ebme Expo
25th–26th June 2025
Coventry Building Society Arena, Coventry

EXHIBIT VISIT CONFERENCES EXHIBITOR LIST WORKSHOPS WEBINARS INFO ABOUT US BOOK A STAND PRE-REGISTER

Safe use of Medical Gases and Oxygen Therapy

(… and beds and bed rails….)

Paul T. Lee, Consultant Clinical Scientist, Head of MEMS
Swansea Bay University Health Board
Chair NAMDET www.namdet.org

GIG CYMRU NHS WALES
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Swansea Bay University Health Board

NAMDET National Association of Medical Device Educators and Trainers

EBME Expo, June 25th to 26th, 2025

https://www.maxwellleadership.com/

John C. Maxwell's quote, **"The goal of all learning is action, not knowledge,"** emphasises the importance of applying knowledge through practical action.

It suggests that true learning involves not just acquiring information but also using that information to make a **positive change** or achieve a desired outcome.

Safe use of Medical Gases and Oxygen Therapy

Next steps…….

1. Share all resources, workbooks, PPTs, posters and training materials
2. Issue the Competency for nursing, porters and technical staff
3. Final stages of the E-learning training tools for eLfH

https://www.e-lfh.org.uk/

GIG CYMRU NHS WALES
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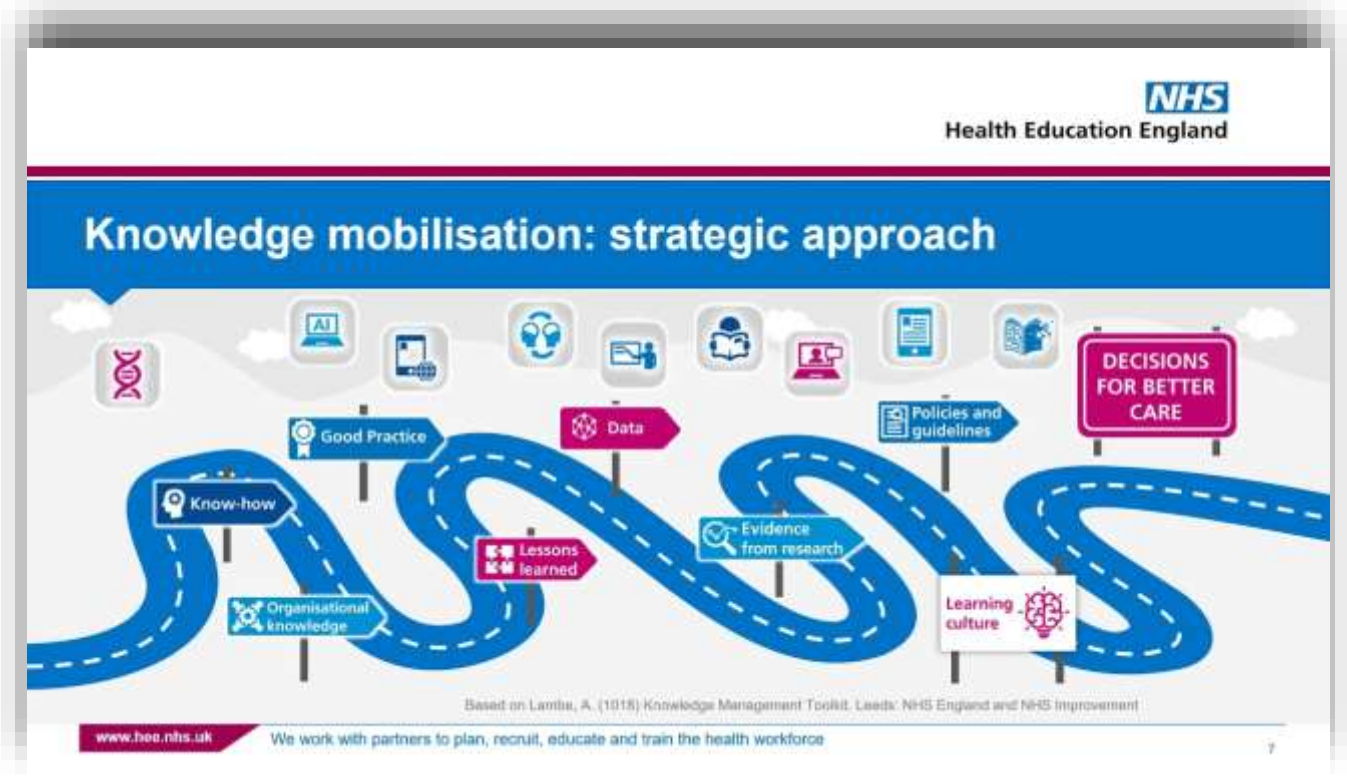
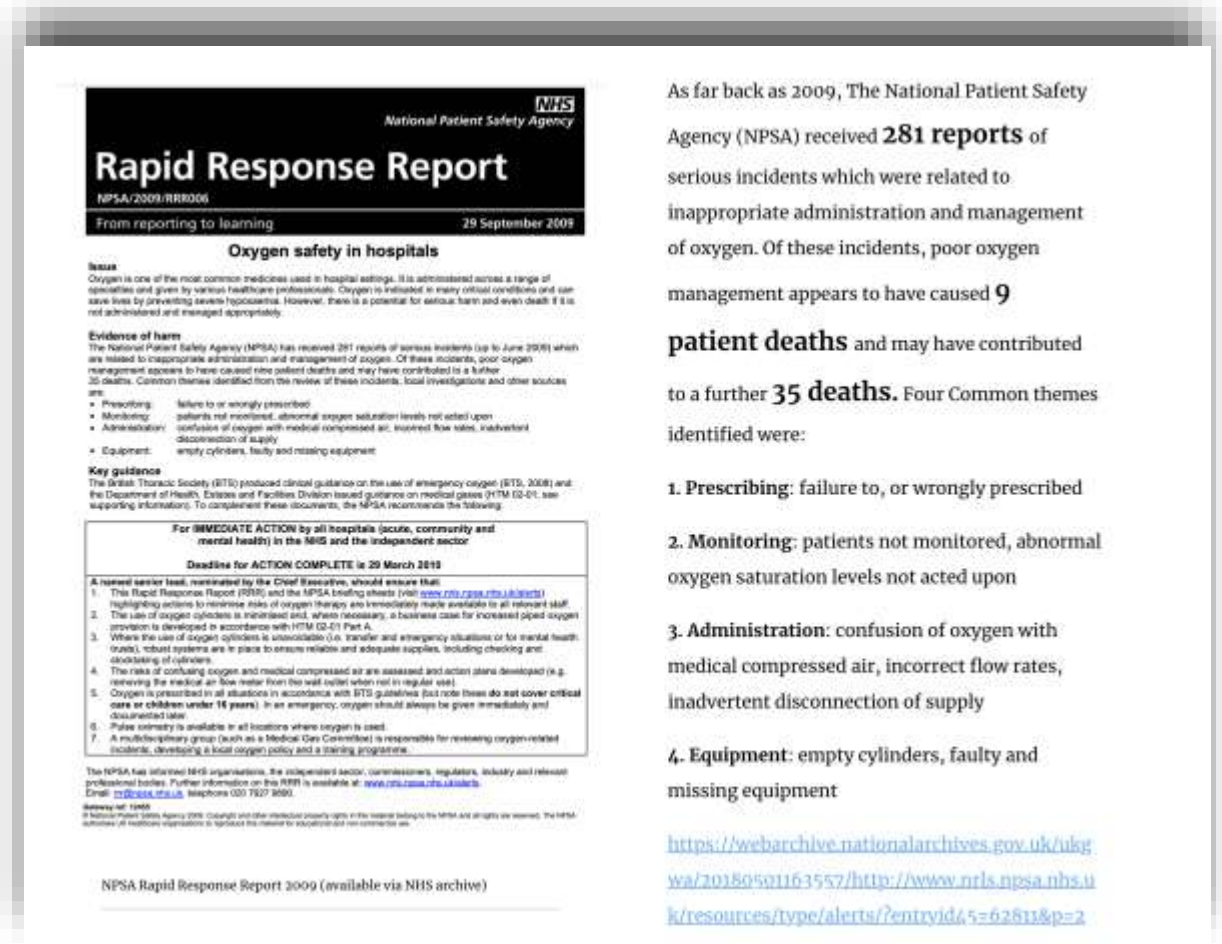
Our Journey…….



