% glucose in water |
| GTN | glyceryl trinitrate |
| HCl | hydrochloric acid |
| HCT | hydrocortisone or hydrOCHLOROTHIAZIDe |
| HCTZ | hydrOCHLOROTHIAZIDe |
| ISMN | isosorbide mononitrate |
| KCl | potassium chloride[[4]](#footnote-4)  |
| LMWH | low molecular weight heparin |
| MgSO4 | magnesium sulfate  |
| MS or MSO4 | morphine, morphine sulfate |
| MTX | methotrexate |
| NaCl, saline, NS | sodium chloride, sodium chloride 0.9% |
| ½ NS | sodium chloride 0.45%  |
| NaHCO3 | sodium bicarbonate |
| NOAC, DOAC | Use active ingredient name of the medicine or anticoagulant |
| OXY | oxycodone (oxyCONTIN) or oxytocin |
| rt‑PA | reteplase |
| T3 | levothyroxine, triiodothyronine (can be mistaken as liothyronine, which is sometimes referred to as T3 in error) |
| T4 | thyroxine, liothyronine |
| TAC[[5]](#footnote-5)  | TACrolimus |
| THC | tetrahydrocannabinol |
| TPA or r‑TPA or t‑PA | tissue plasminogen activator, or active ingredient name of the medicine: alteplase, tenecteplase, or other medicine within this class |
| TNK | tenecteplase |
| ZnSO4 | zinc sulfate |

## Best Practice Principle 7: Write or display days of the week names in full – or at a minimum the first three letters

For example, ‘Tuesday’ or ‘Tue’.

## Best Practice Principle 8: Incorporate safety features within digital systems to address unavoidable use of abbreviations

For instance, when the use of an acceptable abbreviation is unavoidable, hovering the computer ‘cursor’ over the abbreviation displays the expansion:

* NJ = nasojejunal
* PCA = patient‑controlled analgesia
* PEG = percutaneous enteral gastrostomy
* PEJ = percutaneous endoscopic jejunostomy
* PICC = peripherally inserted central catheter.

## Best Practice Principle 9: Do not include the salt of the chemical unless it is clinically significant

For example, ‘mycophenolate mofetil’ or ‘mycophenolate sodium’ are examples of salts that are clinically significant. Where a salt is part of the name, it should follow the medicine name and not precede it.

## Best Practice Principle 10: Use ‘mixed‑case lettering’ for ‘look‑alike, sound‑alike’ (LASA) medicines

This should be done for LASA medicine names known to cause confusion. Refer to the [National Mixed-Case Lettering List](https://www.safetyandquality.gov.au/our-work/medication-safety/safer-naming-and-labelling-medicines/national-mixed-case-lettering-list)26 for additional guidance, including a standard list that has been developed to help reduce the risk of LASA medicine names selection errors.26

## Best Practice Principle 11: Express the dose, preferably as whole numbers, using words or Hindu-Arabic numbers. Apply metric units and do not use trailing zeros

* **Use words or Hindu‑arabic numbers**. Use 1, 2, 3, etc., preferably followed by a space and then the unit of measure, i.e. ‘1 tab/tablet’, ‘2 puffs’, ‘3 caps/capsules’.
* **Do not use Roman (or modified Roman) numerals**. Do not use ‘i’ to mean one, ‘ii’ to mean two, ‘iii’ for three, ‘v’ for five, etc.
* **Use metric units**.[[6]](#footnote-6) Use metric units such as ‘gram’ or ‘mL’ rather than Imperial or other measurements. Do not use household measurements such as ‘tsp’ or ‘teaspoon’.
* **Use a leading zero in front of a decimal point for a dose less than 1**. Do not use a ‘naked’ decimal point without a leading zero, for example, use ‘0.5’ not ‘.5’.
* **Do not use trailing zeros**. For example, use ‘5’ not ‘5.0’ for doses of medicines expressed in whole numbers. Trailing zeros can be mistaken as a ‘zero’. For example, ‘5.0’ can be mistaken as ‘50’.

Exception: While the recording of pathology or laboratory results is out of the scope of this document, it is acknowledged that a ‘trailing zero’ may be used to express the level of precision of the reported value, for example, where blood levels are reported on the chart.

* **Do not follow abbreviations such as ‘mg’ or ‘mL’ with a decimal point or terminal full stop (‘mg.’ or ‘mL.’)**. This can be mistaken as the number 1 if written poorly. For instance, use ‘mg’ or ‘mL’, without a terminal full stop.15
* **Express dosage frequency unambiguously**. For example, use ‘three times a week’ not ‘three times weekly’ (nor ‘thrice weekly’), as the latter could be confused as ‘every three weeks’. In addition, when including the days of the week, express in accordance with Best Practice Principle 7.

