SYRINGE DRIVER MANAGEMENT POLICY AND PROCEDURES

1. POLICY STATEMENT

Warrigal approves the use of syringe drivers to assist with the management of symptoms for residents'/customers' where oral medication is no longer appropriate. Commonly treated symptoms include pain, nausea, vomiting, breathlessness, agitation, delirium and noisy breathing. The use of a syringe driver allows a continuous delivery of medication at a controlled rate which is delivered over a period of 24 hours. This form of medication administration is most commonly used for residents/customers who are in the terminal phase of palliative care.

2. KEY RESPONSIBILITIES

The following responsibilities apply to Warrigal staff.

Board of Directors	1.1 The organisation's governing body is accountable for the delivery of safe and quality care, services and support to residents/customers.
Chief Executive Officer (CEO)	2.1 Accountable to the residents/customers, staff and multidisciplinary team(s) for assuring the safe, effective and high quality delivery of healthcare across Warrigal.
Executive	3.1 Where clinical practice guidelines are developed to assist clinicians and resident/customer decisions about appropriate health care in specific circumstances.
Residential Services Manager (RSM)/ General Manager(GM)/ Deputy Residential Services Manager (DRSM)/ Assistant General Manager (AGM)	4.1 Oversee the safe delivery of complex care by way of a skilled workforce, based on diagnosis, treatment and care through best available evidence.
Registered Nurses (RN)	5.1 Are responsible for the administration/witnessing and monitoring of medications via a syringe driver when deemed competent 5.2 Complete yearly competency.

3. PROCEDURE

IMPORTANT INFORMATION (Reference: Meditrax 2019)

- Medications which are compatible may be mixed together in a syringe driver, together with a suitable diluent.
- Normal saline is the most commonly used diluent in Australia although it may be more likely than water for injection to cause precipitation; water for injections has been linked to pain due to its hypotonicity. Note that cyclizine should not be mixed with normal saline.
- Usually 2-3 drugs and occasionally up to 4 drugs may be mixed together, however certain combinations of drugs may not be compatible (the more drugs mixed together, the greater the risk of precipitation and reduced efficacy), and a pharmacist should be consulted for advice. Further information can also be sought from MIMs https://www.mimsonline.com.au/Search/Search.aspx .
- If compatibility is an issue, the use of 2 syringe driver devices, or regular or PRN subcutaneous injection should be considered.
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- Separate breakthrough injections should be prescribed and administered to treat uncontrolled symptoms during syringe driver use.
- Symptoms that are encountered at the end of life are generally well controlled by the use of the following commonly used medications:
    - morphine sulphate/tartrate (opioid);
    - hydromorphone (opioid);
    - haloperidol (antipsychotic/antiemetic);
    - midazolam (short acting benzodiazepine);
    - metoclopramide (antiemetic);
    - hyoscine hydrobromide (antimuscarinic);
    - clonazepam* (benzodiazepine);
    - hyoscine butylbromide (antimuscarinic); and
    - fentanyl (opioid)

***Note however that clonazepam should be given by syringe driver using non-PVC tubing as it adsorbs PVC tubing resulting in reduced concentration.**

- Medications contraindicated for use in syringe drivers include those which may cause severe localised reactions:
    - prochlorperazine (antiemetic)
    - diazepam (anxiolytic)
    - chlorpromazine (antipsychotic)
- Note that prochlorperazine and chlorpromazine have also been linked to abscess formation when used in subcutaneous infusions.
- Note that dexamethasone may be associated with unpredictable precipitation and if prescribed, is recommended to be administered as a once daily injection rather than mixed into the syringe driver with other drugs.
- Labelling of each prepared syringe is a national requirement. Labelling must include:
    - the resident/customer's name and date of birth
    - each medication including the amount in units and volume of syringe to calculate concentration
    - type and volume of diluent
    - date and time of preparation
    - who prepared the syringe driver
    - who checked the preparation of the syringe driver
- Commonly used sites for syringe driver administration are abdomen, upper or outer arms, thighs, chest wall and scapular area if the consumer is restless. Oedematous areas, bony prominences, skin creases, scars and distended abdomens should be avoided.
  The syringe driver manufacturer's instructions for use should be followed.

3.1 Only competent nursing staff are able to set up and administer medications via a Niki T34 syringe driver.

3.2. Competency is to be attended yearly and is gained by completing the following in order:

- Undergo the REM System online training, by registering online (Will not work within the citrix environment). The completion certificate is to be printed and given to the person assessing competency.
- Complete questions and answers located on competency
- The RN must arrange and complete a practical assessment and competency conducted by a senior member of nursing staff as delegated by the chief nurse (i.e.: clinical nurses' specialist, palliative clinical nurse consultant, or nurse educator).

3.3 Niki T34 syringe drivers are calibrated in ml per hour. Syringe drivers should only be set to run for 24 hours unless authorised by a palliative care specialist.

3.4 The RN and another competent staff member, who acts as the witness for the purposes of this procedure, must check, administer and sign for all medications.

3.5 A competent witness must be a RN. In the event that there is no competent witness available, PRN S/C medication must be utilised until such time a competent witness becomes available. If required, a syringe driver change can be brought forward to an earlier time to ensure that a competent witness is available. In this case, any leftover medication must be discarded following correct policy with a competent witness present.

