2019 Gas supply

Permission to print:	Yes
Incident type	Good Catch No Harm Incident
Type of incident:	Management
Procedure acuity:	Elective
Description:	During Cardiopulmonary Bypass isoflurane was administered to reduce the mean arterial pressure. Soon after this P02 fell below 100 mmHg and pC02 rose to 70 mmHg (CDI 500). Fi02 was increased to 100%. P02 then started to increase. Isoflurane was turned off [after a brief period with reduction of MAP] and gasses returned to within normal limits. CPB continued uneventful until isoflurane was administered again. p02 fell pC02 rose as before. The Fi02 was increased but this time the p02 did not respond. At this time I made a check of the gas supply from the wall outlet to the oxygenator. It was found that gas was not reaching the oxygenator. A mobile back up gas supply [spare Sechrist blender / gas bottles] was attached to the oxygenator and gasses quickly returned to within normal limits. A further check of the gas supply to the heart lung machine found that the isoflurane vaporiser had been slightly dislodged by a suction bottle bracket. Prior to CPB the heart lung machine and circuit had been set up in the Perfusion Room. All pre bypass checks had been done and passed. This includes monitoring of and calibration of the gas flow to the oxygenator. When the HLM had been moved from the Perfusion Room to the Operating Theatre the suction bottle bracket had been inadvertently pushed against the Isoflurane vaporiser allowing the vaporiser to be slightly lifted from its mounting bar. Despite this it was still possible to administer Isoflurane. Once found, the suction bottle bracket was moved away from the isolfurane vaporiser. The vaporiser now correctly seated allowed gas flow through the gas lines. The mobile gas supply was removed and replaced with the HLM gas supply as normal. Once emergency supply connected patient blood gases returned to normal limits. Time to find leak once normal gases were established was less than 60 seconds. The situation slightly complicated by patient being on Nitric study, so gas flows @3 lpm probably protected against the leak somewhat. However the nitric circuit was an additional item to rule out of the diagnosis of gas leak. Bypass continued uneventfully. The patient was rewarmed in the usual way to normothermia. The Surgeon and Anaesthetist were informed throughout the incident.
GOOD CATCH - what went well	Team including Perfusion assistant and anaesthetic tech were able to help, quickly accessing emergency O2 supply. Once emergency supply connected patient blood gases returned to normal limits. Time to find leak once normal gases were established was less than 60 seconds.
What could we do better	consideration of a misplaced vaporiser at the initial increase in pCO2
Preventive actions	Checklist to be done again upon movement of the Heart Lung Machine from the Perfusion Room to the Operating Theatre.
Catagory	Gas Supply
Region	ANZ
Manufacturer advised:	No
Hospital incident filed:	Yes
Ext Authority Advised	No
Patient outcome varianc	unknown
Discussed with team:	Yes
Commentary	Displaced vaporisers causing loss / reduced gas supply has been frequently reported to

PIRS. This can be a subtle "not obvious" problem and a minor displacement can cause an immediate amd significant impact on gas exchange. Turning off and removing the vaporiser should be a prioritise action with unexpected hepercapnia / hypoxia during CPB. PIRS-II Ed