

# 2020 ircuit Disruption

Permission to print:	Yes
Incident type	Good Catch No Harm Incident
Category	Circuit disruption
Type of incident:	Management
Description:	<p>During CPB using Quadrox VKMO with a VHK3100 hard shell reservoir (Getinge) and SMART tubing from Livanova,(patient BSA 0.76) the [3/16 ID] suction tubing disconnected when [unexpectedly] flowing 1.9lpm through the suction line [plus 1.9 venous return]. Blood was spilt, sucker pump was turned off, tubing reconnected and case continued with no further issues. A previous occurrence resulted in the routine application of a nylon tie to this connection.</p> <p>The combined flow of 3.8 lpm exceeded the max specified combined flow of 2.8 lpm. The pressure relief valve opens at 25mmHg.</p> <p>We inspected the tubing and reservoir after the incidence and measured the strain required to displace the tubing from the connector, the combination of Smart tubing (tubing is coated giving a slippery feel) with this design of tapered connection lends itself to displacement when not pushed on to its maximum. When the tubing gets warm as was the case using lots of sucker return the tubing becomes even looser, thus when extra back pressure is added by forcing high blood flow into a smaller cardiotomy ( which had been in use for 5 hours ) this caused the connection to slip, it was also noted that any angulation of the tubing onto the connection also decreases the strain required displace the tubing. Standard PVC tubing requires three times as much force to displace the tubing than SMART tubing as discovered in lab tests afterwards. The use of a tie band on this low pressure lines showed no improvement in displacement measurement due to the tapered design of the connector</p>
GOOD CATCH - what went well	Minimal blood loss due to quick action
What could we do better	Rechecking the connection after prolonged use at high flow. The use of a reservoir with a larger capacity [although the anitcapted flow was within the range of the
Preventive actions	Suction tubing is to be replaced with Physio coated tubing, a physical check of the suction tubing to the reservoir is to be carried out before starting bypass and prior to any expected duration of increased sucker return.
Hospital incident filed:	Yes
Ext Authority Advised	No
Patient outcome varianc	Nil
Discussed with team:	Yes
Manufacturer advised:	Yes
Rule issue	Yes
Skill issue	No
Team Issue	No
Commentary	Like many perfusion incidents this seemingly minor event had a number of relevant upstream contributors however the unexpected requirement to use flows above the reservoir specification was arguably the predominant issue. The authors may have considered using an additional reservoir had the problem persisted. PIRS2 Ed