## Best Practice Principle 12: Use 24‑hour time/clock format for time‑of‑day administration

Times using a 24‑hour clock format should use a colon to separate hours and minutes. To remove ambiguity, for times before and after midday, consider appending with ‘am’ and ‘pm’ respectively. For example, ‘11:30 am’ and ‘14:00 pm’. This may not be practical on a medication chart or necessary within digital systems.

Midnight medicines administration should be avoided where possible, as ‘00:00’ may be mistaken for midday. Instead consider dosing at a different time, for instance at 11:30 pm.

## Best Practice Principle 13: Express fractions in words

Write fractions in words to prevent misreading numbers.

For example:

* ‘1/7’ could be interpreted as ‘for one day’, ‘once daily’, ‘for one week’ or ‘once weekly’
* 6/24 could be interpreted as ‘every 6 hours’
* ‘1/2’ (or ‘½‘) could be interpreted as ‘half’ or as ‘one to two’. To avoid confusion, express clearly in full as ‘half’, not ‘0.5’ or ‘½’.

Figure 2: Fractions in dosing instructions



This label has been adapted from the National standard for labelling dispensed medicines.5

## Best Practice Principle 14: Do not use symbols

Avoid, for example, ‘2º’ to mean ‘every two hours’. This is mostly relevant for handwritten orders.

Exception: the symbol ‘+’ may be used as a separator in digital displays to combine two or more active ingredients.5

Table C includes examples of symbols that are unacceptable or should be avoided, in particular for handwritten medicine orders.

## Best Practice Principle 15: Do not use acronyms or abbreviations for medical terms and procedure names on orders or prescriptions

Acronyms or abbreviations can have multiple uses and be mistaken. For example, ‘D/C’ may mean ‘discharge’ or ‘discontinue’; do not use ‘EBM’ to mean ‘expressed breast milk’ or ‘TPLT’ for ‘transplant’.

## Best Practice Principle 16: Express numbers of 1,000 or more clearly

Use commas for dosing units at or above 1,000 to prevent misreading numbers. In addition, consider using or writing ‘one thousand’ instead of ‘1,000’, and ‘one million’ instead of ‘1,000,000’. Never abbreviate to ‘1 k’ or ‘1 K’, or ‘1 m’ or ‘1 M’, respectively.

Do not abbreviate by using K or M, noting that ‘M’ is the Roman numeral for ‘thousand’. See Best Practice Principle 11.

## Best Practice Principle 17: Use acceptable circled codes on paper-based medication charts

The [National Inpatient Medication Chart (NIMC) User Guide](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/national-inpatient-medication-chart-nimc-user-guide)27 includes a list of acceptable circled codes that must be recorded on paper-based medication charts to indicate the reason for not administering a prescribed medicine. For instance, use when administration is not possible or a dose of a medicine needs to be withheld. See Figure 3 and refer to the [NIMC User Guide](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/national-inpatient-medication-chart-nimc-user-guide)27 for more information on how to use these codes, including any additional codes that may be applicable. For instance, ‘P’ with a circle around it is used to record that the medicine was administered by the paediatric patient’s parent or carer.

A circled R/V is included as an acceptable code to indicate that a prescribed medicine is ‘For Review’ as a reason for withholding or not administering a medicine.

By circling the code on the medication chart it will not accidentally be mistaken or misread as someone’s initials.

