

2024 Gas supply - Personnel injury

Permission to print: Yes

Category Gas Supply

Category 2 Personnel injury

Severity Harmful incident

Description: Incident Harm to perfusionist (not patient). Attempting to take of the 'Opaque' plastic shrink wrap off a new full 200 Bar carbogen compressed gas cylinder valve system for the XVIVO Heart in The Box, the contents of the gas exploded in my face. I was dazed, shocked, with vision blurred, ringing in my ears, chest wall pain and symptoms of concussion. No one came to investigate the explosion or assist me, but I eventually wandered into adjacent room and informed another staff member of incident. A Hospital risk management incident report was made. The company was notified as were other staff that had not witnessed or aware of all details of the incident. The incident is yet to be reported to the regulatory authority. The XVIVO website states: CAUTION: The XVIVO Heart Technology is not regulatory approved on any market and its safety and efficacy has not been established. The XVIVO Heart Technology is not commercially available. The Heart in the box Cylinder shrink wrap cover is 'Opaque', so personnel are unable to readily visualize the valve outlet to point away from face, other personnel or equipment. The valve plastic shrink wrap has no tear tag or serrated tear line that could be visualized which could make it easier to remove the plastic shrink wrap cover. Pulling the shrink wrap to tear it off, seems to have caused the Gas Cylinder Valve Hand wheel (which is permanently fixed to the cylinder) to open.

What could we do better Design improvements. A transparent plastic shrink wrap seal would allow the valve outlet to be visualized and pointed away from face, other personnel, or equipment. Nitric Oxide has a similar valve hand wheel and valve outlet system, but has a transparent plastic shrink wrap around the valve system, which allows for clear visualization of the valve outlet and other components. The Nitric Oxide cylinder valve outlet has a seal cap (the XVIVO carbogen cylinder does not) over the valve outlet that consists of Nut, Cap, Gasket and Chain, (however this is not designed to contain full cylinder pressure). Medical air and oxygen cylinders have a seal that does not enclose the opening valve and the valve indicates the open and close directions that the XVIVO carbogen bottle does not.

Preventive actions Work in progress and still in investigation.

Type of incident: Management

Duration of incident: seconds

Hospital incident file Yes

Ext Authority Advise TBD

Discussed with tea Yes

Supplies Issue Yes

Commentary This report describes a potentially serious risk to staff handling the EXVIVO carbogen cylinder and users should be aware of the risk of inadvertent high pressure gas escape when removing the shrink wrap for the cylinder. PIRS Ed



Medical air cylinder with tear tab



Helium cylinder with exposed valve