

## A practical handbook for health professionals:

*How to safely set up a Surefuser™+ infusion  
device, commence and monitor the infusion in  
a palliative care setting*



## Copyright

This document is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 Australia licence. To view a copy of this licence visit:

<https://creativecommons.org/licenses/by-nc-nd/3.0/au/>

Brisbane South Palliative Care Collaborative, 2021

In essence, you are free to copy, distribute and transmit the work in its current form for non-commercial purposes. You must attribute the work in the manner specified by the authors. You must not alter, transform, or build on this work.

## Acknowledgements

This handbook was coordinated by Metro South Palliative Care Service and developed by Brisbane South Palliative Care Collaborative (BSPCC) as a part of the PallConsult project. It includes adapted resources obtained from Nipro Australia Pty Ltd, Nepean Health (video).

Brisbane South Palliative Care Collaborative acknowledges and thanks all the health professionals who contributed to the development of this handbook.

## Funding statement

PallConsult is funded by Queensland Health.

Suggested reference:

Brisbane South Palliative Care Collaborative. *A practical handbook for health professionals: How to safely set up the Surefuser™+ infusion device, commence and monitor an infusion in a palliative care setting*. Brisbane: Brisbane South Palliative Care Collaborative; 2021.

## Enquiries

All enquiries about this document should be directed to:

Brisbane South Palliative Care Collaborative

E: [pallconsult@health.qld.gov.au](mailto:pallconsult@health.qld.gov.au)

## Disclaimer

This handbook is intended as a guide for health professionals to assist with safely setting-up a Surefuser™+ infusion device and commencing and monitoring the infusion in a palliative care setting.

While Brisbane South Palliative Care Collaborative has exercised due care in ensuring the accuracy of the material contained in the handbook, the handbook is a guide to appropriate practice, and is subject to the clinician's judgement and local organisation policies and procedures.

Brisbane South Palliative Care Collaborative does not accept any liability for any injury, loss, or damage incurred by use of, or reliance upon, the information provided within this handbook.

# Contents

<b>Introduction</b>	<b>5</b>
Components of the learning package	5
Additional resources	6
Assumed knowledge	6
Competency	6
<b>About the Surefuser™+</b>	<b>7</b>
Choosing the correct size device in the palliative care setting	8
<b>Managing the Surefuser™+</b>	<b>8</b>
Securing the flow controller and subcutaneous cannula	9
The light weight carry pouch	9
Strategies for safe use	10
Managing monitoring requirements	10
Monitoring labels	10
<b>Monitoring the infusion over time</b>	<b>11</b>
In the hospital or residential aged care facility setting	12
Community setting	12
Educating the person and their family/carer	13
Medicine orders and documentation	13
Medicine compatibility	14
Disposing of the Surefuser™+	14
<b>Troubleshooting</b>	<b>15</b>
<b>References</b>	<b>16</b>
<b>A step-by-step guide</b>	<b>17</b>
<b>Notes</b>	<b>23</b>



# Introduction

Continuous subcutaneous infusions (CSIs) of medicine(s) are a common and accepted practice in palliative care for assisting with the management of pain and other symptoms when other routes of administration are inappropriate or ineffective. Most CSI devices, including the NIKI T34™ require a registered nurse (RN) to visit daily and refill the syringe in the pump with medicine(s).

In some rural and remote areas, RNs are not available to visit a person's home daily, particularly on the weekend. This can significantly impact some aspects of end-of-life care in the home environment, including pharmacological management of symptoms. Use of the Surefuser™+ can overcome this limitation.

The Surefuser™+ is used as a second line infusion device when:

- A NIKI T34™ syringe pump or other battery-operated CSI pump is not available
- Transferring a person requiring a CSI between services when it may be difficult to ensure that the NIKI T34™ is returned
- Health professionals are not available daily to refill a NIKI T34™ syringe pump or other pump that requires daily refilling
- A disposable device may be advantageous, e.g. in case of infectious diseases.

This practical handbook is part of a learning package that aims to enable health professionals to develop skills and knowledge and ultimately demonstrate competency in safely setting up the Surefuser™+ infusion device (hereafter in this document referred to as the Surefuser™+) and commencing and monitoring the infusion in a palliative care setting.

The package is relevant to all palliative care clinical settings – community, residential aged care and hospital.

## Components of the learning package

1	<b>A practical handbook for health professionals:</b> <i>How to safely set up a Surefuser™+ infusion device, commence and monitor the infusion in a palliative care setting</i>	This handbook contains the essential information you need to know to safely set up a Surefuser™+, commence and monitor the infusion in a palliative care setting.
2	<b>A step-by-step guide:</b> <i>Setting up a Surefuser™+ infusion device, commencing and monitoring the infusion</i>	This illustrated guide explains how to set up the Surefuser™+, commence and monitor the infusion using a step-by-step approach.
3	<b>Short training video:</b> <i>A nurse's guide to using the Surefuser™+ infusion device in the palliative care setting</i>	This video illustrates some of the essential elements for ensuring safe delivery of the Surefuser™+ infusion in a palliative care setting.
4	<b>Competency checklist:</b> <i>How to safely set up a Surefuser™+ infusion device, commence and monitor the infusion in a palliative care setting</i>	This checklist describes the requirements for ongoing demonstration of competency for safe and effective use of the Surefuser™+ to administer infusions in a palliative care setting.

## Additional resources

Additional resources to support the use of the Surefuser™+ are available for:

- Organisations:
  - **Example policy and procedures:** *Using a Surefuser™+ infusion device in the palliative care setting*
- Families and carers:
  - **Information sheet for families:** *Surefuser™+ infusion device and infusions*
  - **Surefuser™+ infusion device and infusions:** *troubleshooting and monitoring guide for families.*

## Assumed knowledge

As part of the health professional's role in caring for a person in a palliative care setting, knowledge is assumed across the following areas:

- The goals of palliative care
- Common palliative symptoms
- How to assess a person's symptoms
- Common medicines used in palliative care.
- Use of CSCIs in palliative care <https://www.caresearch.com.au/caresearch/tabid/3426/Default.aspx>

## Competency

To demonstrate competency in the safe use of the Surefuser™+, a health professional, using the competency checklist, needs to demonstrate competency to their organisation's nominated infusion device assessor (competent health professional).

## Further information

The manufacturers of the Surefuser™+ have more detailed information, if required.

Step-by-step guide for filling and operating a Surefuser™+.<sup>1</sup>

<http://www.niproaustralia.com.au/products/infusion-care#gallery-details-infusion-care-surefuser>

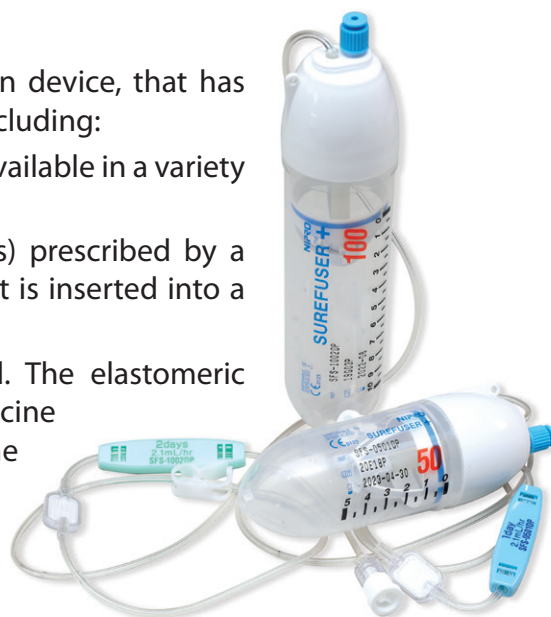
For further or related information, it is the responsibility of the clinician to contact their service manager.



