

2026 Circuit Disruption (Centrifugal pump)

Permission to print: Yes
Category: Circuit disruption
Category 2: Centrifugal pump
Severity: Good Catch Near Miss

Duration of incident: seconds
Procedure acuity: Elective

Description: The unit i work in is a training unit and we recently had a couple of new cardiac surgical registrars start. During cases it is not unusual for the consultant and registrar to swap sides several times during the case as part of the teaching process. During an elective CABG case (using an Essenz HLM with centrifugal arterial pump) approximately one hour into bypass at 34oC at steady state the registrar was returning to the assistant side of the table for the third time - there was a step being used and somehow during the moving into position the shoe/foot of the registrar hit the centrifugal pump in the exact spot that caused an uncoupling to occur. The no flow/negative flow alarm sounded and arterial clamp activated. But the noise it makes when decoupled was what I heard first as I saw the registrar's foot suddenly appear and almost kick backwards. I recognised what had happened immediately as it's a very distinct sound when the centrifugal pump uncouples. I was able to place it back and it was only a matter of 20 seconds or so until full flow was returned. I had never seen this happen during a bypass case and am always watchful of the coming and going of surgeons near the pump. In hindsight it is likely that the foot by chance precisely knocked the pumphead retaining clip - see second photo.

GOOD CATCH - what went well Recognised the sound of decoupling and acted immediately to rectify within seconds. Also mentioned to the team what had happened.

What could we do better Perhaps chatting to new staff and reminding them to take extra care around equipment - especially when swapping sides and using steps.

Preventive actions Extra vigilance when surgeons are swapping sides and using steps - optimal positioning of equipment where possible - further away from feet and steps, reminding staff to take care near pump and consumables

Type of incident: Human Factors
Timing of incident: CPBhypothermic

Discussed with team: Yes

Hospital incident filed: No

Ext Authority Advised: No

Knowledge issue: No

Protocol issue: No

Rule issue: No

Skill issue: Yes

Team Issue: No

Violation: No

Chance event Yes

Patient outcome varianc Nil

Commentary

Although disconnection of a centrifugal pump from its driver has previously been reported during ECMO transfers, this is the first instance reported to PIRS2 of such an event occurring during CPB. The potential risks associated with reducing HLM circuit volume—whether through shortened tubing or, as in this case, positioning the circuit in close proximity to the patient—highlight the ongoing need for vigilance in circuit layout and configuration. **PIRS Editorial Team**

