Target audience for the user guide

All nursing, medical, pharmacy, administrative and allied health staff that are authorised to access and use medication charts.

As a training aid (prior to work experience) for all undergraduate students training to be health professionals who will be required to use the National Medication Chart (NMC).

Purpose of the chart

The NMC is to be used as a record of orders and administration of general medicines, intravenous and subcutaneous fluids, and oxygen. Supplementary charts are to be used in addition to the NMC, for more specialised purposes (eg, warfarin, heparin, management of diabetes, patient-controlled analgesia).

Guiding principles

1. Safe medicines prescribing is the first step in developing an effective medicines safety culture.

2. Prescribers should be aware of their prescribing responsibilities and be familiar with the Medication Charting Standard\(^1\).

3. Consultant staff should have at least the same level of competence in medication charting standards as their junior staff in order to supervise and ensure compliance with the standards\(^1\).

4. The patient’s nurse and pharmacist should be empowered to support prescribers to prescribe medicines safely and have the right to refuse to administer or dispense a prescription they cannot read or understand as it is unsafe. The prescriber, or in their absence the patient’s team, must be informed immediately if this decision is made. This may delay the treatment the patient receives.

The NMC aims to:

- promote consistent best-practice prescribing
- standardise the way medicines are prescribed nationally
- reduce the risk of medication errors and improve patient safety
- enable District Health Boards (DHBs) to easily adopt the national medication charting standard
- reduce the need for re-education on hospital-specific medication charts for prescribers, dispensers and administrators when moving between DHBs
- allow standardised training to begin at undergraduate level for all health professionals who use this medication chart
- standardise documentation recording so ePrescribing and Administration (ePA) is able to be more easily implemented in the future.

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# Contents

The National Medication Chart User Guide ........................................ i

Introduction ........................................................................ 1

Important Notes .................................................................... 2

SECTION 1: Essential Documentation ........................................ 3
  1.1 Identification of the patient ........................................... 3
  1.2 Numbering of the NMC ............................................. 4
  1.3 Date NMC is recharted .............................................. 5
  1.4 Allergies and adverse reactions .................................. 6
  1.5 Special care required .............................................. 10
  1.6 Supplementary charts ............................................ 10
  1.7 Sample signatures: prescribers and sample initials: administrators/others 11
  1.8 Weight, height, body surface area and gestational age at birth 12
  1.9 Venous thromboembolism (VTE) prevention .................. 12

SECTION 2: Principles ................................................................. 14
  2.1 General instructions ................................................ 14
  2.2 Prescriber’s instructions ............................................ 14
  2.3 Administrator’s instructions ...................................... 15
  2.4 Recommended administration times ......................... 17
  2.5 Non-administration codes ...................................... 18

SECTION 3: General Charting Instructions .................................. 20

SECTION 4: Once Only Medicines ............................................ 24

SECTION 5: Verbal Order Medicines ....................................... 25

SECTION 6: Oxygen and Medical Gases ................................. 26

SECTION 7: PRN Medicines ....................................................... 27

SECTION 8: Regular Medicines 1, 2, and 3 ............................. 30

SECTION 9: IV Fluids ............................................................... 34

Appendix A: Commonly Used Abbreviations .......................... 36

Appendix B: ‘DO NOT USE’ Abbreviation and Symbol List .......... 37
Introduction

The RIGHT patient receives the RIGHT medicine at the RIGHT dose by the RIGHT route at the RIGHT time, and that medicine is SAFE for the patient to receive.

It has been recognised that a significant number of errors are made when prescribing, dispensing, documenting, and administering drugs.

Hospital services within New Zealand are largely delivered by the 20 District Health Boards (DHBs) spread throughout the country. Each DHB is responsible for the day-to-day planning, management, purchasing and provision of services for the population of their district. Over the years, each DHB had developed their own medication chart, with the result that there were at least 20 different medication charts in use.

Prior to 2011 there was no standardisation of medication charts between DHBs, therefore significant variations in content and board policies for documentation existed. This made it difficult for both new staff and those transferring from other DHBs to safely prescribe or complete administration documentation without an extended period of training.

The concept of one National Medication Chart (NMC) design for New Zealand was first discussed in 2003 by hospital pharmacists, and work on a design was started that year. Features from New Zealand medication charts, the Australian and Welsh National Medication Charts were incorporated, as well as principles of information design and industrial psychology with a safety focus. During the development of the NMC, Medication Charting Standards for District Health Boards were also formulated, which define the minimum requirements medication charts need to meet in order to enhance patient safety. Version 1 of the NMC was piloted in three DHBs and the design was reviewed in response to the pilot evaluation. Implementation of the NMC began in 2011. The design was reviewed in 2012, and again in 2014, taking into account change requests, a pilot of a long-stay version and feedback to a consultation on paediatric requirements.

Future changes to the NMC will be informed by a formal user feedback process every three years.

The NMC is an A4-sized, numbered booklet of light-weight cardboard that has been designed to be faxed, photocopied or scanned, while displaying patient details. It is stapled to ensure its multiple pages are kept together. The shading of alternate rows in the NMC is intended to make it easier to correlate the medication order with the correct administration record.

Five versions of the NMC are available:

- 8 day chart (12 sided)
- 16 day chart (16 sided)
- Day stay chart (2 sided)
- 8 day scannable chart (12 sided)
- 16 day scannable chart (16 sided).
Important Notes

All clinicians

1. The NMC is a legal document and therefore must be written in a clear, legible and unambiguous form.

2. If the NMC is full (i.e., there is no appropriate space to sign for administration) then the medication order is not valid and the NMC must be re-written.

3. Use only commonly used abbreviations and avoid ‘DO NOT USE’ abbreviations (see Appendix A and B).

4. Review ALL medicines regularly to identify any potential drug interactions and discontinue medicines no longer required.

5. Do not use white-out or an eraser if a mistake has been made. Cross the mistake off completely and re-prescribe again on a new line.