# About the Surefuser™+

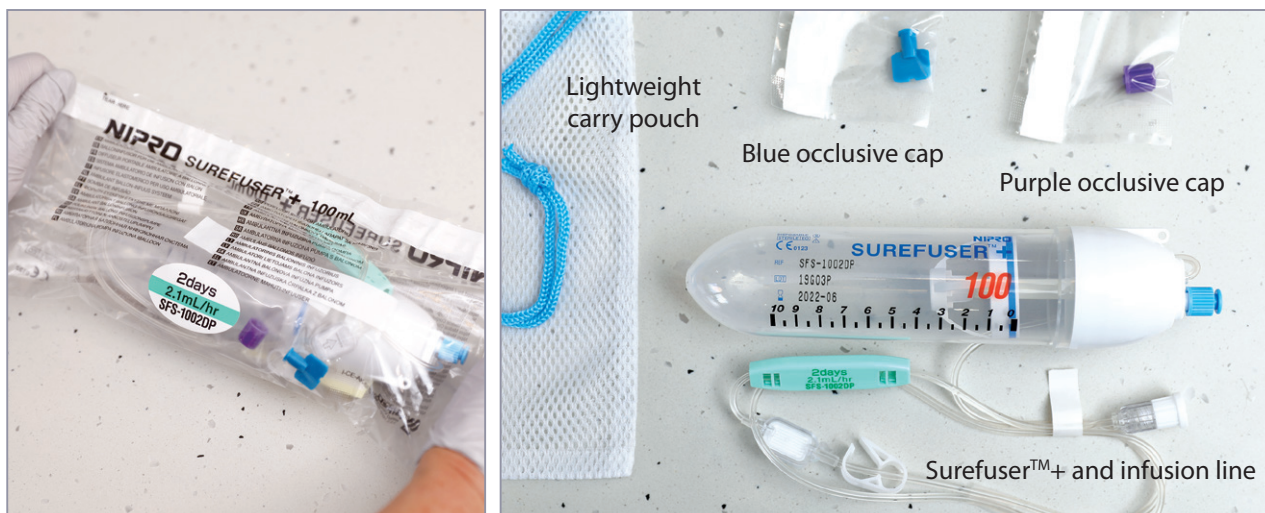
The Surefuser™+ is a type of continuous subcutaneous infusion device, that has some significant differences to other types of infusion devices, including:

- The Surefuser™+ is a single-use elastomeric infusion device available in a variety of flow rates and sizes
- A health professional fills the Surefuser™+ with medicine(s) prescribed by a doctor or nurse practitioner, rather than filling a syringe that is inserted into a device powered by a battery or electricity
- The Surefuser™+ is not battery or electronically powered. The elastomeric 'balloon' inside the infusion device constantly pushes medicine through the tubing as it deflates, and continues until the balloon is empty or device is disconnected
- The Surefuser™+ is often used in the community to deliver intravenous antibiotics or chemotherapy medicine.

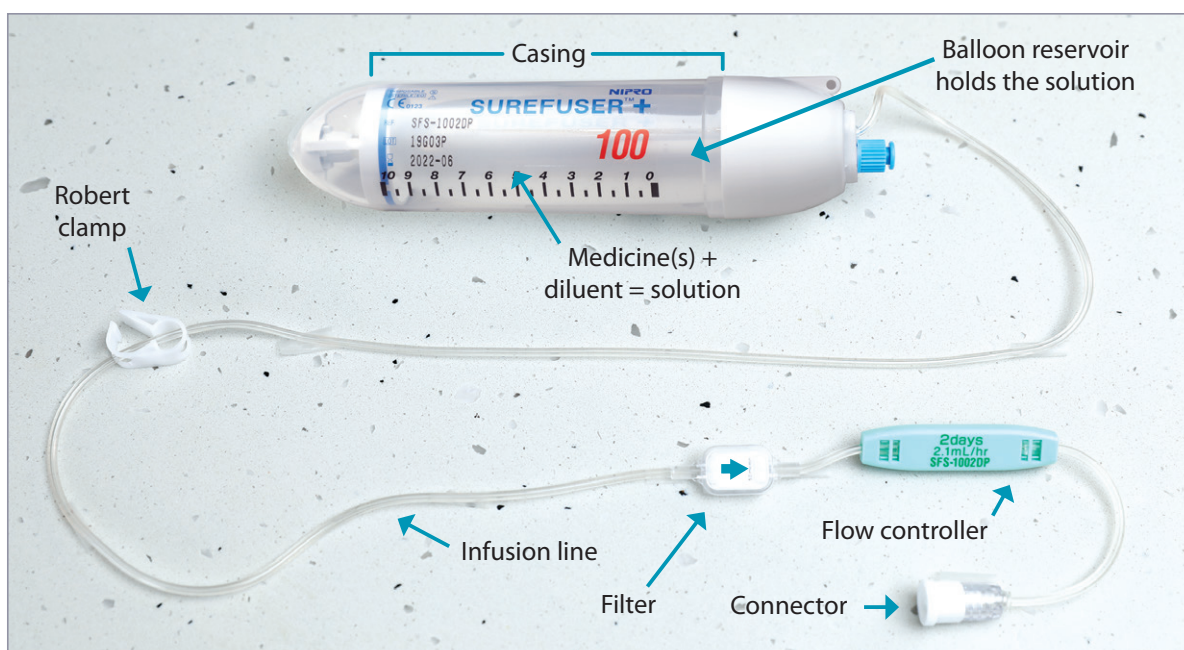


## Inclusions with the Surefuser™+

(Pictured here is the Surefuser™+ 100mL 2-day infusion)



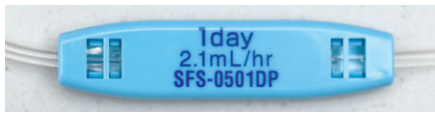

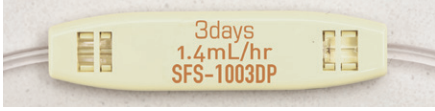
## Parts of the Surefuser™+



## Choosing the correct size of Surefuser™+ in the palliative care setting

Surefusers™+ are available in different sizes.

These resources have been developed based around using the 1-day, 2-day or 3-day-sized Surefusers™+. The flow controllers are colour-coded for easy identification of the size of the device and the infusion flow rate:

Surefuser™+	Total volume of solution	Infusion flow rate and length	Flow controller colour
Surefuser™+ 50mL 1-day *CH2 Order code: #2014300 Box of 10	50mL	2.1mL/hour for 24 hours	
Surefuser™+ 100mL 2-day *CH2 Order code: #2129959 Box of 10	100mL	2.1mL/hour for 48 hours	
Surefuser™+ 100mL 3-day *CH2 Order: #2027709 Box of 10	100mL	1.4mL/hour for 72 hours	

\*Clifford Hallam Healthcare (CH2) Pty Ltd - Australian order codes for Surefuser™+.