Let me take you on a journey to the safe use of medical gases and oxygen safety……

https://library.hee.nhs.uk/knowledge-mobilisation/what-is-mobilising-evidence-and-knowledge

NPSA ; 2009/RRR006



NHS
National Patient Safety Agency

Rapid Response Report

NPSA/2009/RRR006

From reporting to learning — 29 September 2009

Oxygen safety in hospitals

Issue

Oxygen is one of the most common medicines used in hospital settings. It is administered across a range of specialties and given by various healthcare professionals. Oxygen is indicated in many critical conditions and can save lives by preventing severe hypoxaemia. However, there is a potential for serious harm and even death if it is not administered and managed appropriately.

Evidence of harm

The National Patient Safety Agency (NPSA) has received 281 reports of serious incidents (up to June 2009) which are related to inappropriate administration and management of oxygen. Of these incidents, poor oxygen management appears to have caused nine patient deaths and may have contributed to a further 35 deaths. Common themes identified from the review of these incidents, local investigations and other sources are:

- Prescribing: failure to or wrongly prescribed
- Monitoring: patients not monitored, abnormal oxygen saturation levels not acted upon
- Administration: confusion of oxygen with medical compressed air, incorrect flow rates, inadvertent disconnection of supply
- Equipment: empty cylinders, faulty and missing equipment

Key guidance

The British Thoracic Society (BTS) produced clinical guidance on the use of emergency oxygen (BTS, 2008) and the Department of Health, Estates and Facilities Division issued guidance on medical gases (HTM 02-01, see supporting information). To complement these documents, the NPSA recommends the following:

For IMMEDIATE ACTION by all hospitals (acute, community and mental health) in the NHS and the independent sector

Deadline for ACTION COMPLETE is 29 March 2010

A named senior lead, nominated by the Chief Executive, should ensure that:

1. This Rapid Response Report (RRR) and the NPSA briefing sheets (visit www.nrls.npsa.nhs.uk/alerts) highlighting actions to minimise risks of oxygen therapy are immediately made available to all relevant staff.
2. The use of oxygen cylinders is minimised and, where necessary, a business case for increased piped oxygen provision is developed in accordance with HTM 02-01 Part A.
3. Where the use of oxygen cylinders is unavoidable (i.e. transfer and emergency situations or for mental health trusts), robust systems are in place to ensure reliable and adequate supplies, including checking and stocktaking of cylinders.
4. The risks of confusing oxygen and medical compressed air are assessed and action plans developed (e.g. removing the medical air flow meter from the wall outlet when not in regular use).
5. Oxygen is prescribed in all situations in accordance with BTS guidelines (but note these **do not cover critical care or children under 16 years**). In an emergency, oxygen should always be given immediately and documented later.
6. Pulse oximetry is available in all locations where oxygen is used.
7. A multidisciplinary group (such as a Medical Gas Committee) is responsible for reviewing oxygen-related incidents, developing a local oxygen policy and a training programme.

The NPSA has informed NHS organisations, the independent sector, commissioners, regulators, industry and relevant professional bodies. Further information on this RRR is available at: www.nrls.npsa.nhs.uk/alerts
Email: rrr@npsa.nhs.uk, telephone 020 7927 9000.

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NPSA Rapid Response Report 2009 (available via NHS archive)

As far back as 2009, The National Patient Safety Agency (NPSA) received **281 reports** of serious incidents which were related to inappropriate administration and management of oxygen. Of these incidents, poor oxygen management appears to have caused **9 patient deaths** and may have contributed to a further **35 deaths.** Four Common themes identified were:

1. **Prescribing**: failure to, or wrongly prescribed
2. **Monitoring**: patients not monitored, abnormal oxygen saturation levels not acted upon
3. **Administration**: confusion of oxygen with medical compressed air, incorrect flow rates, inadvertent disconnection of supply
4. **Equipment**: empty cylinders, faulty and missing equipment

https://webarchive.nationalarchives.gov.uk/ukgwa/20180501163557/http://www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=62811&p=2

Issues reported nationally around

- Prescribing
- Monitoring
- Administration
- Equipment

Action deadline by March 2010

Royal United Bath: November 2011

In ICU an oxygen cylinder was laid on a patient's bed to provide oxygen to her whilst she was being transferred to another hospital, **and was turned on … then…….**

her mattress and bedding **immediately ignited,** rapidly followed by the curtains around her bed……..