Prescriber

6. Ensure patient’s identification details are completed and correct before prescribing.

7. Ensure each medicine order is documented correctly (as outlined in this document).

8. Ensure any special release characteristics of the medicine are ALWAYS prescribed if applicable, e.g., Madopar HBS®, Sinemet CR®. A number of abbreviations are used (Figure 1).

9. Be aware that other, less commonly used abbreviations not listed below may also indicate special release characteristics (such as MUPS = Multiple Unit Pellet System).

Nursing

10. Every nurse has a responsibility to ensure they can clearly read and understand the order before administering any medicine. The prescriber should be contacted to clarify incomplete or unclear orders.

11. It is appropriate to withhold a medicine if there is a known allergy or adverse reaction to it, until the prescriber has been contacted for instructions.

Pharmacy

12. Every pharmacist has a responsibility to ensure the appropriateness of the prescription if a medication chart is checked.

13. Ensure a signature or initial is documented in the Pharm space if a pharmacist has checked the patient’s medication chart.

---

Figure 1

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD</td>
<td>Controlled delivery</td>
</tr>
<tr>
<td>CR</td>
<td>Controlled release</td>
</tr>
<tr>
<td>ER</td>
<td>Extended release</td>
</tr>
<tr>
<td>HBS</td>
<td>Hydrodynamically balanced system with controlled release</td>
</tr>
<tr>
<td>LA</td>
<td>Long acting</td>
</tr>
<tr>
<td>SR</td>
<td>Slow release</td>
</tr>
</tbody>
</table>
1.1 IDENTIFICATION OF THE PATIENT

Patient identification that is incomplete and/or not visible on all sections of the NMC may result in an adverse drug event (eg, the medicine is administered to the wrong patient).

There are five patient label positions (Figure 2) and two additional spaces for patient labels when organisations scan documents into an electronic health record. The day stay chart has two patient label positions.

Every NMC must have either:

- the current patient identification label (bradma label) stuck on all label spaces within the NMC, or
- all of the following patient details handwritten by the prescriber in all label spaces (Figure 3)
  (a) patient name (family/given name)  (b) gender (male/female/indeterminate)  (c) date of birth [as DAY/MONTH/YEAR]  (d) NHI number.

The first prescriber must also print the patient's name and NHI number in the space allocated below the first patient label (on page 1) so that it is able to be read once the label has been affixed (Figure 3).

Handwriting a patient's name in addition to the printed patient label reduces the risk of the wrong identification label being placed on the NMC and the wrong patient receiving the wrong medicines.
1.2 NUMBERING OF THE NMC

Clinicians must be aware of all medication charts in use in order to have access to all current medication information to safely prescribe, dispense and administer medicines for patients.

1. This indicates to all staff how many NMCs are in use for a patient (Figure 4).
   - This count does not include supplementary charts (e.g., warfarin, diabetic/insulin chart).

2. Complete as chart 1 of 1 if there is only one NMC in use (Figure 5).

3. Change to chart 1 of 2 if another active NMC comes into use. The new active NMC becomes chart 2 of 2.
1.3 DATE NMC IS RECHARTED

 Enables staff to identify the date the entire NMC was recharted.

1. Leave this box blank if this is the first NMC used for a patient during this admission.

2. Complete the box if at any time during the patient’s admission, the original NMC (Figure 6) becomes full and a new NMC is written (Figure 7). This indicates to staff that this is not the first NMC of this admission.

   - All prescriptions carried forward onto the new NMC should have the original date of prescribing in the prescription date box.
   
   - Annotate the old NMC as recharted with a date and signature for accountability (Figure 8), or as per local policy for cancelling medication charts.

![Figure 6: Date Recharted](image)

![Figure 7: Date Recharted](image)

![Figure 8: 8 Day National Medication Chart](image)
1.4 ALLERGIES AND ADVERSE REACTIONS

Omission of allergy and adverse reaction information risks the prescribing and administering of a medicine or similar that has previously caused an allergic or adverse reaction. Recording of a clinician’s signature assigns accountability for the information and the date determines how current the information is.

These are separated out into two distinct boxes to highlight the difference between an allergy and an adverse reaction (Figure 9).

- Allergy: immune-mediated and can cause reactions ranging from mild to anaphylaxis.
- Adverse drug reaction (ADR): A response to a medicine which is noxious and unintended and which occurs at doses normally used in humans.

Use the information compiled on page 1 of the NMC to complete the allergies and adverse reactions mini-box on page 2 of the NMC by marking ‘Yes’ or ‘No’ as applicable and documenting the relevant medicine(s) or substance(s) (Figure 10).

The last page of the NMC allergies/adverse reaction box reminds any prescriber/administrator prescribing/administering intravenous or subcutaneous fluids to look at page 1 of the NMC, to check whether a patient has any relevant allergies or adverse reactions.
The minibox allows important information on allergies or adverse reactions to be visible when a prescriber is prescribing a medicine(s) and when the NMC is being faxed, photocopied or scanned.

Patient with no allergies or adverse reactions (Figures 9 and 10)

1. Mark ‘No’ if the patient or their caregiver is not aware of any allergies or previous adverse reactions (Figure 9).
2. Sign your name and date the entry in both boxes.
3. In addition, follow local policy regarding other requirements.
4. Complete the allergy and adverse reaction mini box on page two of the NMC (Figure 10). This allows the information to be visible when prescribing or when the NMC is faxed or scanned to pharmacy.

Updating a patient’s allergies or adverse reactions information

If a patient or their caregiver remembers a previous allergic or adverse reaction after completion of the boxes (Figures 11 and 12):

1. Cross out the marking in the appropriate ‘No’ box.
2. Follow the instructions for ‘Patients with allergies or adverse reactions’ below. Sign and date the information as updated.