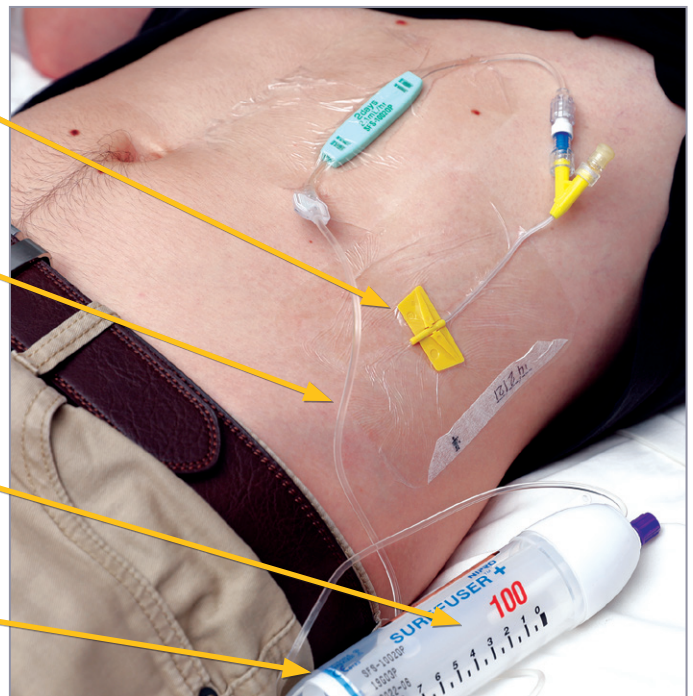
These different sizes of Surefuser™+ ensure:

- an infusion flow rate that allows the subcutaneous cannula insertion site to remain in optimal condition to absorb medicines
- CSCIs can be continued over weekends or at times where daily visits by health professionals are not practicable.

## Managing the Surefuser™+

The Surefuser™+ delivers medicine through a system including:

- A **subcutaneous cannula**, placed in the subcutaneous tissue and held in place by a clear, waterproof dressing
- The subcutaneous cannula is connected to the device via a Luer Lock connector and a sterile length of tubing called an **infusion line**. The Surefuser™+ **infusion line** has a flow controller, filter and Robert clamp attached.
- The infusion line is attached to the device where the **balloon reservoir** contains a solution of medicine(s) and diluent as prescribed by a doctor or nurse practitioner
- The balloon reservoir is held within the device by a protective **casing**. As the balloon deflates, it delivers the solution through the infusion line and into the person.





## Securing the flow controller and subcutaneous cannula

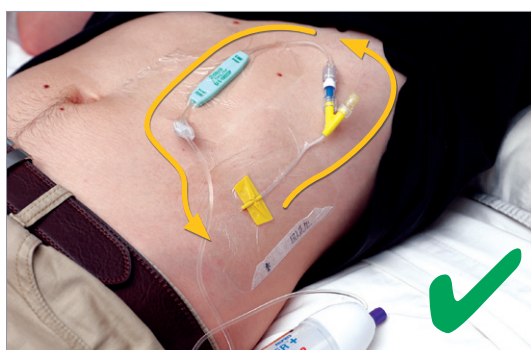
Attach the flow controller to the person's skin with a clear waterproof dressing such as Tegaderm™. This helps regulate the temperature of the solution being infused to be close to skin temperature (32°C), which is optimal to maintain the prescribed infusion flow rate.

It is important to secure both the subcutaneous cannula and the flow controller separately on a person's skin, while minimising any kinking of the tubing.

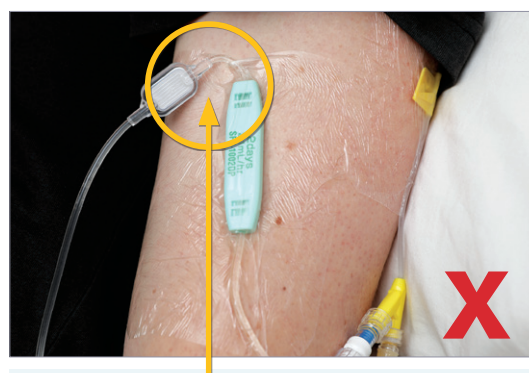
It is recommended that the subcutaneous cannula is inserted such that the Y-arm is positioned at the top of the transparent dressing (as shown in the image at the right).

The infusion tubing and flow controller can then be secured to the person's skin above the subcutaneous insertion site. The infusion tubing is less likely to kink if attached in this way.

See below for examples of correct and incorrect placement of the subcutaneous cannula insertion site and infusion tubing.



A correct subcutaneous cannula insertion site and infusion tube placement, to ensure no kinking in the tube.



An incorrect subcutaneous cannula insertion site and infusion tube placement, where kinking is likely to occur.

## The lightweight carry pouch

One carry pouch is included in each box of Surefusers™+.

The carry pouch is lightweight and breathable. The Surefuser™+ may slip out if it is not tightly secured in the pouch.

The string should be tightly tied. Alternatively a bulldog clip or tape can be placed at the top of the pouch to help secure the Surefuser™+.

The device may also be worn around the person's neck if this is comfortable and if this allows the casing to be level with the subcutaneous cannula insertion site. This may prevent the device falling or rolling off the bed.



**For more information, watch the training video:  
A nurse's guide to using the Surefuser™+ in the palliative care setting.<sup>2</sup>**

## Strategies for safe use

### The Surefuser™+ has no alerts or alarm. It has a silent operation

- Regular monitoring is the only way to detect any issues with the device or the infusion. Carers and family will require education and support to monitor the Surefuser™+ correctly
- Attach the flow controller to the person's skin with a clear waterproof dressing such as Tegaderm™. This helps regulate the temperature of the solution being infused to be close to skin temperature (32°C), which is optimal to maintain the prescribed infusion flow rate.
- Avoid where possible, temperature extremes in the person's care environment by providing an air-conditioner/fan in hot weather or using heating in cold weather.
- Ensure any pre-prepared Surefuser™+, stored in a fridge prior to use, is at room temperature before connecting it to the patient.
- Do not hang the Surefuser™+ casing above or below the person's subcutaneous cannula insertion site as this will affect the infusion flow rate.
- Keep the Surefuser™+ dry. It is water resistant, but not waterproof.
- Do not mix more than three medicines in an infusion device, unless on the advice of a palliative medicine specialist.<sup>5</sup>

## Managing monitoring requirements

**IMPORTANT:** The infusion flow rate is affected by changes in ambient temperature, viscosity of the solution and gravity. The Surefuser™+ can run 10-15% faster when the room temperature is very warm or very cold.<sup>7</sup> This may result in the device completing the infusion up to a few hours earlier or later than expected (particularly with 2-day and 3-day infusions).

The health care team should take steps to ensure the person's symptoms are well managed if the delivery of medicine finishes earlier or later than expected, including:

- Informing the family/carers of this variability and helping them plan what they should do to manage any symptoms that may occur, e.g. by using the *caring@home* package for carers
- Ensuring the person has anticipatory medicines prescribed and available for breakthrough symptoms
- Educating the family/carers and ensuring they are confident to monitor symptoms and give anticipatory medicines if required.