https://www.researchgate.net/publication/285866883_Managing_the_Aftermath_of_a_Fire_on_Intensive_Care_Caused_by_an_Oxygen_Cylinder

Oxygen and Air mixup 2012……

- 2012
- 2016
- 2021

Local Safety Notice

Date of Issue: 11th December 2012
Reference: LSN 2012 (001)
Issued By: Medical Devices Committee

Immediate Action	✓
Action	
Update	
Information	
Circulation	

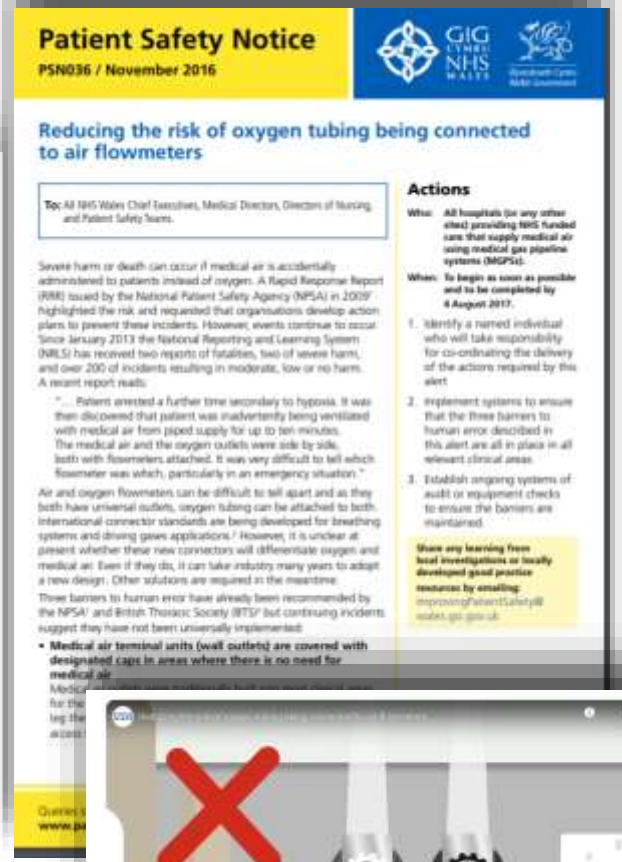
Device Details: Air Flowmeters
Manufacturer: All manufacturers
Model: All models
Description: Air Flowmeters

Problem Identified:
A National Patient Safety Alert (NPSA/2009/RRR006) identified confusion between oxygen and air flow-meters that had led to fatalities.

Action Required:
To avoid confusion between oxygen and air flow meters and outlets:
Remove the Air flow meter from the wall outlet when not in regular use and store in a designated safe place.

Action Required By:
All users of Air and Oxygen flow-meters and outlets

Contact details for further information:



Patient Safety Notice
PSN036 / November 2016

Reducing the risk of oxygen tubing being connected to air flowmeters

To: All NHS Wales Chief Executives, Medical Directors, Directors of Nursing, and Patient Safety Teams.

Severe harm or death can occur if medical air is accidentally administered to patients instead of oxygen. A Rapid Response Report (RRR) issued by the National Patient Safety Agency (NPSA) in 2009 highlighted the risk and requested that organisations develop action plans to prevent these incidents. However, events continue to occur. Since January 2013 the National Reporting and Learning System (NRLS) has received two reports of fatalities, two of severe harm, and over 200 of incidents resulting in moderate, low or no harm. A recent report reads:

"… Patient arrested a further time secondary to hypoxia. It was then discovered that patient was inadvertently being ventilated with medical air from piped supply for up to ten minutes. The medical air and the oxygen outlets were side by side, both with flowmeters attached. It was very difficult to tell which flowmeter was which, particularly in an emergency situation."

Air and oxygen flowmeters can be difficult to tell apart and as they both have universal outlets, oxygen tubing can be attached to both. International connector standards are being developed for breathing systems and driving gases applications.[1] However, it is unclear at present whether these new connectors will differentiate oxygen and medical air. Even if they do, it can take industry many years to adopt a new design. Other solutions are required in the meantime.