---

**Figure 11**

<table>
<thead>
<tr>
<th>Allergies</th>
<th>Adverse Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEFUROXIME</td>
<td>All over rash</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>Medication</td>
<td>Reaction</td>
</tr>
<tr>
<td>CEFUROXIME</td>
<td>All over rash</td>
</tr>
</tbody>
</table>

**Figure 12**

<table>
<thead>
<tr>
<th>Allergies</th>
<th>Adverse Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MORPHINE</td>
<td>Nausea</td>
</tr>
<tr>
<td>SIMVASTATIN</td>
<td>Diarrhoea</td>
</tr>
<tr>
<td><strong>Yes</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>Medication</td>
<td>Reaction</td>
</tr>
<tr>
<td>MORPHINE</td>
<td>Nausea</td>
</tr>
<tr>
<td>SIMVASTATIN</td>
<td>Diarrhoea</td>
</tr>
</tbody>
</table>
Patient with allergies or adverse reactions (Figures 13 and 14)

1. If the patient or their caregiver notifies you of any allergies or adverse reactions, decide if the reaction is a TRUE allergy or more likely to be a listed side effect of that medicine.
   - Anything that has caused a skin rash, urticaria (hives), facial or throat swelling, or anaphylaxis should be documented as causing an allergy.
   - Allergies are usually unexpected reactions to a medicine, food (such as seafood, gluten, eggs, peanuts), substance (eg, iodine, preservatives, sulphur) which has been administered, taken, or used in the intended way.
   - Allergies can also include reactions to plasters or latex.
   - Document as much as you know about the reaction (for example peanuts: throat swelling two years ago).
   - Adverse reactions are commonly listed in the medicine’s data sheet as a known side effect.
   - Adverse reactions tend to be more common patient occurrences than allergies (such as diarrhoea with penicillin or nausea with morphine).
   - Document as much as you can about the reaction to guide future administration if needed (eg, penicillin – diarrhoea after thee days).

2. Always sign and date both boxes, even if ‘No’ has been marked in one box.

3. Complete the allergy and adverse reaction mini box on page 2 of the NMC. This allows the information to be visible when prescribing or when the NMC is faxed or scanned to pharmacy (Figure 14).

4. Follow local policy as to what supplementary measures are recommended in order to alert clinical staff to a patient’s allergy (for example, sticker on patient’s medical record, allergy bracelet, entry in patient management system).

5. If a medicine is administered during the patient’s hospital stay that causes a reaction, this information should be documented in the ‘New on this admission’ space provided, and signed and dated.
   - Document full details of the new reaction in the patient’s notes.
   - Follow local policy as to what other supplementary measures are required to alert clinical staff to a patient’s new allergy (for example, sticker on patient’s medical record, allergy bracelet, entry in patient management system).
If you are unsure whether a reaction is an allergy or adverse reaction, ask the patient for more information and discuss the reaction further with a colleague.

### Unknown allergy or adverse reaction status

1. If the patient’s allergy or adverse reaction status is unknown because there are no records or the patient is unable to supply details for some reason (eg, unconscious), write unknown in both boxes.

2. Always sign and date both boxes (Figure 1.5).

3. Document in the patient notes why this information could not be recorded.

4. Update chart and patient notes as soon as any information comes to hand.

#### Figure 1.5

<table>
<thead>
<tr>
<th>Allergies</th>
<th>Adverse Reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medication / Other</td>
<td>Reaction</td>
</tr>
<tr>
<td><strong>UNKNOWN</strong></td>
<td>Patient unconscious</td>
</tr>
<tr>
<td>Signature</td>
<td>Date</td>
</tr>
<tr>
<td>Brand/Medico</td>
<td>14/09/2012</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication</th>
<th>Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNKNOWN</strong></td>
<td>Patient unconscious</td>
</tr>
<tr>
<td>Signature</td>
<td>Date</td>
</tr>
<tr>
<td>Brand/Medico</td>
<td>14/09/2012</td>
</tr>
</tbody>
</table>
1.5 SPECIAL CARE REQUIRED

Clinicians need access to all current medication information to safely prescribe, dispense and administer medicines for patients. Reminders can flag to clinicians information that should be taken into consideration that might affect prescribing, dispensing and/or administration decisions.

1. Mark the corresponding condition box or use the ‘Other’ space to indicate non-specified conditions such as nasogastric feeding, delirium, or cognitive loss (Figure 16).

2. Mark ‘No’ if no special care required (Figure 17).

3. Use the information on page 1 of the NMC to complete the special care required minibox on page 11 of the 8 day NMC or page 14 of the 16 day NMC by marking ‘Yes’ or ‘No’ as applicable (Figure 18 and 19).

1.6 SUPPLEMENTARY CHARTS

Alerts all chart users to other medicines which may be prescribed on a supplementary chart which should be taken into consideration when prescribing, dispensing or administering medicines on the NMC.

1. Mark the appropriate box which corresponds to the correct supplementary chart(s), or mark other and specify the title of the supplementary chart(s) (Figure 20).

• In addition, cross-reference any medicine on a supplementary chart in the appropriate section of the NMC or follow local policy if different requirements exist.

2. Mark ‘No’ if no other supplementary charts are in use (Figure 21).
1.7 SAMPLE SIGNATURES: PRESCRIBERS AND SAMPLE INITIALS: ADMINISTRATORS/OTHERS

Sample signatures and initials allow easy identification of all clinicians if a query arises about an order or administration of that order. Registration numbers are a requirement of the medication charting standard and are a unique identifier for all health professionals. These help identify a clinician in the event their signature is unidentifiable.

1. All prescribers using the NMC must print their name and designation, sign their full signature, and state their registration number (Figure 24).

2. All administrators/others using the NMC must print their name and designation, sign their initials, and state their registration number (Figure 24).

3. Use the information on page 1 of the NMC to complete the supplementary charts minibox on page 11 of the 8 day NMC or page 14 of the 16 day NMC by marking ‘yes’ or ‘no’ as applicable (Figure 22 and 23).
1.8 WEIGHT, HEIGHT, BODY SURFACE AREA AND GESTATIONAL AGE AT BIRTH

A number of medicines are dosed based on body weight and in paediatrics, medicines are dosed based on body weight until adult doses are reached. Inaccurate dosing may result when the actual weight is not readily available.

Recording the date determines the currency of the information. Body surface area (BSA), which is calculated using weight and height, may be needed to determine the dose of some medicines. Dosing in neonates will be determined by gestational age and weight.