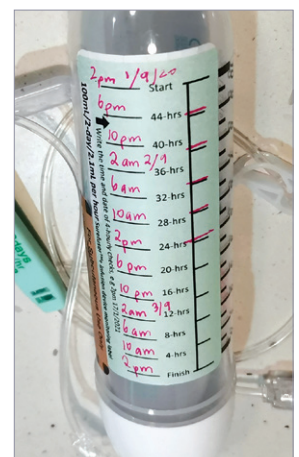
## Monitoring labels

The exact amount of solution infused by the Surefuser™+ can sometimes be difficult to determine, particularly with the longer 100mL 2- and 3-day infusions.

Monitoring labels have been developed as a part of this package to assist families, carers and health professionals to:

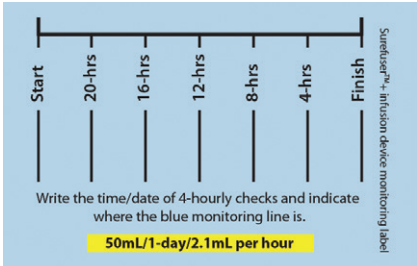
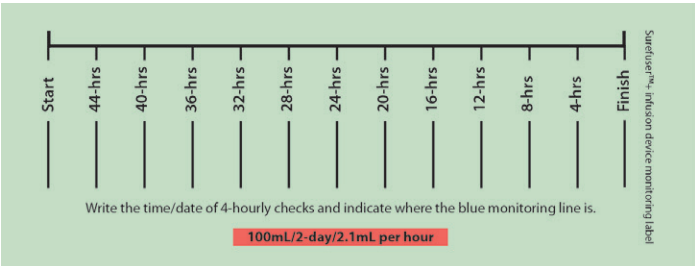
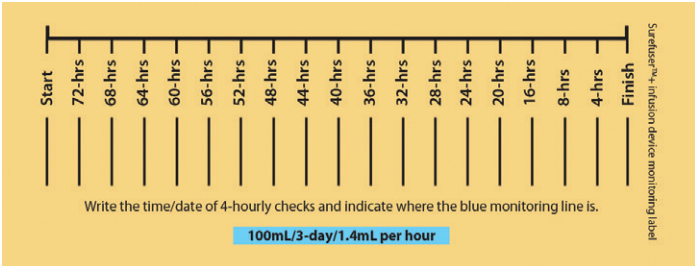
- maintain the recommended regular four-hourly checks of the Surefuser™+ and the subcutaneous cannula insertion site
- ensure the blue monitoring line is progressing at the correct infusion flow rate, and not running too fast or too slow.

The image (right) shows an example of a 100mL 2-day Surefuser™+ monitoring label.



The labels can be attached to the Surefuser™+ casing, ensuring that the graduated markings and the subcutaneous medicine label are not covered. The label colours correspond with the colour of the flow controller on the matching Surefuser™+.

- The health professional should fill in the times and dates that the family and carers should check the Surefuser™+ and the subcutaneous cannula insertion site.
- The family or carers should mark where the blue infusion line is at each four-hourly check during the day to ensure the infusion flow rate is not too fast or too slow.
- Family or carers should refer to the Surefuser™+ *infusion device troubleshooting and monitoring guide for families* or contact their health care team with any concerns.

<p>Surefuser™+ 50mL 1-day monitoring label</p>	
<p>Surefuser™+ 100mL 2-day monitoring label</p>	
<p>Surefuser™+ 100mL 3-day monitoring label</p>	

## Monitoring the infusion over time

Surefuser™+ infusion rates can be more variable than powered CSCI devices. The small variations in the infusion flow rate are unlikely to cause any clinically significant issues, though all people under care should have their symptoms monitored and reviewed regularly to ensure they are comfortable.

- The Surefuser™+ operates silently. Regular monitoring is the only way to detect any issues with the device and the infusion. Therefore, monitoring every four hours during the day is recommended.
- The Surefuser™+ has graduated markings printed on the casing that are numbered in 10mL increments. The location of the blue infusion line on the graduated markings roughly corresponds to 10 x millilitres remaining to be infused.
- The family or carers should note the movement of the blue infusion line every four hours (during the day) on the monitoring label as shown.



The infusion on the left has approximately 50mL remaining to infuse.

## In the hospital or residential aged care facility setting

- A 50mL 1-day infusion is recommended
- The usual four-hourly checks are the same as for other powered CSCI devices.
- Both the Medicine Administration Record (MAR) and the *Statewide Subcutaneous Medicine Infusion Chart* can be used to record the routine checks<sup>3</sup>.
- Graduated markings on the Surefuser™+ casing are numbered in 10mL increments. These are approximations only but can be used on the *Medicine Infusion Chart*. Health professionals should record approximately what volume is left, based on where the blue infusion line is in the *Volume Left (mL)* column.

must be documented every four (4) hours

	Device Check (Y/N)	Volume Left (mL)	Sign	Comments

## In the community setting

- 1-day, 2-day or 3-day Surefusers™+ can be used depending on clinical need
- A level of vigilance and care is required by family or carers in the home environment to ensure the Surefuser™+ is operating correctly
- The role of the health professional is to provide education and support to develop a monitoring plan that the family and carers can achievably manage.

### It is recommended that family and carers check the Surefuser™+ and the subcutaneous cannula infusion site:

- Every four hours during the day
- Before going to bed at night
- First thing in the morning
- Mark the movement of the blue infusion line on the monitoring label (every four hours during the day).

### Family and carers should check that:

- The person they are caring for is comfortable and their symptoms are managed as well as possible
- There are no temperature extremes in the care environment. Provide care in a room with an air-conditioner or fans in hot weather or heating in cold weather
- The Surefuser™+:
  - blue infusion line has moved down the scale towards zero. This indicates that the balloon is deflating as it delivers medicine to the person
  - is intact with no solution leakage
  - Robert clamp on the infusion line is open or bypassed
  - infusion tubing is not tangled, kinked or squashed and is securely connected to the subcutaneous cannula
  - solution remains clear without discolouration, fogging or crystallisation
  - flow controller is firmly attached to the person's skin with a clear waterproof dressing
  - is stored in the lightweight carry pouch and kept on top of bedding/blankets
  - casing is not hanging above or below the person's subcutaneous cannula insertion site
  - does not get wet. It is not waterproof. If the device gets wet, dry it immediately with a clean towel.



## Educating the person and their family/carers

Using the principles of adult education, the person and their family/carers need to know:

- Why an infusion device is used
- How the Surefuser™+ operates
- How to care for the device and the subcutaneous cannula insertion site
- That the Surefuser™+ infusion flow rate may vary depending on changes in ambient temperature, viscosity of the solution and gravity
- How to note the movement of the blue infusion line on the monitoring label (every four hours during the day)
- How to seek assistance from the health care team if they are concerned about the person they are caring for or the operation of the Surefuser™+.



The health care team should provide education and information that is tailored to the individual/s and their circumstances and provide to them the following documentation:

- **Information sheet for families:** Surefuser™+ infusion device and infusions
- Surefuser™+ infusion device and infusions: troubleshooting and monitoring guide for families
- Any relevant information according to your local policy and procedures.

## Medicine orders and documentation for a Surefuser™+

Documentation will vary according to clinical setting and local policy and procedures.