Three barriers to human error have already been recommended by the NPSA[2] and British Thoracic Society (BTS)[3] but continuing incidents suggest they have not been universally implemented:

- **Medical air terminal units (wall outlets) are covered with designated caps in areas where there is no need for medical air**

Actions

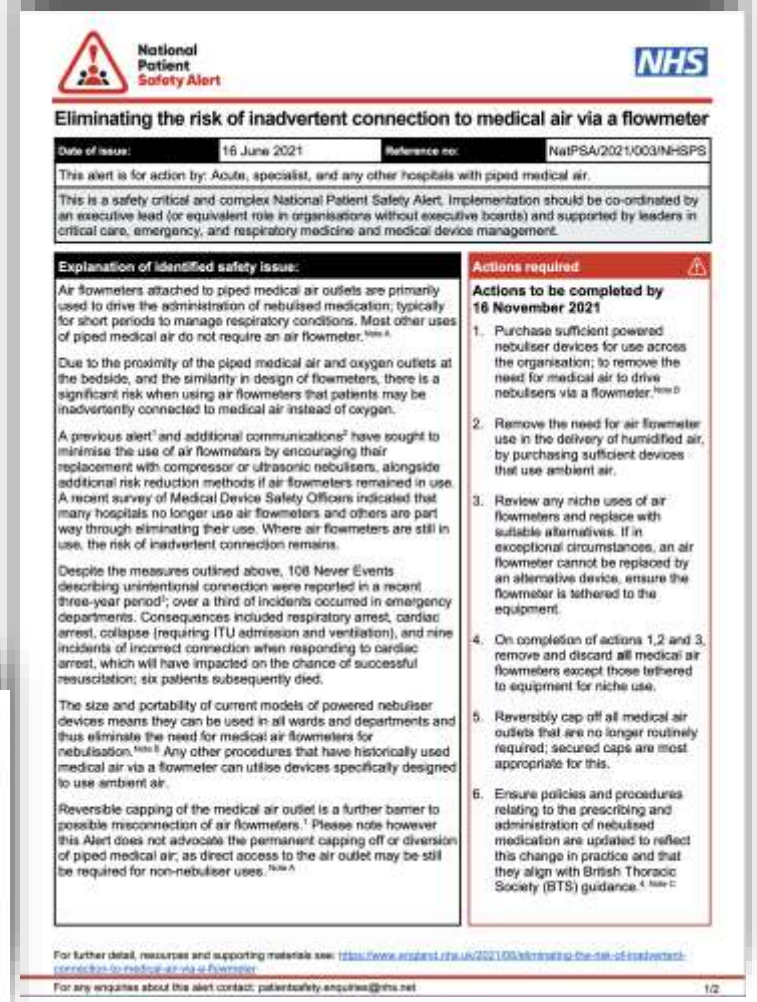
Who: All hospitals (or any other sites) providing NHS funded care that supply medical air using medical gas pipeline systems (MGPSs).

When: To begin as soon as possible and to be completed by 4 August 2017.

1. Identify a named individual who will take responsibility for co-ordinating the delivery of the actions required by this alert
2. Implement systems to ensure that the three barriers to human error described in this alert are all in place in all relevant clinical areas
3. Establish ongoing systems of audit or equipment checks to ensure the barriers are maintained

Share any learning from local investigations or locally developed good practice

Resources for emailing:



National Patient Safety Alert

NHS

Eliminating the risk of inadvertent connection to medical air via a flowmeter

Date of issue:	16 June 2021	Reference no:	NatPSA/2021/003/NHSPS

This alert is for action by: Acute, specialist, and any other hospitals with piped medical air.

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 critical care, emergency, and respiratory medicine and medical device management.

Explanation of identified safety issue:

Air flowmeters attached to piped medical air outlets are primarily used to drive the administration of nebulised medication; typically for short periods to manage respiratory conditions. Most other uses of piped medical air do not require an air flowmeter.[Note A]

Due to the proximity of the piped medical air and oxygen outlets at the bedside, and the similarity in design of flowmeters, there is a significant risk when using air flowmeters that patients may be inadvertently connected to medical air instead of oxygen.

A previous alert[1] and additional communications[2] have sought to minimise the use of air flowmeters by encouraging their replacement with compressor or ultrasonic nebulisers, alongside additional risk reduction methods if air flowmeters remained in use. A recent survey of Medical Device Safety Officers indicated that many hospitals no longer use air flowmeters and others are part way through eliminating their use. Where air flowmeters are still in use, the risk of inadvertent connection remains.

