



Shared health  
**Soins communs**  
Manitoba

# Standardized Alarm Resolution

## B. Braun Large Volume Infusion Pumps

Information presented Nov 23-Dec12, 2023

# Targets for Manitoba

## Air in Line (AIL) & Downstream Occlusions (DSO)

**AIL: 0.25 alarms per infusion Delivery**

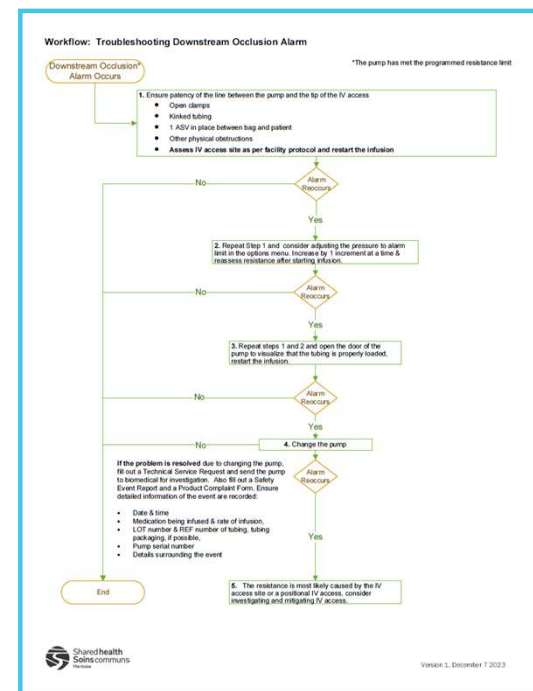
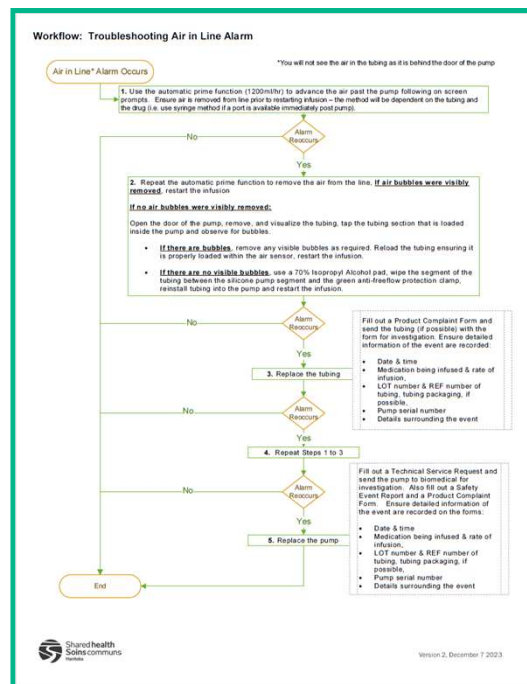
**DSO: 0.7 alarms per infusion Delivery**

By the end of January, 2024

# Resources to Mitigate Air in Line and Downstream Occlusion Alarms

Information on Shared Health MB:

## B. Braun Large Volume Pumps & Administration Sets



## Air in Line Alarms

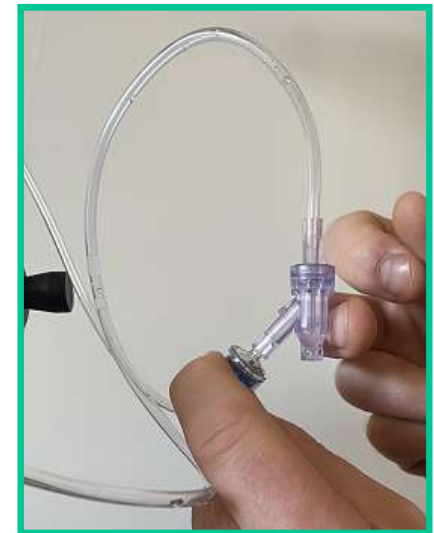
If an air in line alarm occurs, we must treat the alarm as if there is air in the line.



## Reducing Incidence of Air in line Alarms

To Reduce Air in line alarms we must decrease the amount of air that can be in the infusion line

- Bring cold fluids to room temperature prior to administration to avoid outgassing
- Ensure drip chambers are filled  $\frac{1}{2}$  to  $\frac{2}{3}$
- Ensure tubing is properly loaded in the air sensor of the pump
- Prime the IV lines on the pump
- **Invert and tap injection sites during priming**
- **Ensure the ASV is in place at the distal end of the tubing**



# Reducing Incidence of Air in line Alarms

Bring cold fluids to room temperature prior to administration to avoid outgassing