Figure 3: Acceptable codes: Reasons for withholding or not administering



Table C: Examples of symbols that are unacceptable or should be avoided

|  |  |  |
| --- | --- | --- |
| Unacceptable symbols  | Recommended alternative | Issue/comment |
| < or > | less than, greater than (alternative term ‘longer than’ in context of time) | Can be mistaken, or mistakenly used, as opposite of what is intended; and when handwritten ‘<’ can be mistaken for the number ‘4’, for example, ‘<10’ could be misread as ‘40’ |
| @ | at | Can be mistaken as the number ‘2’. Mostly relevant when handwritten |
| & | and | Can be mistaken as the number ‘8’. Mostly relevant when handwritten |
| Ø | ‘0’ or ‘zero’ or describe intent in full | Can be mistaken as the numbers ‘4’, ‘6’, ‘8’, and ‘9’Mostly relevant when handwritten |
| Circle with line underneath | hour | Can be mistaken as a zero, or for example ‘q2º’ mistaken for the number ‘q20’. Frequency instructions must be clearSee Best Practice Principle 3 and Best Practice Principle 11 |
| # | DO NOT USE | Can be mistaken as a number ‘4’ or ‘8’. |
| / (slash mark) | ‘per’, ‘in’, or other descriptors | Can be mistaken as the number ‘1’. Mostly relevant when handwrittenSee Best Practice Principle 5, and Best Practice Principle 14 and noted ‘exception’ Exception: retain a slash (‘/’) when this is consistent with presentations of medicine content information (e.g. as a separator), for instance, considered acceptable when expressing concentration and rates of administration See Table F for acceptable expression of dose designations |
| x1 | ‘once’ or ‘for one dose’ | Can be mistaken for an alternative instruction, for instance ‘one day’. Use plain language See Best Practice Principle 1 and Best Practice Principle 3 |
| ½, 1/2  | half | Avoid fractions, irrespective of font size. Express clearly in fullSee Best Practice Principle 13 |
| + | and | Can be mistaken as the number ‘4’ or a ‘‑’ (dash)See Best Practice Principle 5, and Best Practice Principle 14 and noted ‘exception’  |
| X3d | for three days | Can be mistaken as ‘3 doses’ |
| [ ], ( ) (brackets) | DO NOT USE | Can be mistaken as the number ‘1’. Mostly relevant when handwritten |

# List of acceptable terms, abbreviations and dose designations

The following tables list the terms and abbreviations that are commonly used and understood and therefore considered acceptable for use, primarily in written presentations.

They should be written exactly as shown.

Table D: Dose frequency or timing

|  |  |
| --- | --- |
| Intended meaning | Acceptable terms or abbreviations  |
| (in the) morning  | morning, mane[[7]](#footnote-7)  |
| (at) midday  | midday  |
| (at) night  | night, nocte\*  |
| (at) bedtime | bedtime |
| once daily, once a day, daily, every day | ‘once a day’ (preferably specifying the time of day)[[8]](#footnote-8), ‘daily’  |
| twice a day  | bd\*, BD\* |
| three times a day | tds\*, TDS\* |
| four times a day | qid\*, QID\* |
| hourly, every hour | hourly, every hour |
| every two hours  | every 2 hrs, every 2 hours*See* Table A for an explanation of the exception where ‘2 hrly’ is not an acceptable term or abbreviation |
| every 4 hours  | every 4 hrs, 4 hourly, 4 hrly  |
| every 6 hours  | every 6 hrs, 6 hourly, 6 hrly  |
| every 8 hours  | every 8 hrs, 8 hourly, 8 hrly  |
| every 12 hours | every 12 hrs, every 12 hours |
| once a week  | ‘once a week’ and specify the day, for example, ‘once a week on Tue’ (or Tuesdays) |
| twice a week | ‘twice a week’ and specify the exact days, for example, ‘twice a week on Mon and Thu’ |
| three times a week  | ‘three times a week’ and specify the exact days, for example, ‘three times a week on Mon, Wed and Sat’ |
| every second day, on alternate days | every 2 days |
| every two weeks, per fortnight | every two weeks, every 2 weeks |
| days of the week | Mon, Tue, Wed, Thur, Fri, Sat, Sun  |
| before food  | before food  |
| after food  | after food  |
| with food  | with food  |
| when required  | prn\*, PRN[[9]](#footnote-9)See Best Practice Principle 3 and Best Practice Principle 4 |
| immediately | stat\*See Best Practice Principle 3 |
| single dose | once |
| for one day only | for 1 day |
| for three days | for 3 days |

Table E: Routes of administration

|  |  |
| --- | --- |
| Intended meaning | Acceptable terms or abbreviations |
| buccal | buccal |
| ear or eye (specify left, right or each/both) | right/left, or each/both, ear or eye |
| epidural  | epidural  |
| inhale, inhalation  | inhale, inhalation |
| intraarticular  | intraarticular  |
| intradermal | intradermal |
| intramuscular  | IM  |
| intranasal  | intranasal  |
| intraosseous | intraosseous  |
| intraperitoneal | intraperitoneal  |
| intrathecal  | intrathecal, IntraTHECAL[[10]](#footnote-10)  |
| intravenous  | IV, IntraVENOUS\* |
| irrigation  | irrigation  |
| left  | left  |
| naso‑gastric  | NG  |
| nasojejunal  | NJ |
| nebulised  | NEB, (‘nebulised’ preferred on‑screen) |
| oral  | PO  |
| per rectum  | PR  |
| per vagina  | PV  |
| percutaneous endoscopic jejunostomy | PEJ |
| percutaneous enteral gastrostomy  | PEG  |
| peripherally inserted central catheter  | PICC  |
| right  | right  |
| subcutaneous  | subcut |
| sublingual  | subling, under the tongue |
| topical  | topical  |