1. Document the patient’s weight and height in the space provided with the date when these were measured (Figure 25). A second space for weight is provided for when documentation of a second weight is required.

2. When appropriate complete the BSA box.

3. When appropriate complete the gestational age at birth box.

Additional guidance

Patients with widely fluctuating body weights may require daily weighs.

1.9. VENOUS THROMBOEMBOLISM (VTE) PREVENTION

VTE prevention is often forgotten but the potential consequence of a VTE event is serious patient harm or even death.

VTE risk assessment is not considered necessary for patients under 18 years of age. Refer to local policies for VTE prevention, if they exist, for further information.

1. Complete the VTE risk assessment on admission.

2. Sign and date the entry (Figure 26).

3. Mark if VTE prophylaxis is required or not by indicating why no VTE prophylaxis has been prescribed or what VTE prophylaxis has been prescribed.

It is important VTE risk is reassessed within 24–48 hours of admission and again if the clinical condition changes significantly.

4. Sign and date each time VTE risk is reassessed.

If a patient’s VTE risk has changed when they are reassessed (Figure 27).

5. Cross out the previous marking in the box(es).

6. Complete the appropriate boxes to indicate why no VTE prophylaxis has been prescribed or what VTE prophylaxis has been prescribed.

7. Sign and date the amendment so there is clear accountability.
A number of patient-specific factors are known to pre-dispose patients to increased risk of VTE or bleeding and should be considered in assessing the VTE risk and any decision to prescribe and administer thromboprophylaxis.
SECTION 2: Principles

There are some guiding principles to assist prescribers and administrators with correct prescribing and administration documentation.

This section describes those guiding principles:
- general instructions
- prescriber’s instructions
- administrator’s instructions
- recommended administration times
- non-administration codes.

2.1 GENERAL INSTRUCTIONS

These instructions apply to all clinicians for every NMC used.

1. Use indelible pen only to write on the NMC.
   - Indelible means an ink that cannot be rubbed out and is able to be read when faxed, photocopied or scanned.
   - Blue or black pen should be used when prescribing.
   - Other colours (e.g., green for Pharmacy) may be acceptable to some hospitals as a means of identifying certain members of clinical staff.

2.2 PRESCRIBER’S INSTRUCTIONS

These instructions apply to prescribers.

1. Use approved or generic names only and prescribe using block capitals.
   - Each medicine has an approved name which is also called the generic name (e.g., paracetamol instead of Panadol®).
   - A brand name is the manufacturer’s name for a medicine which may be used in certain circumstances (See Important Notes section for more details).
   - Block capitals means writing the whole medicine name in CAPITAL LETTERS (Figure 28).

Figure 28

| N | O | R | F | L | O | X | A | C | I | N |
2.3 ADMINISTRATOR’S INSTRUCTIONS

These instructions apply to administrators.

1. Record time of administration using the 24-hour clock.
   - Administrators should record the actual time the dose was administered to the patient using the hours: minutes format (24-hour clock) (Figure 30).
   - Examples include 0600h (6 o’clock in the morning) and 1800h (6 o’clock at night) (Figure 30).

2. For variable dose, record actual dose given.
   - For example Tramadol 50–100mg q4-6h, when various doses have been administered according to the patient’s need (Figure 30).

Never use white-out or an eraser if a mistake has been made.
3. For variable route, record actual route used.
   - If doses are not equivalent for different routes, then separate prescriptions for each route must ALWAYS be written.
   - Refer to local policy for guidance on prescribing multiple routes on one prescription.

4. If dose not given, record appropriate non-administration code.
   - This refers to situations in which a medicine has not been administered or administration has occurred by a parent/carer/patient.
   - Record the appropriate code from the non-administration codes (Figure 32). The codes cover patients who are self-medicating or administered medicines by a parent or caregiver and also reasons why a regular dose was missed.

5. Giv/chck (given by/checked by)
   - This refers to the initials of the person who administered the medicine (given by) and the initials of the person who checked the medicine if required by local policy.
   - The appropriate section must be completed whenever a once-only medicine, verbal order, as required (PRN) medicine, regular medicine, or intravenous or subcutaneous fluid is administered.
2.4 RECOMMENDED ADMINISTRATION TIMES

These administration times are GUIDELINES ONLY. Circumstances may dictate the use of alternative times to administer medicines and organisations may have an alternative protocol.

- Document times using the 24-hour clock format (see Administrator’s instructions section 2.3).
- Examples include 0600h (6 o’clock in the morning) and 1800h (6 o’clock at night).

![Table of Recommended Administration Times]

Space antibiotic administration as evenly throughout the day as possible.

![Table of Non-Administration Codes]

- U: Patient unavailable
- SM: Self-medicating
- CP: Carer/Parent
- R: Patient refused
- D: Prescriber’s instructions
- N: Not administered — document reason in notes
2.5 NON-ADMINISTRATION CODES

Non-administration codes (Figure 32) provide background information to clinicians about the reasons doses are omitted on the NMC.

