

2022 Oxygenator air entrainment during prime

Permission to print:	Yes
Category	Air in circuit
Incident type	Good Catch Near Miss
Duration of incident:	seconds
Description:	<p>During the check of the CPB circuit after it was primed [and ready for use], I always remove the oxygenator (Fusion Medtronic) from the mounting to turn it on his head and de-air. At the moment I decided to stop the pump (Medtronic Affinity centrifugal pump) I clamped between the pump and the oxygenator as is the standard practice due to the design of our circuit. At the time of clamping I saw air in the de-aired oxygenator. The flow at the moment of placing the clamp was 4L/min and RPM 1550. This was likely a "water hammer effect". This change in momentum may cause relative negative pressure that can suck air through the semipermeable fibres. This probably happens in all oxygenators but due to the design of the oxygenator you see the air.</p>
GOOD CATCH - what went well	That it was seen before the circuit was used in the OR and was properly de-aired and positive pressure was kept on the system
What could we do better	Positive pressure should be kept over the oxygenator.
Preventive actions	Clamp after the oxygenator and not in between. By clamping after the oxygenator the positive pressure over the fibres is maintained and the chances of sucking air in across the fibres are reduced. Ramping down [the flow] will also decrease the "momentum of the fluid", but [air entrainment] can still happen. It happens really quickly. If you don't look at the oxygenator during the exact moment of clamping the line you will miss it.
Type of incident:	Management
Hospital incident filed:	No
Ext Authority Advised	No
Discussed with team:	Yes
Rule issue	No
Skill issue	No
Knowledge issue	No
Protocol issue	No
Patient outcome variance f	Nil