### In the Queensland digital hospital setting:

- Medicine orders for use in a Surefuser™+ should be ordered in the Medication Administration Record (MAR) as per, Metro South Health | Digital Hospital Quick Reference Guide – Medication: Order Subcutaneous Infusion Pump (Surefuser) or by following the local Hospital and Health Service Quick Reference Guide.

### In non-digital hospitals, residential aged care facilities or community settings:

- Medicine orders for a 1-day Surefuser™+ can be ordered on the Queensland Health Palliative Care Subcutaneous Medicine Infusion Device Chart (Queensland Health internal only)<sup>3</sup> or the form your service usually uses for a CSCI
- For 2- and 3-day Surefuser™+ infusions, it is recommended to use a specific, once-only form **Coming Soon**.

Medicine is to be ordered to infuse over a specific period, dependant on the clinical situation and staff availability to prepare and commence a subsequent infusion.



## Medicine Compatibility

### IMPORTANT:

- Medicines used together in a CSCI device should be checked for compatibility. There is limited data on compatibility and stability of CSCI medicine combinations lasting longer than 24 hours. Clinical judgement and specialist palliative care advice may be required.<sup>4</sup>
- Do not mix more than three medicines in an infusion device, unless on the advice of a palliative medicine specialist.<sup>5</sup>
- Check the solution in the balloon reservoir and infusion line regularly for discolouration, fogging or crystallisation. Stop the infusion and discard the contents if this happens and contact prescriber
- Sterile 0.9% sodium chloride is the first choice of diluent in Australia. If in doubt, check with a pharmacist or an evidence-based syringe pump compatibility guide.<sup>6</sup>

It is recommended you choose from the following options:

Surefuser™+	Volume	Rate	Suggested use
Surefuser™+ 1-day	50mL	2.1mL per hour over 24 hours	<ul style="list-style-type: none"><li>• Transfer between services</li><li>• Inpatient settings where no powered CSCI pump (e.g. NIKI T34™ syringe pump) is available</li><li>• In the community where the prescriber would like the family to connect a pre-prepared, 1-day Surefuser™+ each day to minimise variation of rates of delivery.</li></ul>
Surefuser™+ 2-day	100mL	2.1mL per hour over 48 hours	<ul style="list-style-type: none"><li>• In the community, where a nurse visits on alternate days.</li></ul>
Surefuser™+ 3-day	100mL	1.4mL per hour over 72 hours	<ul style="list-style-type: none"><li>• In the community, where a nurse is not available on weekends.</li></ul>

### Disposing of the Surefuser™+

The Surefuser™+ is a disposable, single-use-only product that must be discarded immediately after use.

- **Inpatient facilities** – If no solution is left in the device at the time of the infusion being ceased, it can be discarded in the rubbish bin. If any residual solution is present, the device must be returned to the Pharmacy Department to be discarded.
- **In the community** – Dispose of any remaining solution in the Surefuser™+ by cutting the infusion tubing close to the base of the device and emptying the solution onto some paper towel or newspaper. The device and paper towel can then be disposed of in the person's household rubbish bin. Ensure the work surface is cleaned, and hands are washed afterwards.



## Troubleshooting

Health professionals can use the following table to troubleshoot common issues with the Surefuser™+.

Family/carers should contact their health care team if they have any concerns about the person they are caring for or the operation of the Surefuser™+.

Issue	Check possible cause	Action
<b>NO FLOW</b>	Robert clamp closed	<ul style="list-style-type: none"> <li>• Open clamp</li> <li>• Bypass tubing through the clamp and close it (this ensures the clamp cannot be accidentally closed, cutting off the infusion)</li> </ul>
	Infusion line kinked	<ul style="list-style-type: none"> <li>• Unkink/straighten infusion line</li> </ul>
	Air bubbles in filter	<ul style="list-style-type: none"> <li>• Tap the filter and flow controller with your finger to remove air bubbles</li> </ul>
	Subcutaneous cannula insertion site is non-operational	<ul style="list-style-type: none"> <li>• Flush cannula</li> <li>• Re-site if blocked or use secondary subcutaneous cannula site</li> </ul>
	Discoloured/foggy/crystallised medicine in Surefuser™+ balloon reservoir or infusion line	<ul style="list-style-type: none"> <li>• Discontinue use of the device and discard it</li> <li>• Review medicines with prescriber</li> </ul>
<b>SLOW FLOW</b>	Surefuser™+ casing is positioned lower than the subcutaneous cannula insertion site	<ul style="list-style-type: none"> <li>• Reposition the Surefuser™+ casing to roughly the same level as the person's subcutaneous cannula insertion site</li> </ul>
	Ambient temperature is cold	<ul style="list-style-type: none"> <li>• Consider warming the room</li> <li>• Place a blanket on the person</li> <li>• Consider positioning the flow controller to a warmer part of the body, e.g. abdomen</li> </ul>
	Person's skin is cool to the touch or they have peripherally shut down	<ul style="list-style-type: none"> <li>• Place a blanket on the person</li> <li>• Ensure the flow regulator is in direct contact with the person's skin</li> <li>• Consider positioning the flow controller to a warmer part of the body, e.g. abdomen</li> </ul>
	Discoloured/foggy/crystallised medicine in Surefuser™+ balloon reservoir or infusion line	<ul style="list-style-type: none"> <li>• Discontinue use of the device and discard it</li> <li>• Review medicines with the prescriber</li> </ul>
<b>FAST FLOW</b>	Surefuser™+ casing is positioned higher than the subcutaneous cannula insertion site	<ul style="list-style-type: none"> <li>• Reposition Surefuser™+ casing to roughly the same level as the subcutaneous cannula insertion site</li> </ul>
	Person's skin is hot to touch or they have a fever	<ul style="list-style-type: none"> <li>• Remove blankets or clothing</li> <li>• Use a damp sponge on the person</li> <li>• Move the flow controller to a cooler part of the body, e.g. arm</li> </ul>
	Ambient temperature is hot	<ul style="list-style-type: none"> <li>• Cool the room with an air conditioner or fan</li> <li>• Ensure Surefuser™+ remains on top of the bedding</li> </ul>

## References

1. Nipro Australia Pty Ltd. *Step-by-step guide for filling and operating a Surefuser™+*. Available from: [http://www.niproaustralia.com.au/medicenter\\_gallery/infusion-care-surefuser#more-information](http://www.niproaustralia.com.au/medicenter_gallery/infusion-care-surefuser#more-information) (Accessed on 10 June, 2021)
2. Nepean Blue Mountains Local Health District. *Surefuser – A nurse’s guide to using the Surefuser™ + infusion device in the palliative care setting*. 2020. Available from: <https://vimeo.com/403504780> (Accessed on 10 June 2021)
3. Queensland Health. *Queensland Health Palliative Care Subcutaneous Medicine Infusion Device Chart*. 2020. (Queensland Health internal document only)
4. Safer Care Victoria. *Syringe driver compatibility guidance document*. February 2021. Available from: [https://www.bettersafecare.vic.gov.au/sites/default/files/2021-02/GUIDANCE\\_Syringe%20driver%20compatibility%20FINAL\\_0.pdf](https://www.bettersafecare.vic.gov.au/sites/default/files/2021-02/GUIDANCE_Syringe%20driver%20compatibility%20FINAL_0.pdf) (Accessed 10 June 2021)
5. Dickman, A, Schneider, J. *The syringe driver: continuous subcutaneous infusions in palliative care*. 4th Edition. Oxford: Oxford University Press; 2016
6. Flowers C, McLeod F. *Diluent choice for subcutaneous infusion: a survey of the literature and Australian practice*. *International Journal of Palliative Nursing* 2005;11(2):54-60.
7. Maes, H. *Surefuser™+ Conditions affecting flow rate*. Nipro Medical Europe White Paper, July 2020.