<table>
<thead>
<tr>
<th>Non-administration code</th>
<th>Definition and instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>U = Patient unavailable</td>
<td>Patient is not available at the time administration is due. In the event of planned procedures or planned leave, discussion must take place with the prescriber or responsible doctor/midwife, the patient or caregiver (if possible) and medicines organised for continuity in administration.</td>
</tr>
<tr>
<td>SM = Self-medicating</td>
<td>Patient is self-administering the medicine. Follow local organisation guidelines for documentation eg, all self-medication must be witnessed by the nurse/midwife responsible for the care of the patient at the time of the administration. Dose, time and initials of the nurse/midwife must be recorded alongside the code.</td>
</tr>
<tr>
<td>CP = Carer/Parent</td>
<td>Patient’s carer or parent is administering the medicine. Follow local organisation guidelines for documentation eg, all carer/parent medication administration must be witnessed by the nurse/midwife responsible for the care of the patient at the time of administration. Dose, time and initials of the nurse/midwife must be recorded alongside the code.</td>
</tr>
<tr>
<td>R = Patient refused</td>
<td>If a patient refuses a medicine that is not prescribed as PRN, the medicine must be offered to the patient again within one hr of the prescribed administration period. Follow local organisation guidelines if it is refused a second time. For example if it is refused a second time, the responsible prescriber must be contacted to review the prescription or speak to the patient.</td>
</tr>
<tr>
<td>D = Prescriber’s instructions</td>
<td>If a decision is made to withhold the dose by a prescriber, this code must be used. This includes the medicines omitted in the peri-operative period. This code is only to be authorised by a prescriber, preferably in writing. Follow local hospital guidelines for documentation.</td>
</tr>
<tr>
<td>N = Not administered</td>
<td>The responsible prescriber must always be informed so alternative care can be prescribed if necessary. The clinical reason and action undertaken must be recorded in the patient’s clinical record. If this code is used for medicines not available a supply must be obtained and the medicine administered as soon as possible to the due administration time otherwise the prescriber must be notified so alternative care can be prescribed.</td>
</tr>
</tbody>
</table>
• Non-administration codes are to be used when the medicine has not been administered or it has been administered by a carer/parent/patient.

• Document the code together with the time and initials of the person documenting the code (Figure 33).

• If the non-administration code ‘N’ is used, a reason must be documented in the patient’s notes – DO NOT USE alternative abbreviations as their meanings may not be apparent to other clinical staff.
SECTION 3: General Charting Instructions

The NMC has a number of similar features in the once only, verbal order, PRN and regular medicine pages. These features should be used with the specific features of the individual pages described in subsequent sections of the user guide.

Document the following for all orders (Figure 34).

1. Date prescribed in day/month/year format
   
   Dating the order clearly documents when the order was written.

2. Generic name of the medicine in block capitals, one letter per space provided
   
   If the name of the medicine is unclear, a clinician may misinterpret the order and dispense or administer the wrong medicine. Good prescribing encompasses medicine names written legibly in block capitals and using the generic name.

   While trade names may be accepted for certain medicines, using the generic name prevents confusion when there may be multiple changes in products.
   
   - Twenty-six character spaces have been provided to facilitate the writing of upper-case single letters (as in crossword puzzles, airport departure cards). Write ONE LETTER of the medicine name per character space (Figure 35).
   
   - Indicate in the medicine box if the preparation is of a special release type (eg, SR, CD, LA: see Important Notes section for more detail).

Structured letter format design is known to promote both block letter and legible writing.
Dose to be administered (Figure 36)

Many medicines come in multiple strengths. If the dose just says one tablet and omits the strength, the wrong strength may be administered.

- The dose box incorporates a decimal point and is designed to facilitate legible hand writing and clear decimal points, when a decimal point is necessary.
- Use only Hindu-Arabic (eg, 1, 2) numbers (DO NOT use Roman numerals).
- Never use a trailing (terminal) zero – use nothing after the decimal point, or use a horizontal dash if putting something after the decimal point is unavoidable to avoid the use of trailing zeros.
- State the dose in gram, milligram or microgram in whole numbers (for example 500mg instead of 0.5g or 125 micrograms instead of 0.125mg).
- Avoid leading zeros by re-writing the dose as smaller units but use a leading zero when this is not possible eg, 0.5mL.
- Use common sense – intent must be clear and unambiguous.
- Use the box under the decimal point box (labelled ‘dose range if needed’) to write dosage that does not conform to the space above [eg, apply, variable doses].

Figure 36
4 Units [of administration] (Figure 36)

Abbreviations may appear to be good time savers, but if unsafe, confusing, or unknown, they can increase the potential for medication errors.

- The National Medication Safety Expert Advisory Group has issued a list of ‘DO NOT USE’ abbreviations (see Appendix B). In addition, a list of commonly used abbreviations are included in Appendix A. Hospitals may also have local policies on abbreviations. Prescribers should be familiar with what these are, or else write all units in full.

- Use the box beneath the dose box (labelled ‘dose range if needed’) to write other dosage instructions that are not necessarily units (eg, inhalations).

5 Route of administration

- Use commonly used abbreviations only (refer to Appendix A and B), otherwise write the route in full.

- See Section 2.3 for Administrator’s instructions for more detail.

**Abbreviations may appear to be good time savers, but if unsafe, confusing, or unknown, they can increase the potential for medication errors.**

6 Dose calculation in milligram per kilogram per dose

- Use this box to enter the milligram per kilogram per dose when prescribing medicines that require weight-based dosing or in paediatric patients (Figure 37).

7 Prescriber’s full signature

- It is a requirement that medicine orders are signed by an authorised prescriber. This allows the prescriber to be identified if there is a need to clarify the prescriber’s intent.

- Consult local policies, which may also require a locator number, mobile phone number, or printed name in block capitals after the prescriber’s signature.

- Signatures should correspond to the details in the sample signature/initals section outlined in Section 1.7.

8 Pharmacy and special instructions

- The prescriber or the pharmacist may complete this space if extra information is required (for example with food, on an empty stomach, remain upright for 30 minutes).
Pharm

- This space is for the pharmacist’s initials and/or pharmacy storage/supply method.
- For hospitals where the pharmacist routinely checks the patient’s medication charts, the initials in this space confirm the medication and dosage instructions have been checked by the pharmacist.
- Initials should correspond to the details in the sample signature initials section outlined in Section 1.7.

Given by/checked by

- These spaces are for the initials of the person who administers the medicine, and the person who checked the medicine for correctness before administration if required by local policy.
- Initials should correspond to the details in the sample signature initials section outlined in Section 1.7.
SECTION 4: Once-Only Medicines

The NMC has a section for once-only orders. This is to minimise the risks of doses being missed when on a separate chart and of orders being continued inadvertently when charted in the same section as regular orders.

Prescribers should prescribe once-only medicines in this section to ensure good visibility of the order and timely administration.

- Medicines prescribed here can include complex prescriptions.
- Eight lines are provided on page 2 and four lines on page 3 of the NMC to prescribe once-only medicines. Five lines are provided on the day stay chart.