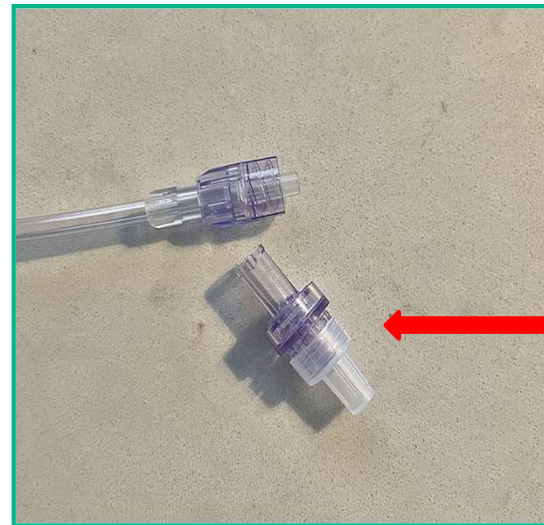


# Reducing Incidence of Air in line Alarms

Ensure the ASV is in place at the distal end of the tubing



ASV on Tubing



ASV Removed

ASV

# Troubleshooting Air in Line (AIL) Alarm



## Step 1

*When an air in line alarm occurs*

*You will not see the air in the tubing as it is behind the door of the pump*

Use the automatic prime function (1200ml/hr) to remove the air from the line following on screen prompts, then restart the infusion



## Step 2

*If the alarm reoccurs*

Repeat the automatic prime function to remove the air from the line



**If air bubbles were visibly removed, restart the infusion**

## Step 3

**If no air bubbles were visibly removed,**

Open the door of the pump, remove, and visualize the tubing, tap the tubing section that is loaded inside the pump and observe for bubbles.

- **If there are bubbles,** remove any visible bubbles as required. Reload the tubing ensuring it is properly loaded within the air sensor, restart the infusion.
- **If there are no visible bubbles,** use a 70% Isopropyl Alcohol pad, wipe the segment of the tubing between the silicone pump segment and the green anti-freeflow protection clamp, reinstall tubing into the pump and restart the infusion.



## Step 3

### *If the alarm reoccurs*

Replace the tubing, **fill a product complaint form** and **send the tubing (if possible) with the product complaint form for investigation.**

**Ensure detailed information of the event are recorded:**

- Date & time
- Medication being infused & rate of infusion,
- LOT number & REF number of tubing, tubing packaging, if possible,
- Pump serial number
- Details surrounding the event

## Step 4

*If the alarm reoccurs*

Using new tubing after changing it  
Repeat Steps 1-3

1



2



3



## Step 5

### *If the alarm reoccurs*

Replace the pump, fill a **product complaint form**, and **send the pump to biomedical for investigation.**

**Ensure detailed information of the event are recorded:**

- Date & time
- Medication being infused & rate of infusion,
- LOT number & REF number of tubing, tubing packaging, if possible,
- Pump serial number
- Details surrounding the event

# Downstream Occlusion Alarms

If the pump indicates there is a downstream occlusion, most likely because the pump has met the resistance threshold to create the alarm.

## Causes

Resistance between the pump and the tip of the IV access

Viscous fluids

Higher rates of infusion

**ASSESS > TROUBLESHOOT > RESTART PUMP**

*Without assessing & troubleshooting, the pump will most likely cause another alarm*

# Reducing Incidence of Downstream Occlusions

To Reduce downstream occlusion alarms we must decrease the amount of resistance in the infusion line

- Avoid placing IV access at places of flexion (INS Best Practice guidelines)
- If the only option is to insert IV into a flexion area, consider mitigation strategies to avoid flexion at the IV site
- Ensure the fluid never flows through more than 1 ASV
- Ensure all clamps in the fluid path are open
- **Ensure patency of the IV access site**



# Troubleshooting Downstream Occlusion(DSO) Alarms

## Step 1

*When a Downstream Occlusion occurs*

*The pump has met the programmed resistance limit*

### **Ensure patency of the line between the pump and the tip of the IV access**

Open clamps

Unkink any kinked tubing

Ensure 1 ASV in place between bag and patient

Other physical obstructions

**Assess IV access site as per facility protocol and restart the infusion**

## Step 2

*If the alarm reoccurs*

Repeats Step 1

Consider adjusting pressure to alarm limit in options menu.

Increase by 1 increment at a time & reassess resistance after starting infusion



## Step 3

*If the alarm reoccurs*

Repeat Steps 1-2

Open door of pump and visualize that the tubing is properly loaded.

Restart the infusion



## Step 4

*If the alarm reoccurs*

**Change the pump**

**If the problem is resolved** due to changing the pump, fill a **product complaint form** per facility protocol, and **send the pump to biomedical for investigation.**

**Ensure detailed information of the event are recorded**

- Date & time
- Medication being infused & rate of infusion
- Pump serial number
- Details surrounding the event
- LOT number & REF number of tubing (if possible)

## Step 5

*If the alarm reoccurs with a new pump*

The resistance is most likely caused by the IV access site or a positional IV access, consider investigating and mitigating IV access.