

T34 Syringe Pumps for Palliative & End of Life Care: Use of Infusion Equipment During Covid-19

Purpose

The T34 Syringe Pump is used within all board areas in Scotland to deliver continuous subcutaneous infusions of medicines for palliative and end of life care. This paper presents guidance for use of the following infusion equipment under pandemic conditions, in view of increased demand and current supply chain issues;

- Becton Dickinson (BD) Saf-T-Intima 22g and 24g cannula.
- Infusion line: 100cm Syringe Exten Set Admin Integ anti-syphon valve 100-172SX
- 9v alkaline battery PP3 6LRV

The recommendations below reflect a rapid review of available evidence, a survey of local guidance/policy and current practice in Scottish health boards, and input from pharmacy, clinicians, medical physics and infection control. These are intended to support practice in caring for people with Covid-19 and non-Covid related palliative care needs, but do not replace individual patient assessment. Advice should be obtained from local specialist palliative care and pharmacy services where needed.

Recommendations & Clinical Notes

1. BD Saf-T-Intima vialon cannula 22g blue 383328 /9 and 24g yellow 383318/9. May be supplied as single port / Y



Recommendation: Either the 24 or 22 gauge Saf T Intima cannula can be used. The cannula may be left in situ for up to 7 days provided there is no evidence of site reaction: hardness, inflammation, leakage or discomfort at the subcutaneous insertion site.

- Prophylactic cannula change at 2-3 days is current practice in some areas. There is evidence however that when using non-metal cannula sites can remain intact and viable for longer.
- Site reactions can be caused by a range of factors. This includes the medicines used, chemical irritation, the tonicity and PH of the solution. Where site reactions occur frequently, measures such as increasing dilution e.g. using a 30ml rather than 20ml syringe, or a change to prescription or diluent may help- contact specialist palliative care or pharmacy for advice.

In exceptional circumstances, e.g. site options limited due to cachexia, it may be appropriate to leave the cannula in place longer than 7 days provided the integrity of the site remains. The incidence of site reactions increases with duration in situ and so monitoring is important, involving the patient and / or carer where possible.

2. Infusion line:

100cm Syringe Extension Set Admin Integrated anti-syphon valve 100-172SX, priming volume 0.5mls.

The PA-100v Extension set 100cm extension line with built in anti-syphon valve has been tested with the T34 as an alternative and may be supplied, priming volume 1.14mls.

No clinical studies were sourced that defined the optimum frequency of line change. The Healthcare Improvement Scotland (2019) guidelines advise changing the line when changing the cannula as best practice and “*ideally*” when altering the medication prescription to a different combination.¹

A survey of health board areas was completed to identify current practice, local policy and guidance via the Scottish Palliative Care Pharmacists Group. A response was received from 13/14 areas surveyed. The recommendations below are informed by survey responses and expert consensus.

Recommendation: the infusion line should be changed when;

a) the cannula is changed due to site reaction/ at 7 days- whichever soonest

- However, where frequent cannula changes are required e.g. ≤ 3 days, advice from pharmacy / specialist palliative care should be sought.
- Where assessment indicates that site reactions are due to the medication or solution, then a new cannula is required but the line may be re-used. Disconnect from the old cannula, flush with 5mls of appropriate diluent, re-prime with the new syringe of medicines and attach to the new cannula. Aseptic technique must be used throughout this procedure.

b) different medicines are prescribed which are incompatible for infusion with the current medicines in the line

- Refer to the [Scottish Palliative Care Guidelines Syringe pump medication tables](#) / seek advice from pharmacy or palliative care services.
- In a clinical situation under pandemic circumstances where a new line is not available and the patient requires an infusion for symptom control, the line may be disconnected from the cannula, flushed with 5mls of an appropriate diluent, then re-primed with the syringe of the new medicines and re-attached to the cannula. Aseptic technique must be used throughout this procedure.

Recommendation: the infusion line does not require to be routinely changed when;

a) the dose of the same medicine(s) is changed and the new medicine concentrations remain compatible

- NB: the small volume of fluid contained within the infusion line.
- Where the dose of the medicines in the continuous infusion mixture is increased, PRN 'as required' medicines can be used to support symptom control where needed, including administration at the time the new 24hr syringe is commenced. This may also be required due to the low flow rate of the T34 which causes a delay in the increased dose taking effect.

b) different medicines are prescribed and the previous and current medicines are compatible

- Refer to the [Scottish Palliative Care Guidelines Syringe pump medication tables](#) / seek advice from pharmacy or palliative care services.
- Where compatibility, the line may be disconnected from the cannula, flushed with 5mls of an appropriate diluent and re-primed with the syringe of new medicines. Aseptic technique must be used throughout this procedure.

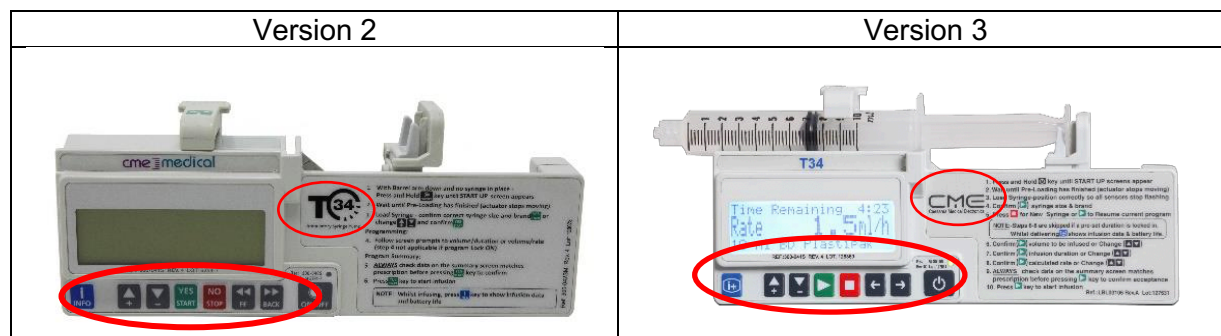
Infusion lines and cannula are for single patient use only.

3. Battery: 9v 6LR6 alkaline

Re-chargeable batteries should not be used.

Single battery life when using the T34 syringe pump Version 2 is approximately 3 days. Battery life for the current Version 3 in clinical use may be <24hrs. This requires risk assessment for use in community settings and availability of spare batteries.

Identifying the v2 and v3 T34 syringe pump



The T34 has a number of functions that can be used for monitoring purposes. Keypad controls provide access to a digital summary of the volume infused and remaining, and the battery power level. Frequently using these functions for routine monitoring can significantly reduce battery life and the user is still required to visually confirm the pump display is correct.

Recommendations for conserving battery life;

a) Within all settings

- Check battery power when setting up or renewing the infusion and document this.
- Ensure the batteries used have a secure connection within the battery housing to avoid the risk of unintended shutdown. Contact medical physics for advice if needed.

b) Within in-patient settings

- Once the infusion is in progress battery power does not have to be routinely checked using the keypad function, as the low battery alarm should alert staff.
- Visual inspection of the contents of the syringe and volume remaining vs volume infused may be used as an alternative to using the keypad function for routine monitoring and when assessing whether the infusion is running to time. To allow this ensure the medicines label does not obscure the syringe markings.

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