1. Follow the instructions in Section 3 (numbers 1 to 10) for completion of once-only medicine prescriptions, pharmacy information and administration. In addition, the following are specific instructions related to once only medicine prescriptions.

2. Document the date and time of the dose relevant to that order.

3. Specify infusion times if needed (times commenced/completed) when administering the medicine.

The date and time the medicine is to be administered should be specified by the prescriber so it can be administered at the appropriate time. If no time is specified, a medicine that is required to be administered, for example, at 10.00 could be administered at 16.00.
SECTION 5: Verbal Order Medicines

Layout of the verbal order section of the chart facilitates and encourages safe practice by requiring two staff members to independently receive an order and to read that order back to the prescriber. Accountability for verbal orders should be clearly documented for clear communication.

Verbal orders are to be discouraged as they are prone to errors. Depending on local policy, verbal orders may be allowed under special circumstances when the prescriber is unable to personally come to the ward as long as the order:

- is for a once-only medicine (refer to local policy for details of whether verbal orders are allowed and which medicine(s) can be given with a verbal order)
- has been heard and repeated back to the prescriber by two registered nurses
- is documented as outlined in Figure 39.

1. Follow the instructions in Section 3 (numbers 1 to 10) for completion of verbal order medicine prescriptions, pharmacy information and administration. In addition, the following are specific instructions related to verbal order medicine prescriptions.

2. Document the date and time of dose relevant to that order.

3. Document the initials of the two registered nurses who both heard and repeated back to the prescriber the verbal order.

4. Document the time of administration of the medicine, or, if an infusion, the time the infusion was started (commenced) and completed.

5. Document the full name of the prescriber giving the verbal order.
   - This must be handwritten clearly by one of the nurses taking the verbal order.

6. The prescriber must sign the medication chart within 24 hours and record the date of countersigning beside their signature.
SECTION 6: Oxygen and Medical Gases

Prescribing of oxygen and other medical gases is a legal requirement.

All prescribers of oxygen should:

1. identify if the patient being prescribed oxygen is likely to be at risk of type II respiratory failure and indicate an appropriate target oxygen saturation range (88–92% patients at risk of type II respiratory failure, and greater than 92% for most patients)
2. date the prescription
3. identify the most appropriate equipment through which to deliver the oxygen:
   - reservoir mask 15 L/min
   - nasal cannula 2–6 L/min
   - face mask 5–10 L/min
   - venturi mask 24, 28%
4. prescribe the appropriate flow rate for the device
5. sign the prescription
6. review oxygen prescriptions and saturation ranges daily:
   - reduce oxygen in stable patients with satisfactory oxygen saturation
   - cross off oxygen from the medication chart once discontinued completing the stop date when oxygen administration is no longer required.

All administrators of oxygen should:

1. regularly check the patient’s oxygen saturation range using pulse oximetry and compare this to the target saturation range
2. determine if a change to the oxygen delivery mechanism is needed to achieve the desired target saturation range and inform the prescriber of the necessary changes
3. record during each shift how the range compares, the oxygen saturation result, the mode of delivery and any action taken to correct any deficiency.
SECTION 7: PRN Medicines

PRN medicines are those that are taken on an as required or as needed basis only. Separating PRN medicines from regular medicines reduces the risk of the medicine being given regularly.

Eight lines (starting from the letter A) are provided to chart PRN medicines on the NMC separate from regular medicines. Five lines are provided on the day chart.

The PRN section includes a space for the maximum dose of a medicine in a 24-hour period to prevent overdose.
For all PRN orders (Figure 42)

1. Follow the instructions in Section 3 (numbers 1 to 10) for completion of PRN medicine prescriptions, pharmacy information and administration. In addition, the following are specific instructions related to PRN medicine orders.

2. Document the frequency of administration.
   
   If the administration frequency of a dose is not stated, a medicine may be administered more frequently than recommended (e.g., morphine 10mg PRN administered at 15 minute intervals). Use of unclear frequencies can also lead to administration errors and patient harm (e.g., qd which is the American abbreviation for daily could be misinterpreted for four times a day as in qds).
   
   • Use only commonly used and understood abbreviations to indicate the frequency of administration. Some examples are given under recommended administration times (see Section 2.4), other commonly used and not acceptable abbreviations are listed in Appendix A and B.

   
   Stating an indication at the point of prescribing allows the prescription to be reviewed in context, reducing the risk of medication errors from omissions, incorrect dosing or misinterpretation of an order (e.g., paracetamol may be used as an analgesic or antipyretic and the indication could influence whether the PRN medicine is administered or not).
   
   • Ensures administration of the medicine in a timely manner (e.g., pain, itch).

4. Document a maximum dose in 24 hours.

   PRN medicines may need to be given frequently, but should have a maximum dose specified for any 24 hour period (for example, prescriber may limit diazepam 5–10mg ordered for every 2–3 hours to 40mg per 24 hour period to limit adverse effects such as respiratory depression).
   
   • Maximum doses ensure patients do not receive doses above the recommended daily maximum and that uncontrolled symptoms are brought to the attention of the prescriber sooner.

5. Sign, date and time to cancel (Figure 43).

   This space should be completed when:
   
   • a medicine is intended to be stopped at some date in the future and advance warning is given
   • a medicine is to be stopped immediately, in which case the box should be signed by the prescriber stopping the medicine, together with the date and time.

   When stopping a medicine, the original order must not be obliterated. The prescriber must draw clear lines through the order in both the prescription and the administration record sections, taking care the lines do not impinge on other orders. The prescriber should initial and document the date and time the order was cancelled.

If an order has not been clearly cancelled, or a date and time specified in the future for when it is to be cancelled, additional doses may be administered.
Administration record (PRN medicines) [Figure 44]

1. Each administration of the medicine must be clearly documented in the administration section opposite that medicine with date, time, dose, route, give (initials of who administered the medicine) and check (initials of who checked the medicine before it was given to the patient, if required by local policy).