## A step-by-step guide – Setting up the Surefuser™+ infusion device, commencing and monitoring the infusion

This guide assumes a subcutaneous cannula has already been inserted into the person.

### Gather the equipment required

- Surefuser™+ infusion device
- Medicine(s) as per medicine order
- 50mLs or 100mLs sodium chloride 0.9% (depending on length of infusion)
- Alcohol swabs
- 50mL Luer Lock syringe(s)
- 3mL Luer Lock syringe(s) for drawing up medicine(s)
- Drawing-up needle(s)
- Clear waterproof dressing
- Subcutaneous medicine label
- Infusion monitoring label (not shown in the image)
- Lightweight carry pouch
- Non-sterile kidney dish
- Sharps container



### Complete the subcutaneous medicine label for the Surefuser™+

**Complete the following required details on the subcutaneous medicine label and set it aside:**

- Person's name
- ID number
- Date of birth
- Medicine(s) added
- Units + mLs of medicine(s) added
- Diluent added
- Date prepared
- Time prepared
- Initials of the health professional who prepared the medicine(s)
- Initials of the health professional who checked the medicine(s)



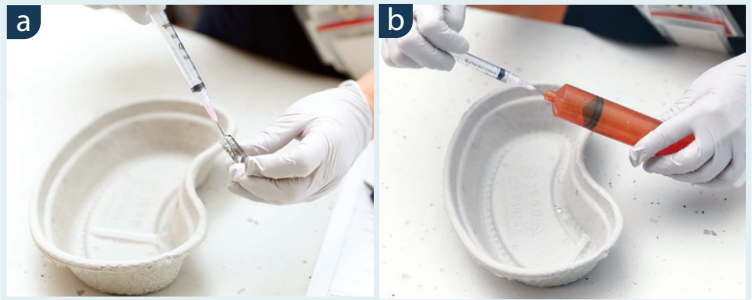
### Fill the Surefuser™+ (This guide shows the process for filling a 100mL 2-day Surefuser™+)

1. Wash your hands and don Personal Protective Equipment (PPE) as per local policy and procedures

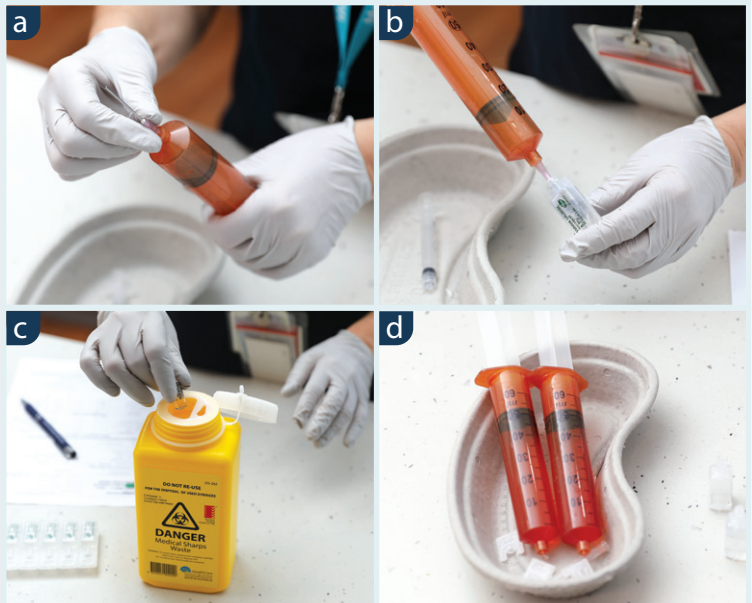




- 2. a.** Attach a drawing-up needle to a 3mL Luer Lock syringe, open the medicine(s) and draw up the dose that has been ordered
- b.** Pull back the syringe plunger slightly on a 50mL syringe and add the drawn-up medicines from the 3mL syringe into it  
– Discard the 3mL syringe and drawing up needle



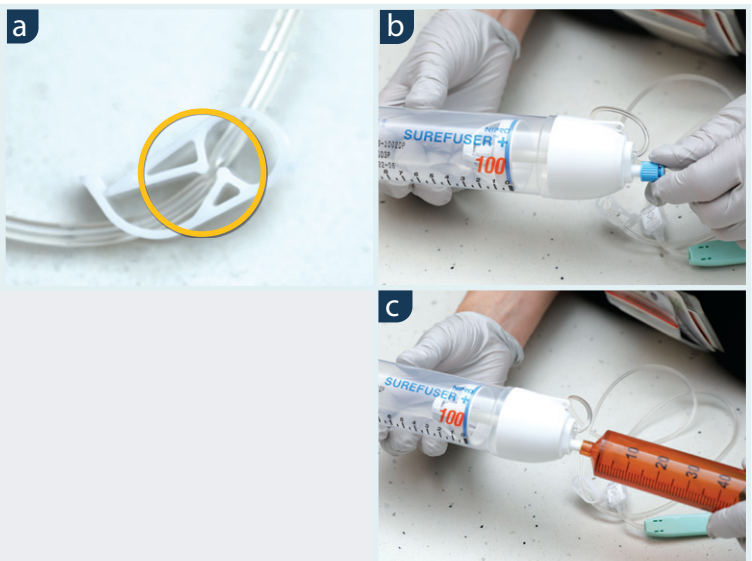
- 3. a.** Attach a drawing-up needle to the 50mL syringe, open the diluent and draw up volume required to fill the syringe to 50mL
- b.** Open a second 50mL syringe, attach a drawing-up needle and draw up 50mL of diluent. Filling the Surefuser™+ with both syringes makes a total of 100mL of solution  
*\*If using a 50mL 1-day Surefuser™+, you will only need to fill one 50mL Luer Lock syringe with solution*
- c.** Remove the drawing up needle(s) and discard in the sharps container
- d.** Place the filled syringe(s) in the kidney dish



- 4. a.** Unwrap the Surefuser™+ from its packaging
- b.** The Surefuser™+ package includes:
- The Surefuser™+ and infusion tubing
  - A purple occlusive cap
  - A blue occlusive cap
  - A lightweight carry pouch

