Optimizing delivery of syringe infusions

Alaris™ Syringe Module

To decrease potential start-up delays, delivery inaccuracies and delayed generation of occlusion alarms each time a new syringe is loaded:

• Use the smallest syringe size possible (e.g., if infusing 2.3 mL of fluid, use a 3 mL syringe). Larger syringes have a larger stopper, which causes increased friction and increased compliance.

• Ensure the device is as close to the level of the patient’s heart as possible. The patient’s heart level should be in line with CHANNEL SELECT key. If using multiple Alaris™ syringe modules and it is not feasible to have all pumps level with the patient’s heart, place the high-risk or life-sustaining medications as close to the level of the patient’s heart as possible. When infusing multiple high-risk or life-sustaining medications, consider placing the ones infusing at the lowest rates as close to the level of the patient’s heart as possible (A).

• Use the PRIME SET WITH SYRINGE channel option on the Alaris™ syringe module to speed up the engagement of the device’s mechanical components and decrease the syringe’s internal friction (B).

• If utilizing a pre-run infusion practice (to allow for medication equilibration prior to connection to the patient), ensure the distal end of the administration set is level with or higher than the device.

• Avoid use of manifolds with ports containing high-pressure valves. These valves require at least 50–200 mmHg pressure to open and create flow. These high-pressure valves may cause a significant delay in therapy followed by a sudden bolus once the valve is opened.

• Use compatible components—which have the smallest internal volume, or deadspace—to minimize residual volumes between the syringe and the patient. For example: smallbore or microbore tubing is recommended when infusing at low flow rates. Tubing length should be minimized. Internal volume (deadspace) of in-line filters should be minimized. The number of connection sites (such as stopcocks and y-sites) should be limited. High-risk or life-sustaining solutions should be connected as close to the vascular access site as possible.

These recommendations are especially important when infusing high-risk or life-sustaining medications at low infusion rates (e.g., <5 mL/h and especially at flow rates <0.5 mL/h).

For product support, contact Customer Advocacy at 888.812.3266 or customerfeedback@bd.com
For technical support, contact Instrument Technical Support at 866.488.1408.
For product orders, contact Customer Order Management at 800.482.4822.
⚠️ See reverse side for applicable warnings and cautions.
🔍 For complete instructions, refer to the BD Alaris™ System User Manual at bd.com
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⚠️ Warnings and cautions

**WARNING:** Ensure syringe sizes and models are compatible with the syringe module. Use of incompatible syringes can cause improper pump operation resulting in inaccurate fluid delivery, insufficient occlusion (blockage) sensing and other potential problems.

**WARNING:** Use the smallest compatible syringe size necessary to deliver the fluid or medication; this is especially important when infusing high-risk or life-sustaining medications at low infusion rates (e.g., <5 mL/h, and especially flow rates <0.5 mL/h). Using a larger syringe when infusing at low rates can lead to inadequate syringe pump performance, including delivery inaccuracies, delay of therapy and delayed generation of occlusion alarms. This is due to the increased friction and compliances of the syringe stopper with larger syringes.

**WARNING:** Raising a syringe pump may result in a bolus of medication or fluid due to changes in the hydrostatic pressure. Lowering a syringe pump while infusing may result in a delay in the infusion (or possible underinfusion) due to the changes in hydrostatic pressure.

**WARNING:** Electronically prime the syringe pump system before starting an infusion or after replacing a near-empty syringe with a replacement syringe.

**WARNING:** Failure to use the PRIME SET WITH SYRINGE feature after every syringe change can significantly delay the infusion delivery start-up time and lead to delivery inaccuracies.

**CAUTION:** Ensure that the device is as close to the level of the patient's heart as possible. Patient's heart level should be in line with the CHANNEL SELECT key.

**CAUTION:** Minimize the height difference between the pump and the patient and avoid changes in the height of the syringe module (for example, during transport of critically ill patients) to prevent unintended fluctuations in the flow rate.

**CAUTION:** If using multiple syringe pumps and it is not clinically feasible to have all pumps level with the patient’s heart, place the high-risk or life-sustaining medications as close to the heart level as possible. When infusing multiple high-risk or life-sustaining medications, consider placing the ones infusing at the lowest rates as close to the level of the patient’s heart as possible.

**CAUTION:** Use the PRIME SET WITH SYRINGE channel option on the Alaris™ syringe module to speed up the engagement of the module’s mechanical components and decrease the syringe’s internal friction.

**CAUTION:** If utilizing a pre-run infusion practice (to allow for medication equilibration prior to connection to the patient), ensure that the distal end of the administration set is level with or higher than the device.

**CAUTION:** Avoid use of manifolds with ports containing high-pressure valves. High-pressure valves require additional pressure (e.g., 50-200 mmHg) to open and allow fluid flow. These high-pressure valves may cause a significant delay in therapy followed by a sudden bolus once the valve is opened, particularly at low infusion rates (e.g., <5 mL/h and especially flow rates <0.5 mL/h).

**CAUTION:** Use compatible components that have the smallest internal volume or “deadspace” to minimize residual volumes between the syringe and the patient when administering medications or fluids at low infusion rates (e.g., <5 mL/h, and especially flow rates <0.5 mL/h). This reduces the amount of time it takes for fluid to reach the patient, maintains delivery accuracy and reduces occlusion detection times.

These recommendations are especially important when infusing high-risk or life-sustaining medications at low infusion rates (for example, <5 mL/h and especially at flow rates <0.5 mL/h).