- Signatures and initials should correspond to the details in the sample signature/initials section outlined in Section 1.7.
- Note that the orientation of the administration chart differs in this section from the regular administration chart, in that the date is written vertically down the chart rather than horizontally across it.
- PRN medicines are typically administered sporadically throughout the day and often more frequently at the beginning of an admission.
- Writing the date vertically allows for consecutive days administration recordings to follow on, rather than a whole column being devoted to one particular day.
SECTION 8: Regular Medicines 1, 2, and 3

Regular medicines are ones that are administered for more than one dose, and have a set time period between administrations (eg, twice daily, twice a week, once a month).

Twenty-three lines (starting from the letter I) are provided on the NMC and twenty-one lines on the scannable NMC to chart regular medicines. No regular medicine lines are provided on the day stay chart, if a regular medicine is required during the day it should be charted in the once only section.

Regular medicine orders (Figure 46)

1. Follow the instructions in Section 3 (numbers 1 to 10) for completion of regular medicine prescriptions, pharmacy information and administration. In addition, the following are specific instructions related to regular medicine orders.
2 Document the frequency.

If the administration frequency of a dose is not stated, a medicine may be administered more frequently than recommended (e.g., morphine 10mg administered at 15 minute intervals). Use of unclear frequencies can also lead to administration errors and patient harm (e.g., qd which is the American abbreviation for daily could be misinterpreted for four times a day as in qds).

- Use only commonly used and understood abbreviations to indicate the frequency of administration. Some examples are given under recommended administration times (see Section 2.4), other commonly used and ‘DO NOT USE’ abbreviations are listed in Appendix A and B.

- Be explicitly clear when prescribing instructions for medicines that are NOT intended to be given on a daily basis (Figure 47).

- When prescribing a medicine with different doses depending on the time of the day, prescribe it on two separate lines (Figure 48).
3  Sign, date and time to cancel (Figure 49)

If an order has not been clearly cancelled, or a date and time specified in the future for when it is to be cancelled, additional doses may be administered.

This space should be completed when:

- a medicine is intended to be stopped at some date in the future and advance warning is given
- a medicine is to be stopped immediately, in which case the box should be signed by the prescriber stopping the medicine, together with the date and time.

When stopping a medicine, the original order must not be obliterated. The prescriber must draw clear lines through the order in both the prescription and the administration record sections, taking care the lines do not impinge on other orders.

![Figure 49]

4  Specify the actual administration times - circle or actual time.

Specifying the administration times reduces the potential for nurses to misinterpret prescribed administration frequency instructions and gives clarity of the prescriber’s intent with dosing (e.g., if an oral antibiotic is prescribed, whether the patient should be woken up during the night for administration).

- If the time of intended administration corresponds to one of the times listed, circle that, otherwise write the intended time in the space provided (Figure 50).

![Figure 50]
1. Document each administration of the medicine in the spaces provided with date, time, dose, give (initials of who administered the medicine) and check (initials of who checked the medicine before it was given to the patient, if required by local policy) (Figure 51).

2. The medicine administration record on the NMC provides space to record up to eight or 16 days of therapy. At the end of eight or 16 days, a new prescription should be written.
   - Note that the orientation of the administration section differs in this section from the PRN administration section, in that the date is written horizontally across the page rather than vertically down the chart.
   - Regular medicines are more likely to be given daily (although some are given weekly or monthly), so it is a better use of space for a whole column to be devoted to one particular day.
   - There is a reminder to the prescriber and administrator that the prescription needs re-writing on day eight or day 16 of administration.
   - The 16 day chart has fold out flaps to increase the number of administration days, check under the flaps when administering medicines to ensure all the administration spaces are used.

**Check under the flaps when administering medicines to ensure all the administration spaces are used.**

![NMC Chart Example](image-url)
Combining the IV and subcutaneous fluid chart with a regular medication chart reduces the risk of errors associated with infusion fluids inadvertently not being given to the patient. Twenty lines are provided on the NMC to chart intravenous and subcutaneous fluids. Four lines are provided on the day stay chart.

For all intravenous or subcutaneous fluids orders (Figure 53)

1. Date to start infusion.
2. Time to start infusion (prescribed start time).
3. Volume (mL) of infusion fluid to give.
4. Type of infusion fluid to give and any additives (Intravenous and subcutaneous fluid and additives).
5. Route of infusion.
   - Note that IV is an acceptable abbreviation for intravenous but SC is not acceptable for subcutaneous (should be written in full or as subcut, see Appendix A and B).
6. Rate (as mLs per hour).
7. Prescriber’s signature.
   - Signatures and initials should correspond to the details in the sample signature INITIALS section outlined in Section 1.7.
Administration record

1. Document the actual time the infusion was commenced.
2. Initial the ‘commenced by’ box and instruct the checker (if required by local policy) to initial the ‘checked by’ box.
   - Signatures and initials should correspond to the details in the sample signature initials section outlined in Section 1.7.
3. Document the time of completion and the actual volume administered.
APPENDIX A: Commonly Used Abbreviations

<table>
<thead>
<tr>
<th>Administration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ac</td>
<td>before food</td>
</tr>
<tr>
<td>cc</td>
<td>with food</td>
</tr>
<tr>
<td>pc</td>
<td>after food</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BD</td>
<td>twice daily</td>
</tr>
<tr>
<td>mane</td>
<td>morning</td>
</tr>
<tr>
<td>midi</td>
<td>midday</td>
</tr>
<tr>
<td>nocte</td>
<td>night</td>
</tr>
<tr>
<td>prn</td>
<td>when required (as needed)</td>
</tr>
<tr>
<td>q4h</td>
<td>every four hours</td>
</tr>
<tr>
<td>q6h</td>
<td>every six hours</td>
</tr>
<tr>
<td>q8h</td>
<td>every eight hours</td>
</tr>
<tr>
<td>q12h</td>
<td>every twelve hours</td>
</tr>
<tr>
<td>QID</td>
<td>four times a day</td>
</tr>
<tr>
<td>STAT</td>
<td>immediately</td>
</tr>
<tr>
<td>TDS</td>
<td>three times a day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Route</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>buc</td>
<td>buccal</td>
</tr>
<tr>
<td>IM</td>
<td>intramuscular</td>
</tr>
<tr>
<td>inh</td>
<td>inhalation</td>
</tr>
<tr>
<td>IV</td>
<td>intravenous</td>
</tr>
<tr>
<td>neb</td>
<td>nebuliser</td>
</tr>
<tr>
<td>ng</td>
<td>nasogastric</td>
</tr>
<tr>
<td>po</td>
<td>oral</td>
</tr>
<tr>
<td>pr</td>
<td>per rectum</td>
</tr>
<tr>
<td>pv</td>
<td>per vagina</td>
</tr>
<tr>
<td>nj</td>
<td>nasojejunal</td>
</tr>
<tr>
<td>subcut</td>
<td>subcutaneous</td>
</tr>
<tr>
<td>subling</td>
<td>sublingual</td>
</tr>
<tr>
<td>top</td>
<td>topical</td>
</tr>
<tr>
<td>PEG</td>
<td>percutaneous endoscopic gastrostomy</td>
</tr>
</tbody>
</table>
APPENDIX B: ‘DO NOT USE’ Abbreviation and Symbol List