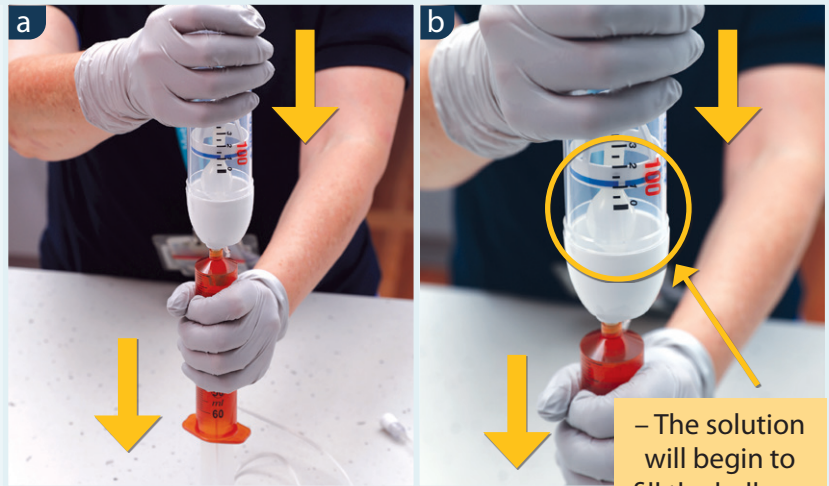


- 5. a.** Close the Robert clamp on the infusion line (it will snap closed)  
• Make sure the tubing is caught between the two pieces of the clamp as shown
- b.** Unscrew and discard the blue filling port cap
- c.** Screw the Luer Lock syringe into the filling port until it is firmly attached





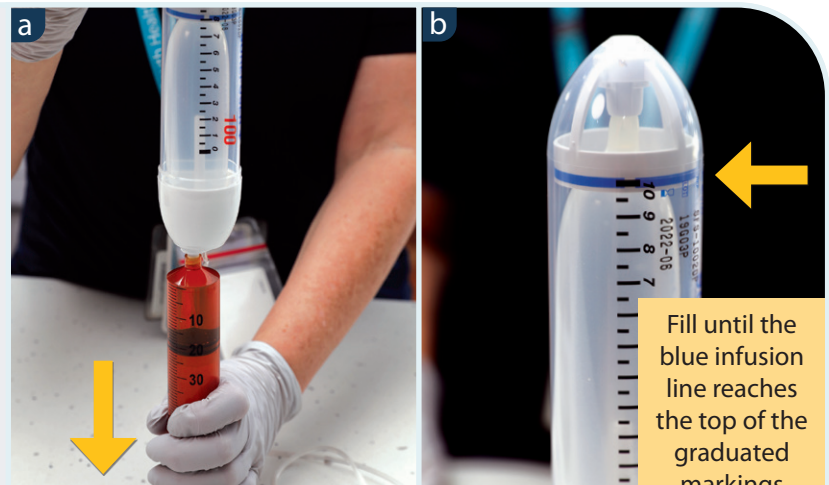
- 6. a.** Support the Surefuser™+ with one hand, while placing the other hand around the syringe barrel
- b.** Place the syringe plunger against a non-slip work surface and apply firm downward pressure to the syringe



– The solution will begin to fill the balloon reservoir

- 7. a.** Keep applying firm downward pressure to the syringe until it is empty, then disconnect it
- b.** Screw on the second filled syringe and repeat the process with firm downward pressure until it is empty, and the balloon reservoir is filled. The blue infusion line should sit at the top of the graduated markings

*\*If filling a 50mL 1-day Surefuser™+, you will only require one filled 50mL syringe*



Fill until the blue infusion line reaches the top of the graduated markings

- 8. a.** Check the port section for leaks and make sure that there is no damage in the balloon reservoir
- b.** Unscrew the syringe from the filling port
- c.** Open the purple occlusive cap packet and screw the cap onto the filling port
- d.** Attach the subcutaneous medicine label, taking care not to cover the graduated markings on the device
- e.** Attach the infusion monitoring label, taking care not to cover the graduated markings on the device
- f.** Discard the syringes in the rubbish bin (not pictured)

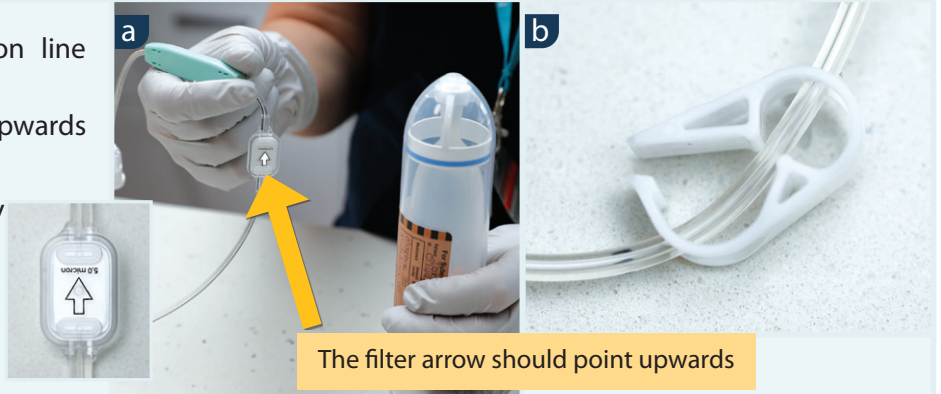


## Prime the Surefuser™+

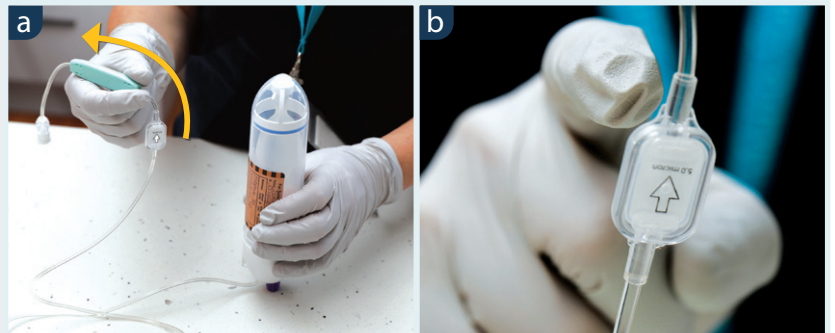
1. Remove the white cap on the end of the infusion line and discard it
  - This will allow the solution to flow through the line and prime it, once the Robert clamp is released



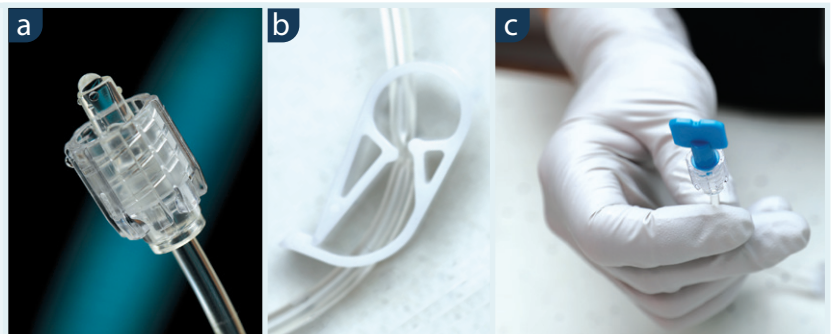
2. **a.** Hold the Surefuser™+ infusion line filter in an upright position
  - The filter arrow should point upwards**b.** Open the Robert clamp
  - The solution will automatically flow slowly through the line



3. **a.** If the solution flows from the filter to the flow controller and there are no air bubbles in front of the filter, the filter can be released and placed on the work surface
  - If the solution does not flow, tap the filter firmly with your finger to expel any air



4. **a.** Priming is complete when all air bubbles have been bled from the infusion line and a drop of fluid is seen at the infusion line connector
  - Close the Robert clamp, making sure that the infusion line is in the middle of the clamp
  - Open the blue occlusive cap packet and screw the cap onto the end of the infusion line



