Knowledge Domain: Plumbing
Unit: Blockages
Skill: Routing

Tools and Parts Required:

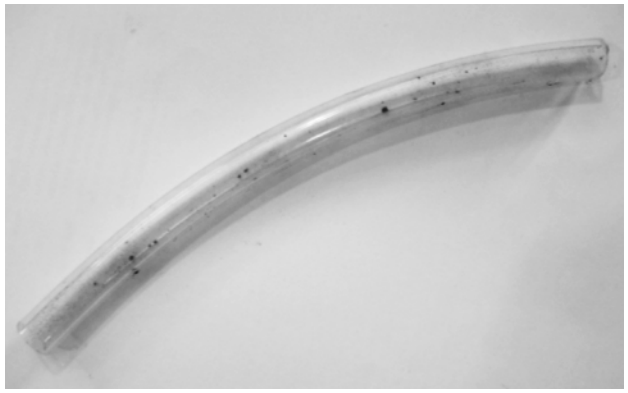
1) **Assorted tubing or pipes**
2) **Clogged tubing *(this can be done artificially with glue, putty, dirt, wet newspapers or leftover cooking fat)***
3) **Rigid, thin wire**
4) **Water**
5) **Gloves**

Introduction

Many pieces of medical equipment have different types of tubing. Tubing becomes dirty with use. Sometimes dirt will completely block the tube. No air or liquid can pass through a blockage. Routing will open the blockage to clean the tube. Routing is the first step to clear a blockage. You can use the skill 'Cleaning Inside Things' after routing a tube.

Example

Below is a picture of a blocked tube before (left) and after (right) routing. Routing the tube does not completely remove all the dirt.

Identification and Diagnosis

A piece of medical equipment may or may not function with a blocked tube. Blockages can reduce the pressure of a suction machine. Blockages can reduce the accuracy of a blood pressure apparatus. Blockages must be removed for the device to function properly.

Check tubes regularly for blockages. If you suspect a blockage, completely detach the tube. Pour some water through the tube. If the water comes out the other end, there is not a complete blockage. Use the 'cleaning inside things' skill to clean out a partially

blocked tube. If the water does not come out the other end, the tube is completely blocked. You may not be able to see the blockage.

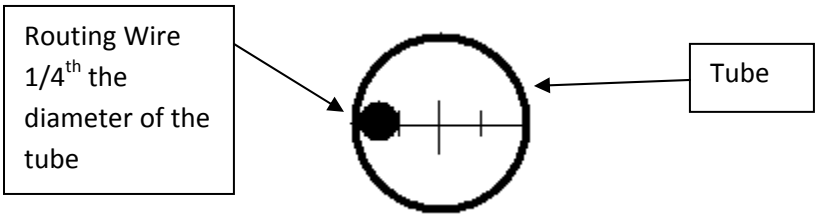
Blockages in suction machine: Use your hand to cover the open end of the tube on the suction machine. Turn on the suction machine. Feel the suction on your hand. The tube should press against your hand. If you feel little or no pressure from the tube, check for blockages. Many suction machines have translucent tubing. Look for buildup of dirt and other particles. If you do not see a blockage, slowly insert a steel wire in the tube. The steel wire will not pass through the entire tube if there is a blockage.

Run water th
locate blocka

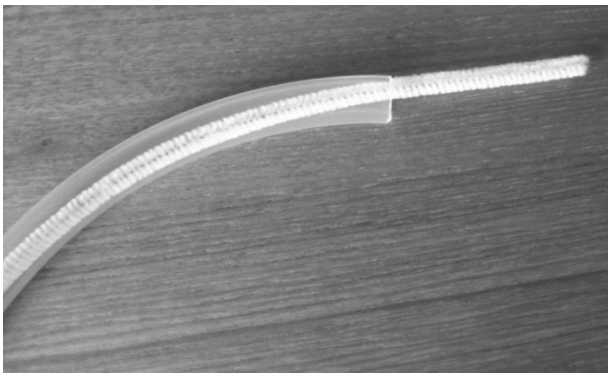
Procedure

Use gloves when cleaning blockages in tubes. The blockage may be biological material. Always use caution around biological materials.

1. Determine if the tube is completely blocked. Disconnect both ends of the tube from the medical equipment. Look to see if the tube is blocked. If you cannot see the blockage, use water to test for a blockage.
2. Select a wire or rigid stick that is one quarter (1/4) the inside diameter of the tube diameter. A pipe cleaner is also acceptable.



3. Gently insert the wire into the tube. You will feel resistance when the tube hits the blockage. Push the wire firmly through the blockage. You may feel a sudden release of the pressure. *Caution*: Do not force the wire so that it damages the inside of the tube. Pull the wire forward and backward .



Pipe cleaner used to route blockage

4. Remove the wire and pour water through the tube. If the water passes through quickly, further routing is not needed. If the water is slow or drips through, route the blockage again. Continue using the wire in the tube to route the blockage until the water flows easily.

5. Continue to clean the tube using the methods learned in ‘cleaning inside things.’

6. Reconnect the tube securely to the medical device.

Exercise

You will be given assorted tubing from medical devices. Identify the tubing type. Some examples may be Oxygen tubing, Anesthesia ventilation tubing, or Suction Tubing. Determine if the tubing has a blockage. If the tubing is blocked, route the blockage.

Your instructor must verify your work before you continue.

Preventative Maintenance and Calibration

Check tubing on devices regularly. Cleaning the insides of tubes may prevent total blockage.

Do not route a blockage while the tube is still connected to the medical device. If the tube is still connected to the device, the wire could force dirt or debris into the motor or other delicate areas. Completely disconnect the tube before routing.

Avoid damaging the inside of the tube. Always use controlled force to push through the blockage.

Use extreme caution to prevent infection. The blockage may carry infectious diseases. Always use gloves. Consider using a mask and eye protection.

Always calibrate every medical device before returning it to use.