Despite the measures outlined above, 106 Never Events describing unintentional connection were reported in a recent three-year period[3]; over a third of incidents occurred in emergency departments. Consequences included respiratory arrest, cardiac arrest, collapse (requiring ITU admission and ventilation), and nine incidents of incorrect connection when responding to cardiac arrest, which will have impacted on the chance of successful resuscitation; six patients subsequently died.

The size and portability of current models of powered nebuliser devices means they can be used in all wards and departments and thus eliminate the need for medical air flowmeters for nebulisation.[Note B] Any other procedures that have historically used medical air via a flowmeter can utilise devices specifically designed to use ambient air.

Reversible capping of the medical air outlet is a further barrier to possible misconnection of air flowmeters.[1] Please note however this Alert does not advocate the permanent capping off or diversion of piped medical air; as direct access to the air outlet may be still be required for non-nebuliser uses.[Note A]

Actions required:

Actions to be completed by 16 November 2021

1. Purchase sufficient powered nebuliser devices for use across the organisation; to remove the need for medical air to drive nebulisers via a flowmeter.[Note D]
2. Remove the need for air flowmeter use in the delivery of humidified air, by purchasing sufficient devices that use ambient air.
3. Review any niche uses of air flowmeters and replace with suitable alternatives. If in exceptional circumstances, an air flowmeter cannot be replaced by an alternative device, ensure the flowmeter is tethered to the equipment.
4. On completion of actions 1,2 and 3, remove and discard **all** medical air flowmeters except those tethered to equipment for niche use.
5. Reversibly cap off all medical air outlets that are no longer routinely required; secured caps are most appropriate for this.
6. Ensure policies and procedures relating to the prescribing and administration of nebulised medication are updated to reflect this change in practice and that they align with British Thoracic Society (BTS) guidance.[4, Note C]

For further detail, resources and supporting materials see: https://www.england.nhs.uk/2021/06/eliminating-the-risk-of-inadvertent-connection-to-medical-air-via-a-flowmeter

For any enquiries about this alert contact: patientsafety.enquiries@nhs.net

1/2

Failure to turn on Oxygen cylinders 2018….

- 400 incidents in 3 years
- 6 fatalities
- Failure to turn on/off

- 20 second rule (O_2-20)

Patient Safety Notice

PSN041 / March 2018

Risk Of Death And Severe Harm From Failure To Obtain And Continue Flow From Oxygen Cylinders harm

To: All NHS Wales Chief Executives, Medical Directors, Directors of Nursing and Patient Safety Teams.

Some patients need to be given additional oxygen as part of their treatment. Where there is no access to piped or concentrated oxygen it is provided in cylinders, the design of which has changed over recent years. Cylinders with integral valves are now in common use and require several steps (typically removing a plastic cap, turning a valve and adjusting a dial) before oxygen starts to flow. To reduce the risk of fire valves must be closed when cylinders are not in use, and cylinders carried in special holders that can be out of the direct line of sight and hearing of staff caring for the patient.

An unintended consequence of these changes is that staff may believe oxygen is flowing when it is not, and/or may be unable to turn the oxygen flow on in an emergency.

In a recent three-year period, over 400 incidents involving incorrect operation of oxygen cylinder controls were reported to the National Reporting and Learning System (NRLS). Six patients died, although most were already critically ill and may not have survived even if their oxygen supply had been maintained. Five patients had a respiratory and/or a cardiac arrest but were resuscitated and four became unconscious. Other incident reports described patients experiencing difficulty breathing and low oxygen saturations that required urgent medical attention. Incidents involved portable oxygen cylinders of all sizes on trolleys, wheelchairs, resuscitation trolleys and neonatal resuscitaires and larger cylinders in hospital areas without piped oxygen.

A typical incident report reads: "Patient arrived on coronary care unit with oxygen saturations of 72%. Oxygen in situ and set to correct rate on the flow dial but unfortunately [the valve] was not opened and the patient was not therefore receiving oxygen. Peri-arrest on arrival, [crash team] called ….condition improved ….registered nurse continued to check cylinder was not running out but failed to notice not turned on as indicator green."

Insights from local investigations include:

- prioritising training for staff groups and clinical areas where the risk is high;
- reinforcing theoretical training with regular opportunities to practise operating the cylinder controls.

