2026 hypoperfusion report

Permission to print:	Yes
Category	hypo / hyper perfusion
Severity	Good Catch No Harm Incident
Duration of incident:	minutes
Procedure acuity:	Elective
Description:	Supervised CABG case with small body habitus patient. After initiation brought flows up to ~ 4 L/min (M4 Flow sensor) calculated S5 flow of 4.47 L/min, so ~0.4-0.5 L/min shunting via sampling line & purge line & Pressure Difference between art line and MAP ~100 mmHg. Pump boot tubing post-bubble sensor, post-reservoir and pre-arterial pump, partially kinked over during CPB, after CPG delivery. Appears to have occurred transiently, and gradually. Supervisor was washing donor RBC, trainee finishing setting up haemofilter and turned it on, and looked up to notice MAP reading of 49 mmHg, told trainee to increase flows, proceeded to identify an M4 sensor flow of 2.5-2.9 L/min despite Pump flow set at 4.47 L/min (calculated S5) and art line P 117 mmHg. Initially closed haemofilter to see if the additional shunt affecting flows to no effect. Increasing flows did not improve situation but proceeded to cause noticeable kick in the arterial line and pump boot. Supervisor then bent down and identified kinked pump boot tubing below the bubble sensor, manual adjustment of the tubing immediately resolved flows, pressures and line kick. With >1L in the reservoir, bubble detector was temporarily paused while trainee continued to manage bypass, the supervisor then adjusted bubble detector position and pump boot so that it was no longer kinked when in bubble detector. Duration of MAP 45-50 mmHg was ~5 min & Flows 2.5-3.1 L/min ~7 min. Subsequently no issues during CPB. Situation discussed with anaesthetist and surgical team, patient blood gas results all normal.
GOOD CATCH - what went well	Identification and troubleshooting process proceeded fairly quickly (situational / clinical awareness) to find and resolve the issue, especially given the 'silent' nature of the issue (no alarms or alerts). Good communication and management of the event. Overall, a good learning experience for the trainee and a good indicator of why supervisors should be present and attentive during cases.
What could we do better	Perhaps reasonably earlier detection and monitoring of parameters (More focus on the M4 arterial 'sensed' flow, not the S5 arterial pump calculated flow), earlier intervention on the display monitor not working (although this was impeded by waiting for a part for the anaesthetic Tech to be able to fix the link between anaesthetic monitor and our displays). Perhaps a better investigation / check of circuit tubing and its angle, especially near probes and sensors - especially as part of set-up and checklist.
Preventive actions	Potentially more thorough investigation of tubing, particularly at points of angle / change in direction or where probes are attached. Checklist item of confirming all tubing is sitting appropriately / not kinked or occluded.
Type of incident:	Human Factors
Timing of incident:	CPBnormothermic
Discussed with team	Yes

Hospital incident filed:	No
Ext Authority Advised	No
Knowledge issue	Yes
Protocol issue	No
Rule issue	Yes
Skill issue	Yes
Team Issue	Yes
Violation	No
Patient outcome variance from incident	Nil
Commentary	This report of hypoperfusion due to unnoticed arterial roller pump inflow occlusion due to tubing kinking pre arterial pump has been previously reported to PIRS on several occasions. The absence of an alarm for this has been a contributing factor. Focus on the pump flow display rather than the arterial flow sensor reading as the primary indicator of flow to the patient is again highlighted in this report. Other aspects including SvO2 changes are not mentioned and as PIRS has not received requested clarification some details are unexplained. However, PIRS draws attention to the importance of the arterial flow sensor – now standard for HLMs - and the potential for a subtle kink on arterial pump inflow tubing to go unobserved. PIRS Eds.