Table F: Dose designations: Units of measure, concentration and rates of administration

|  |  |
| --- | --- |
| Intended meaning | Acceptable terms or abbreviations |
| centimetre, millimetre | cm, mm |
| gram(s)  | g  |
| hour, minute | hour, minuteException: Where ‘hrs’ and ‘hrly’ are acceptable abbreviations. See Table D for dose frequency or timing. |
| kilogram | kg |
| litre(s)  | L  |
| metre | metre |
| microgram(s)  | microgram, MICROg, microg |
| microlitre, micromol, millimolar | microlitre, micromol, millimolar |
| milliequivalent | mEq |
| milligram(s)  | mg  |
| milligram per litre | mg/L |
| millilitre(s)  | mL  |
| millimole  | mmol  |
| millimole per litre | mmol/L |
| nanogram | nanogram (note: usual abbreviation ‘ng’ is not acceptable as it can potentially be confused with ‘naso‑gastric’) |
| parts per million | ppm |
| percentage, percent | %  |
| square centimetre, square metre | sq cm, sq mException: For digital display cm2 and m2 may also be acceptable if superscript is clearly shown |
| unit(s)  | unit(s)  |
| International unit(s)  | unit(s)Exception: The amount of bleomycin can be referred to in international units. Other exceptions such as ELISA units and D antigen units, should be explicitly stated. |
| units per kilogram | units/kg |
| milligram per minute | mg/min |
| millilitre per hour  | mL/hr |
| units per hour | units/hr |

Table G: Dose forms

|  |  |
| --- | --- |
| Intended meaning | Acceptable terms or abbreviations |
| capsule  | capsule, cap\*, CAP[[11]](#footnote-11)  |
| cream  | cream  |
| ear drops  | ear drops  |
| ear ointment  | ear ointment, ear oint  |
| eye drops  | eye drops  |
| eye ointment  | eye ointment, eye oint |
| injection  | injection, inj, INJ |
| metered dose inhaler  | metered dose inhaler, inhaler, MDI  |
| mixture  | mixture  |
| nebule | NEB  |
| ointment  | ointment, oint |
| patient‑controlled analgesia  | PCA  |
| pessary  | pess |
| powder  | powder  |
| solution | solution |
| suppository  | supp |
| suspension  | suspension |
| tablet  | tablet, tab\*, TAB\* |

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Level 5, 255 Elizabeth Street, Sydney NSW 2000
GPO Box 5480, Sydney NSW 2001

Phone: (02) 9126 3600

Email: mail@safetyandquality.gov.au
Website: [www.safetyandquality.gov.au](http://www.safetyandquality.gov.au/)

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2. [Collins dictionary](https://www.collinsdictionary.com/dictionary/english/plain-language) [definition](https://www.collinsdictionary.com/dictionary/english/plain-language) language that is clear and easy to understand with no ambiguity or unnecessarily difficult words. [↑](#footnote-ref-2)
3. [Australian Government Style Manual](https://www.stylemanual.gov.au/writing-and-designing-content/clear-language-and-writing-style/plain-language-and-word-choice): use words that people are familiar with. For example, avoid occupation‑specific language. [↑](#footnote-ref-3)
4. Other potassium salts to be written in full, for example, potassium dihydrogen phosphate. [↑](#footnote-ref-4)
5. Can be mistaken for tetracaine, adrenaline and cocaine. [↑](#footnote-ref-5)
6. Metric units are based upon scientific notation. The main difference is that scientific notation uses the power of 10 to show the magnitude of a number. [↑](#footnote-ref-6)
7. Considered acceptable abbreviations only in written presentations, such as, handwritten prescriptions or medicine orders. [↑](#footnote-ref-7)
8. Once a day in the morning at 08:00 am OR once a week on a Tuesday. [↑](#footnote-ref-8)
9. Considered acceptable abbreviations only in written presentations, such as, handwritten prescriptions or medicine orders. [↑](#footnote-ref-9)
10. Mixed-case lettering applied to align with the [National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines](https://www.safetyandquality.gov.au/publications-and-resources/resource-library/national-standard-user-applied-labelling-injectable-medicines-fluids-and-lines).28 [↑](#footnote-ref-10)
11. ’TAB’, ‘tab’, ‘CAP’ and ‘cap’ are considered acceptable abbreviations in written presentations. However, the expectation is for ‘tablet’ and ‘capsule’ to be expressed in full in digital displays, on dispensed medicine labels, and when communicated verbally. [↑](#footnote-ref-11)