

10 safety recommendations from pump to patient

10 key recommendations for advancing patient safety when using syringe pump systems for microinfusion intravenous (I.V.) drug therapy.

Weiss M, van der Eijk A, Lönnqvist PA, Lucchini A, Timmerman A. 10 clinical tips for advancing patient safety when using syringe pump systems for microinfusion intravenous drug therapy. *Eur J Anaesthesiol.* 2023;40:387-390.

This infographic was developed in collaboration with the authors of the above publication.

Access the full paper [here](#) or scan the QR code.

- 1** Create and maintain awareness of the potential risks to the patient receiving syringe infusion pump I.V. drug therapy with continuous training and education



- 2** Establish and maintain proper protocols

Key protocols for advancing patient safety when using syringe pump systems

1. Management of syringe pump start-up
2. Syringe infusion pump handling during patient transfer
3. Syringe changeover
4. Prevention and management of infusion line occlusion
5. Composing lower-risk multi-infusion set-ups

- 3** Manufacturers should be able to demonstrate infusion pump-syringe compatibility

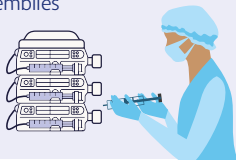
Is this specific infusion syringe validated by the syringe pump manufacturer?



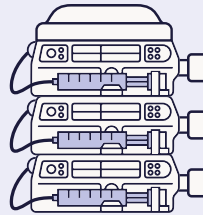
- 4** Use the smallest appropriately sized Luer lock syringe where possible, especially whenever highly concentrated I.V. drugs are administered at flow rates of <math>< 1\text{ mL/h}</math>



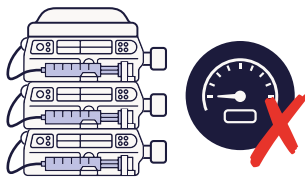
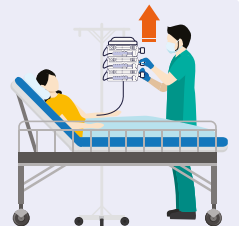
- 5** Use syringe infusion pump set-ups with low compliance and well-fitting syringe-syringe pump assemblies



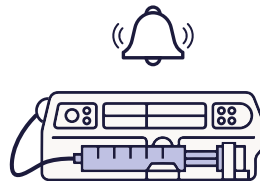
- 6** When using multi infusion syringe pump set-ups, minimise the number of infusion pumps assemblies per catheter lumen



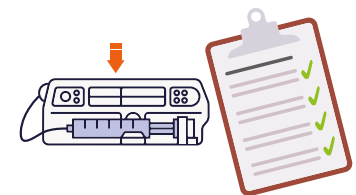
- 7** Ensure that the vertical positioning of syringe infusion pumps is not changed relative to the patient



- 8** Avoid very low flow rates (<math>< 0.5\text{ mL/h}</math>) whenever highly concentrated I.V. drugs at low flow rates are administered



- 9** Adjust and maintain the pump's occlusion alarm pressure to the most reasonably possible sensitivity to make it easier to identify any blockage of the infusion line, while preventing false alarms



- 10** To speed up syringe pump start-up, administer a free, purging bolus before connection of the tubing to the I.V. catheter line or use FASTSTART functionality on IV pump if available

Things to be aware of

- Compliance, resistance and well-fitting syringe-syringe pump assemblies
- The effect of the use of back check and antisiphon valves on the start-up delays (use valves with low opening pressures!)
- The potential for forward and backward fluid displacement when using needle free connectors

In today's challenging healthcare environment with pressures on resources and limited specialist experience, vigilance, strict protocols and optimally designed, certified and assembled equipment are needed for advancing patient safety using syringe infusion pump systems for I.V. drug therapy; all of which are supported by adherence to this set of clear, practical recommendations



Find out more

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