The National Medication Safety Expert Advisory Group has identified the following list of abbreviations, acronyms, and symbols that should NOT be used when prescribing as they are considered prone to misinterpretation and can lead to an increased risk of serious adverse events.

<table>
<thead>
<tr>
<th>Abbreviated chemical names (eg, MgSO4, HCL, KCL)</th>
<th>Intended Meaning</th>
<th>Misinterpretation</th>
<th>Preferred Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MgSO4 = magnesium sulphate</td>
<td></td>
<td>Mistaken as morphine sulphate.</td>
<td>Write the complete chemical name (eg, magnesium sulphate, hydrochloric acid, potassium chloride).</td>
</tr>
<tr>
<td>HCL = hydrochloric acid</td>
<td></td>
<td>Mistaken as potassium chloride.</td>
<td>Drop down selection lists should contain the full chemical name.</td>
</tr>
<tr>
<td>KCL = potassium chloride</td>
<td></td>
<td>Mistaken as hydrochloric acid.</td>
<td></td>
</tr>
<tr>
<td>Abbreviated medicine names (eg, MTX, HCT, AZT)</td>
<td></td>
<td>Mistaken MTX as methotrexate or mitozantrone.</td>
<td>Write the complete medicine name.</td>
</tr>
<tr>
<td></td>
<td>Mistaken HCT as hydrocortisone or hydrochlorothiazide.</td>
<td></td>
<td>Prescribe generically unless you need to give a patient a specific brand medicine.</td>
</tr>
<tr>
<td></td>
<td>Mistaken AZT as azathioprine, zidovudine or azithromycin.</td>
<td></td>
<td>Sometimes brand names do not adequately identify the medicine being prescribed (eg, Augmentin® or Timentin® may not be identified as containing a penicillin).</td>
</tr>
<tr>
<td>μg or mcg</td>
<td>microgram</td>
<td>Mistaken as mg (milligrams).</td>
<td>The funded brand often changes in New Zealand and prescribing generically enables suitable products to be dispensed or administered, saving delay and sometimes expense to the patient.</td>
</tr>
<tr>
<td>U or IU</td>
<td>U = unit</td>
<td>Mistaken U as zero, four, and cc.</td>
<td>Write unit or international unit.</td>
</tr>
<tr>
<td></td>
<td>IU = international unit</td>
<td>Mistaken IU as IV (intravenous), 10 (ten), or as a trailing 1 (one).</td>
<td></td>
</tr>
<tr>
<td>ng</td>
<td>nanogram</td>
<td>Mistaken as milligram.</td>
<td>Write nanogram.</td>
</tr>
<tr>
<td>OD, od, or O.D.</td>
<td>once a day, daily or every day</td>
<td>Mistaken as QID (four times a day) or BD (twice daily).</td>
<td>Write daily or the intended time of administration (eg, morning, night).</td>
</tr>
<tr>
<td>Q.D, q.d, qd, QD</td>
<td>every day (in USA only)</td>
<td>Mistaken as QID or BD.</td>
<td>Write daily or the intended time of administration (eg, morning, night).</td>
</tr>
<tr>
<td>DO NOT USE</td>
<td>Intended Meaning</td>
<td>Misinterpretation</td>
<td>Preferred Term</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SC</td>
<td>subcutaneous</td>
<td>Mistaken as SL (sublingual).</td>
<td>Write subcut or subcutaneous.</td>
</tr>
<tr>
<td>SL or S/L</td>
<td>sublingual</td>
<td>Mistaken as SC (subcutaneous).</td>
<td>Write subling or sublingual.</td>
</tr>
<tr>
<td>mEq or milliequivalent</td>
<td></td>
<td>Confusion between milliequivalent and millimole.</td>
<td>Use only standard international units.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>State required dose in millimole or mmol.</td>
</tr>
<tr>
<td>Zeros: lack of a leading zero (eg, .5mg)</td>
<td>.5mg = 0.5mg</td>
<td>Mistaken .5mg as 5mg if the decimal point is missed leading to a tenfold error.</td>
<td>Avoid leading zeros by rewriting the dose as smaller units (eg, 0.5mg = 500 micrograms).</td>
</tr>
<tr>
<td>Zeros: adding a trailing zero (eg, 1.0mg, 100.0g)</td>
<td>1.0mg = 1mg 100.0g =100g</td>
<td>Mistaken 1.0mg as 10mg and 100.0g for 1000g if the decimal point is missed leading to a tenfold error.</td>
<td>Never write a zero after a decimal point. Write 1.0mg as 1mg Write 100.0g as 100g</td>
</tr>
<tr>
<td>Roman numerals (eg, ii, iv, x)</td>
<td>numbers 1, 2, 3, 4 etc</td>
<td>Latin is no longer the predominant language of medical literature. Not every health care professional has been trained in its use.</td>
<td>Use words or Hindu-Arabic numbers (ie, 1, 2, 3 etc).</td>
</tr>
</tbody>
</table>