**The Surefuser™+ is now ready to be connected to the person.**

**NOTE: The Surefuser™+ should be connected to the person as soon as possible and the infusion commenced.**



## Attach the Surefuser™+ to the person's subcutaneous cannula

1. Wash your hands again and don PPE as per local policy and procedures.

2. **a.** Swab the end of the person's subcutaneous cannula Y-arm with the alcohol swab  
**b.** Remove the blue occlusive cap from the end of the infusion line connector and discard it  
**c.** Screw the infusion line connector onto the Y-arm of the subcutaneous cannula



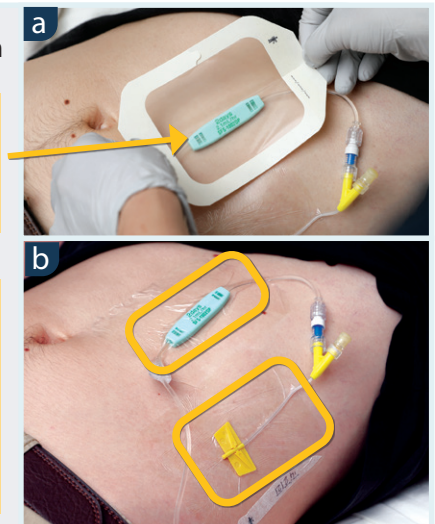
3. Attach the flow controller (writing side visible) securely to the person's skin with a clear waterproof dressing

### NOTE:

- a.** The flow controller must be attached with the writing side visible. It is most accurate when firmly attached to the person's skin. The warmth of the person's skin assists with a more accurate infusion flow rate  
**b.** It is important to make sure that this new dressing does not overlap with any existing dressings, for example, the dressing securing the subcutaneous cannula

Ensure the flow controller is attached with the writing side visible

The clear dressings on the subcutaneous cannula insertion site and the Surefuser™+ flow controller **should not overlap**, as shown.



## Commence the infusion

1. **a.** Open the Robert clamp to start the infusion

- The solution will now begin to be delivered to the person

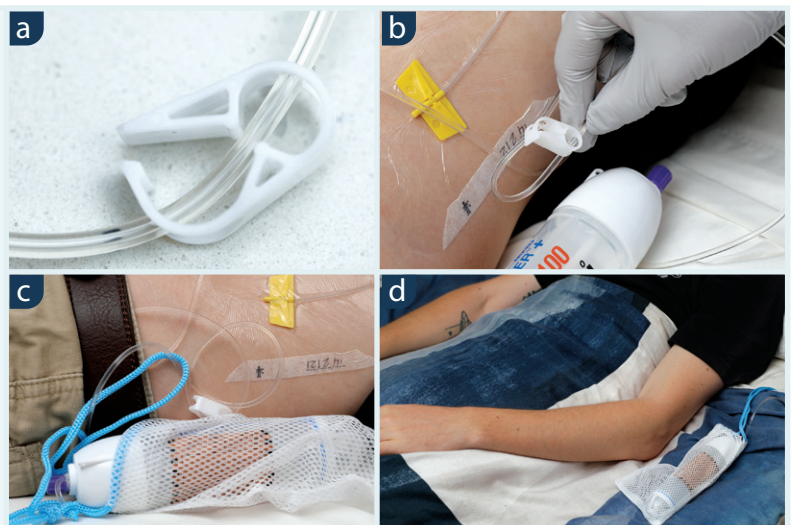
**b.** Bypass the Robert clamp by pulling the tubing from the middle of the clamp and closing the clamp

- This ensures that the Robert clamp cannot be accidentally closed, stopping the flow of medicine (e.g if the person lays on it)

**c.** Place the Surefuser™+ in the lightweight carry pouch provided

- Secure the top of the pouch by tying the string tightly or with a bulldog clip or tape, to ensure the Surefuser™+ doesn't fall out

**d.** Store the Surefuser™+ as advised, with the casing at the same level as the person's subcutaneous cannula insertion site



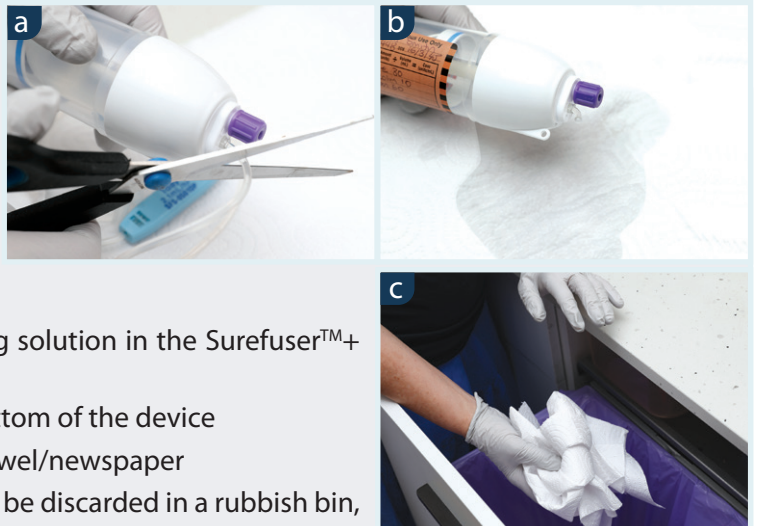
## Dispose of the Surefuser™+

1. This is a disposable, single-use only product that must be discarded immediately after use:

**a. In hospital:** If no solution is left in the Surefuser™+ at the time of the infusion being stopped, then it can be discarded in the rubbish bin. If any solution is present, the device must be returned to the Pharmacy Department to be discarded.

**b. In the community:** Dispose of any remaining solution in the Surefuser™+ by:

1. cutting the infusion tubing close to the bottom of the device
2. emptying the solution onto some paper towel/newspaper
3. The Surefuser™+ and paper towel can then be discarded in a rubbish bin, the work surface cleaned, and hands washed.



## Precautions when using the Surefuser™+

### IMPORTANT:

- The infusion flow rate is affected by changes in ambient temperature. The Surefuser™+ can deliver medicine faster when the room temperature is hot and slower if room temperature is cool.
  - Ensure the Surefuser™+ casing is stored at the same level as the person's subcutaneous cannula insertion site. It should not hang above or below the insertion site as this will affect the infusion flow rate.
- 
- Never fill the balloon reservoir beyond the specified amount as the balloon reservoir could rupture
  - Do not apply extra pressure to the port when filling as this may cause the port to break and leak
  - Do not pull excessively on the infusion line as this may cause leakage and the line may detach from the device
  - Before closing the Robert clamp, verify that the infusion line is in the centre of the clamp. If the Robert clamp does not clip the infusion line properly, the medicine flow will not be stopped
  - During usage, check the condition of the Surefuser™+ and infusion line regularly for leakage or damage
  - The Surefuser™+ is not waterproof. Do not submerge or wet the device
  - If required, breakthrough subcutaneous medicines (PRNs) should **NOT** be administered through the subcutaneous cannula connected to the Surefuser™+. It is recommended that a second subcutaneous cannula be inserted into the person for administration of breakthrough subcutaneous medicines. This also provides a back-up site if the Surefuser™+ subcutaneous cannula is accidentally removed or blocked.

# Notes

A series of horizontal dotted lines for writing notes.



