Safe Handling of Oxygen Cylinders

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Although the incident investigation has not identified the cause of the ignition, a number of points concerning the use and handling of medical oxygen cylinders were raised. Having reviewed this information and discussed the incident with representatives from the cylinder supplier and the MHRA, the AAGBI Safety Committee has decided to publish this statement to inform members of what is now considered best practice when using and handling medical gas cylinders.

Prior to the incident, the cylinder had been laid on the bed as part of its preparation and testing before administering the gas to the patient. Although medical oxygen cylinder fires are very rare, when the cylinder valve is first opened and the flow selected is the most likely time for an ignition to occur.

The AAGBI Safety Committee would like to suggest the following revised steps when preparing and handling medical oxygen cylinders for patient use:

- Set up the cylinder for patient use before placing it close to the patient. This includes connecting the appropriate equipment, opening the valve (slowly) and selecting the flow.
- Place the cylinder in an appropriately designed holder. Avoid placing the cylinder on the bed next to the patient if at all possible; use extra care when there is no option but to place the cylinder on the bed ensuring that the cylinder has been turned on first and the flow selected.

Ideally, cylinders should be placed in purpose designed holders or trolleys where they can be kept away from direct contact with combustible material.

The medical gas suppliers are reviewing their literature (and training) to ensure that this information is readily available to all healthcare professionals. Further details may be found in: Kelly FE, Hardy R, Hall EA. Fire on an intensive care unit caused by an oxygen cylinder. Anaesthesia 2012; doi:10.1111/anae.12089.

It should be stressed that medical oxygen cylinders are considered to be an extremely safe way of administering oxygen to patients and many millions of medical oxygen cylinders are used annually without incident.