National Patient Safety Alert

NHS England

Use of oxygen cylinders where patients do not have access to medical gas pipeline systems

Date of issue:	10 January 2023	Reference no:	NatPSA/2023/001/NHSPS

This alert is for action by: acute trusts with an emergency department and ambulance trusts

This is a safety critical and complex National Patient Safety Alert. Implementation should be co-ordinated by an executive lead (or equivalent role in organisations without executive boards) and supported by leaders in respiratory medicine, emergency medicine, nursing, pharmacy and estates.

Explanation of identified safety issue:

During periods of extreme pressure, often exacerbated by a surge in respiratory conditions, demand on supplies of oxygen cylinders, especially the smaller sizes, increases in the NHS due to the need to provide essential oxygen treatment in areas without access to medical gas pipeline systems.

This surge in demand increases the known risks associated with the use of oxygen gas cylinders, and introduces new risks, across three main areas:

- patient safety
- fire safety
- physical safety

A search of incidents reported to the of the National Reporting and Learning System (NRLS) and Learn from Patient Safety Events (LFPSE) service in the last 12 months identified 120 patient safety incidents, including those with these themes:

- cylinder empty at point of use
- cylinder not switched on
- cylinders inappropriately transported
- cylinders inappropriately secured

Some of these reports described compromised oxygen delivery to the patient, leading to serious deterioration and cardiac or respiratory arrest.

In addition there is a need to conserve oxygen cylinder use to ensure a robust supply chain process.

As a result of current pressures on the NHS, NHS England issued providers with a summary of best practice guidance on the 'Safe use of oxygen cylinders'[1] on Friday 06 January 2023 to support providers to optimise and maintain the safe use of oxygen cylinders. This guidance was issued via the Patient Safety Specialist and Emergency Preparedness, Resilience and Response (EPRR) networks.

Actions required

Actions to be completed as soon as possible, and not later than 20 January 2023.

1. The chair of acute trust medical gas committee, working with key clinical/non-clinical colleagues including the local ambulance trust, should review the NHS England 'Safe use of oxygen cylinders' best practice guidance[1] and ensure a risk assessment is undertaken in all areas where patients are being acutely cared for (either temporarily or permanently) without routine access to medical gas pipeline systems. NOTE A

Risk assessment should pay particular attention to:

- avoiding unnecessary use of cylinder oxygen and excessive flow rates by ensuring oxygen treatment is optimised to recommended target saturation ranges.[2]
- ensuring safe use of oxygen cylinders by clinical staff including;
  - safe activation of oxygen flow
  - initial and ongoing checks of flow to patient
  - initial and ongoing checks of amount of oxygen left in the cylinder
  - especially during transfer or whilst undergoing diagnostic tests.
- fire safety, including:
  - appropriate ventilation (both in physical environments and in ambulances),
  - safe storage of cylinders
- physical safety, including:
  - awareness of manual handling requirements
  - safe transportation of cylinders using appropriate equipment
  - safe storage of cylinders.

2. Once the risk assessments have been undertaken, convene the acute trust medical gas committee as soon as possible to review the findings of the risk assessments and formalise an action plan. Ensuring that the committee has executive director representation and ambulance trust input.

For further detail, resources and supporting materials see: https://www.england.nhs.uk/2023/01/use-of-oxygen-cylinders-where-patients-do-not-have-access-to-medical-gas-pipeline-systems/ . For any enquiries about this alert contact: patientsafety.enquiries@nhs.net

Failure to take the actions required under this National Patient Safety Alert may lead to CQC taking regulatory action

Additional information:

Note:

A. Priority should be given to escalation/transient areas being used to acutely care for patients eg corridors, non-inpatient areas (eg physiotherapy departments), ambulances outside emergency departments.

B. Any suspected or actual adverse incidents involving medical devices should be reported through your organisation's local incident reporting system and/or to the Medicines and Healthcare products Regulatory Authority (MHRA) through the Yellow Card scheme as appropriate – www.yellowcard.mhra.gov.uk.

Patient safety incident data:

The National Reporting and Learning System (NRLS) was searched via SAS self-service add-in on 05 January 2023 for incidents occurring on or after 06 January 2022, if uploaded to NRLS by 05 January 2023, using free text terms: 'cd cylinder' OR 'cylinder' AND 'O2' OR 'oxygen' OR 'air'. All incidents graded by the organisation as resulting in moderate, severe harm or death were reviewed (n=43), in addition to a combined random sample of 100 low and no harm incidents. In total 95 incidents described safety issues relating to oxygen cylinder use (equivalent to circa 1000 relevant low/no harm NRLS incidents had all low/no harm data had been reviewed).

The Learn From Patient Safety Events (LFPSE) service was searched using a deep dive tool on 05 January 2023 for incidents occurring on or after 06 January 2022, if submitted by 05 January 2023, using free text terms: 'O2' OR 'oxygen' OR 'air' AND 'cylinder' OR "cd cylinder". All incidents were reviewed. In total 25 incidents described safety issues relating to oxygen cylinder use.

References:

1. NHS England. Safe use of oxygen cylinders. 06 January 2022 https://www.england.nhs.uk/publication/national-patient-safety-alert-use-of-oxygen-cylinders-where-patients-do-not-have-access-to-medical-gas-pipeline-systems/
2. British Thoracic Society. Guideline for oxygen use in adults in healthcare and emergency settings. June 2017. https://www.brit-thoracic.org.uk/document-library/guidelines/emergency-oxygen/bts-guideline-for-oxygen-use-in-adults-in-healthcare-and-emergency-settings/

Stakeholder engagement:

- National Patient Safety Response Advisory Panel (for a list of members and organisations represented on the panel see https://www.england.nhs.uk/patient-safety/patient-safety-alerts)

Advice for Central Alerting System (CAS) officers and risk managers

This is a safety critical and straightforward National Patient Safety Alert. In response to CHT/2019/001 your organisation should have developed new processes to ensure appropriate oversight and co-ordination of all National Patient Safety Alerts. CAS officers should send this Alert to executive lead nominated in their new process to coordinate implementation of safety critical and complex National Patient Safety Alerts, copying in the leads identified on page 1.