

March 20, 2020

Dear Valued Customer:

Factors to consider when using additional tubing with B. Braun Space™ and Outlook® large volume infusion pumps to increase the distance between the pump and the patient

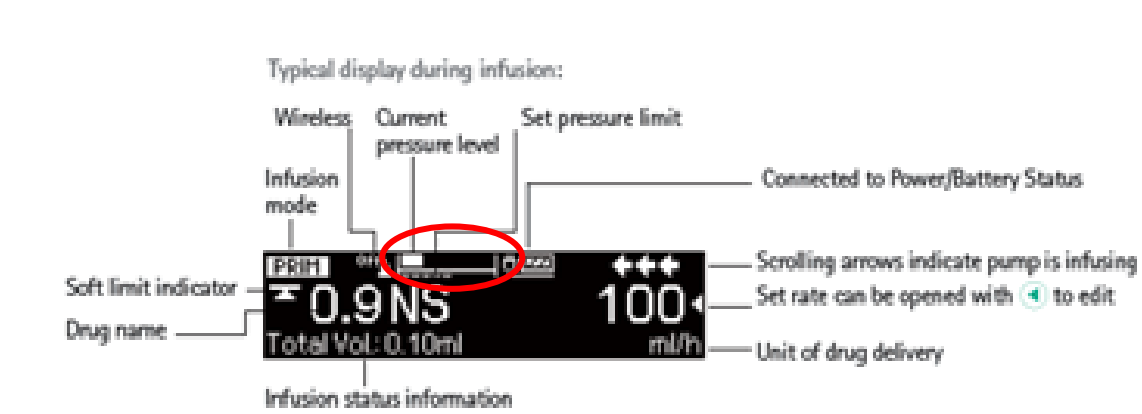
In light of the COVID-19 outbreak, B. Braun Medical Inc. has received inquiries regarding the impact of using additional lengths of tubing for use with our large volume infusion pumps in order to keep the pumps outside patient rooms. Our longer IV tubing sets can be used with any of our pumps, yet we want you to keep in mind these points when using long IV tubing. Please follow institutional guidelines at all times and monitor the patient carefully.

THINGS TO KEEP IN MIND

1. Occlusion alarms:

There is the possibility of delay in time to downstream occlusion alarms. The longer the tubing and the lower the flow rate, the greater the time it will take for an occlusion alarm to occur. Consider lowering the downstream pressure alarm threshold with the goal of keeping the current pressure level indicator (the white bar labeled as "current pressure level" in diagram below) in the middle of the brackets. This will help to mitigate the effect of the extra tubing on time to occlusion alarm.

Note: Pressure is measured at the pump, downstream pressure is impacted by multiple factors, including flow rate; fluid viscosity; length and diameter of tubing; filters; and y ports.



2. Flow rate accuracy:

The addition of 8 feet of standard or small bore (not microbore) extension tubing with a flowrate of 100mL/hr falls within pump accuracy specifications. Flow rate accuracy is impacted by resistance to flow and viscosity of infusates which increase the pressure the pump must generate to maintain a given flow rate. Additional tubing length and smaller tubing diameter, as well as increasing the flow rate, are factors

that increase pressure in the system. As pressure is increasing prior to reaching the occlusion alarm limit the flow accuracy may vary within the stated $\pm 5\%$ accuracy of the device.

3. During administration:

- a. When priming the IV lines and administering medications, particularly those that require infusion of the entire bag, be aware of the total tubing volume from bag to patient. Take measures to ensure the entire bag volume reaches the patient, such as flushing the line.
- b. When hanging a secondary (infusion), the additional tubing volume of the Primary (line), in combination with small volume secondary infusions could result in much or all of the secondary medication remaining in the tubing when the pump switches back to Primary. Consider methods to ensure the entire medication dose is delivered in the time required. Monitor carefully.
- c. The addition of one or several extension sets may lead to misconnections, all attached tubing should be clearly labeled.
- d. When attaching multiple IV lines to infuse into one IV site, attach as close to the IV site as possible to minimize shared infusion space: the space from the connection of the lines to the patient. Shared volume can result in temporary changes to the flow rate of all infusions distal to the point of connection when one is changed, leading to inadvertent bolus or delayed response as titrations are made.
- e. Longer tubing may lead to tubing lying on the floor, increasing the risk of contamination and/or a tripping hazard and inadvertent disconnection.
- f. Ensure tubing path is clear from pump to patient to avoid any potential occlusions.

Reminder: Please refer to IFU for pump cleaning and disinfection instructions.