3.6 The RN and competent witness must also check and counter sign the appropriate management form, recording:

- rate of administration
- syringe driver settings
- compatibility of any medication combinations being administered
- site of the subcutaneous cannula

3.7 The syringe driver record is used to document the above information. Staff should check the operation of the Niki T34 within 1 hour of set up and every fourth hourly observing the following:

- subcutaneous cannula site
- rate of infusion
- that the green LED display is flashing and/ or displaying:

<<<<<<<< Pump delivering

- temperature, pulse, respirations, blood pressure and if required oxygen saturation as directed by the Medical Officer

The syringe driver monitoring chart is used to document the above information.

3.8 If clouding or precipitation is observed, then discontinue infusion and notify the medical officer and complete a medication incident report. The subcutaneous cannula must be re-sited if this occurs.

3.9 If an adverse event occurs, associated with using the syringe driver, notify the medical officer immediately and complete a Medication Incident Report.

3.10 The syringe driver is not waterproof and should be disconnected by the RN when the care recipient is bathing/showering.

3.11 The Niki T34 must receive an annual check and calibration either by the service provider (at time of writing REM systems) or by the local biomedical department. Any repairs are also to be attended by service provider or by the local biomedical department.

3.12 When syringe driver is no longer is use, the device and casing should be wiped over with using a soft cloth and Chlorhexidine in Alcohol 70% or Rediwipe ® (isopropyl) disinfectant wipes and water. Do not soak or immerse any part of the Niki T34 in water or any other solution.

3.13 Always turn pump off and remove the battery from the driver prior to cleaning.

3.14 Only use Size 9 volt alkaline battery (6LR61) in the Niki T34, ***do not use rechargeable or non-alkaline batteries.***

3.15 When setting up a driver always check the battery life that is remaining on the driver, and change if insufficient to last for the next 24 hours.

3.16 The Niki T34 has ***safety features*** that allow the key pad to be locked using a code (do not share with persons other than staff) to prevent any accidental tampering by the care recipient

or carer. Perspex lock boxes are to be used if available and the key kept with the RN in charge at all times.

3.17 When commencing a syringe driver for *pain management* or the care recipient requires a medication dose change, ensure that the care recipient receives a loading dose of the required medication prior to commencing the syringe driver to provide a therapeutic gap for pain relief.

3.18 Once a syringe has been prepared and commenced (via a syringe driver) any changes in medication/s and/ or doses must result in a new syringe and extension line.

3.19 The recommended extension line is the Terumo 75cm (0.75ml). Extension lines are changed:

- With changes in medication and/ or medication dose/s
- when the subcutaneous cannula is changed (Maximum 7 days)
- if any problems with the subcutaneous site

3.20 Document all above actions in the resident/customer's medical file.

3.21 Assess symptom control every 4 hours or as required. The resident/customer should be given breakthrough medication if syringe driver is not effectively managing symptoms. For PRN breakthrough medication/s required to supplement continuous infusions a second intima should be inserted.

3.22 Check the infusion site for irritation, inflammation, infection, needle displacement, leakage, kinks in tubing, battery life and pump on every review. Change infusion site weekly or more frequently if required. Document any skin irritations on a skin injury report.

4. DEFINITIONS

Breakthrough Medications	An analgesia that is required for optimal symptom control between regular acting opioid medications.
Syringe Driver	Are used to administer a constant dose/s of medication over a prescribed period of time. This reduces the need for multiple injections and provides a steady plasma medication concentration. In addition a driver allows for mobility and independence for the care recipient. For the purpose of this policy the device of choice is the Niki T34 syringe driver.
Niki T34	A small portable, lightweight battery operated syringe driver device used to infuse continuous subcutaneous medications.
Precipitation	The formation of a solid in a solution during a chemical reaction
Crystallisation	The formation of solid crystals as a result of the precipitation of a solution
Hypotonicity	When referring to solutions, means the solution has a low osmotic pressure

5. RELATED DOCUMENTS

5.1 Subcutaneous Needle Insertion and Management Procedure
5.2 Medication Chart
5.3 Signing Chart
5.4 Syringe Driver Record
5.5 Syringe Driver Competency (NIKI)
5.6 S8 Register
5.7 Medication Management Policies and Procedures
5.8 Palliative Care Policy and Procedures

5.9 Skin Injury report

6. REGULATORY COMPLIANCE

6.1 Aged Care Act 1997
6.2 Aged Care Quality Standards 2019
6.3 Charter of Aged Care Rights 2019

7. REFERENCES

7.1 Administration of subcutaneous medications in Palliative Care: Intermittent and via a syringe driver Procedure (2017) South Eastern Sydney Local Health District.
7.2 Care search, palliative Care knowledge network (2013), retrieved from http://www.caresearch.com.au
7.3 Palliative Care Australia (2005), Standards for Providing Quality Palliative Care for all Australians, Deakin West ACT, www.pallcare.org.au
7.4 The National Palliative Care Program (Enhanced Version 2006), Guidelines to a Palliative Approach in Residential Aged Care. Australian Government – National Health and Medical Research.
7.5 Therapeutic Guidelines Palliative Care (Version 4) (2010), retrieved from http://www.tg.org.au
7.6 Meditrax 2019 'Specialised Management and High Risk Medicines- Palliative Care' within Medication Management Policies and Procedures