Actions

When: As soon as possible but no later than 23 April 2018

Who: All organisations providing NHS funded care where oxygen cylinders are used, including hospitals, GP Practices, ambulance services and mental health units*

1. Identify if oxygen cylinders are used in your organisation, even if only in emergencies.
2. Bring this notice to the attention of all those with a leadership role in ensuring clinical staff understand how to operate oxygen cylinders safely.
3. Consider if immediate local action is needed and ensure that an action plan is underway to reduce the risk of incorrect use of oxygen cylinders.
4. Communicate the key messages in this notice and your local action plan to all relevant staff.

*Whilst this notice is directed at improving safe use by clinical staff, home overdose may also be able to use these findings to improve training/support for people using oxygen at home and their family/carers.

Share any learning from local investigations or locally developed good practice resources by emailing: ImprovingPatientSafety@Gov.Wales

Oxygen Cylinders

Medical oxygen is supplied as a compressed gas … Cylinders may explode if subjected to extremely high … fire). Medical oxygen is a non-flammable gas but … strongly support and intensify combustion, it may … materials such as oils and grease. Care is need… compressed medical oxygen cylinders.

Use of cylinders

When oxygen cylinders are in use, ensure that they a…

- only used for medicinal purposes
- turned off, when not in use, using only mode…
- only moved with the appropriate size and ty…
- handled with care and not knocked violently
- firmly secured to a suitable cylinder support…
- not allowed to have any markings, labels … removed
- not used in the vicinity of persons smoking …

After use

When the compressed medical oxygen cylinders are …

- cylinder valve is closed using moderate force…
- the pressure in the regulator is released
- valve outlet cap, where fitted, is replaced
- empty cylinders are immediately returned … Porters)

CD Size Cylinder Contents Gauge

CD cylinder (460 litres)	Flow Rate (litres/min)	Low (25%)
	15	7 mins
	10	11 mins
	6	19 mins
	4	28 mins
	2	57 mins

HX Size Cylinder Contents Gauge

HX cylinder 2,300 litres	Flow Rate (litres/min)	Low (25%)
	15	38 mins
	10	57 mins
	6	1 h 35 mins
	4	2 h 23 mins
	2	4 h 47 mins

Oxygen Cylinder Safety

1 Ensure correct storage

2 Check the Expiry date

3 Check contents (How long will it last?)

4 Is your Oxygen cylinder open?

5 Do you know how to open the cover?

6 Do you have the right flow rate?

1. Ensure Oxygen is prescribed and recorded on the drug chart
2. **Open the cylinder hand wheel (4) BEFORE** use and close again **AFTER** use
3. Check for Oxygen flow **'20 seconds'** after setting the flow rate

Right probe in the right place ! 2018-19.....

>40kg

If an oximeter probe intended for the finger is attached to the ear (or vice versa), or a probe intended for an adult is attached to a baby or a child (or vice versa), it can produce a reading up to 50% lower or 30% higher than the real value. The clinical implication of an inaccurately high reading, especially as part of NEWS, is that staff may be falsely reassured about a patient's condition, when in reality the patient is deteriorating, or may make an inappropriate intervention when in fact a patient is stable or improving.

NHS Improvement

Patient Safety Alert

Risk of harm from inappropriate placement of pulse oximeter probes

18 December 2019

Actions

Patient Safety Notice

PSN048/February 2019

Risk of harm from inappropriate placement of pulse oximeter probes

2018; Measurement of oxygen saturation, using a pulse oximeter probe, is routinely undertaken as part of patients' vital signs during diagnosis and ongoing monitoring.

If an oximeter probe intended for the finger is attached to the ear (or vice versa), or a probe intended for an adult is attached to a baby or a child (or vice versa), it can produce a reading up to **50% lower or 30% higher** than the real value.

The clinical implication of an inaccurately high reading, is that staff may be falsely reassured about a patient's condition, when in reality the patient is deteriorating, or may make an inappropriate intervention when in fact a patient is stable or improving.

https://www.england.nhs.uk/publication/patient-safety-alert-risk-of-harm-from-inappropriate-placement-of-pulse-oximeter-probes/

Thisisthenewusername123

Studies have shown it can be off by as much as 10% oxygen saturation when you do that though, so be wary of trusting it unless it's an actual forehead probe.

6-13 Reply

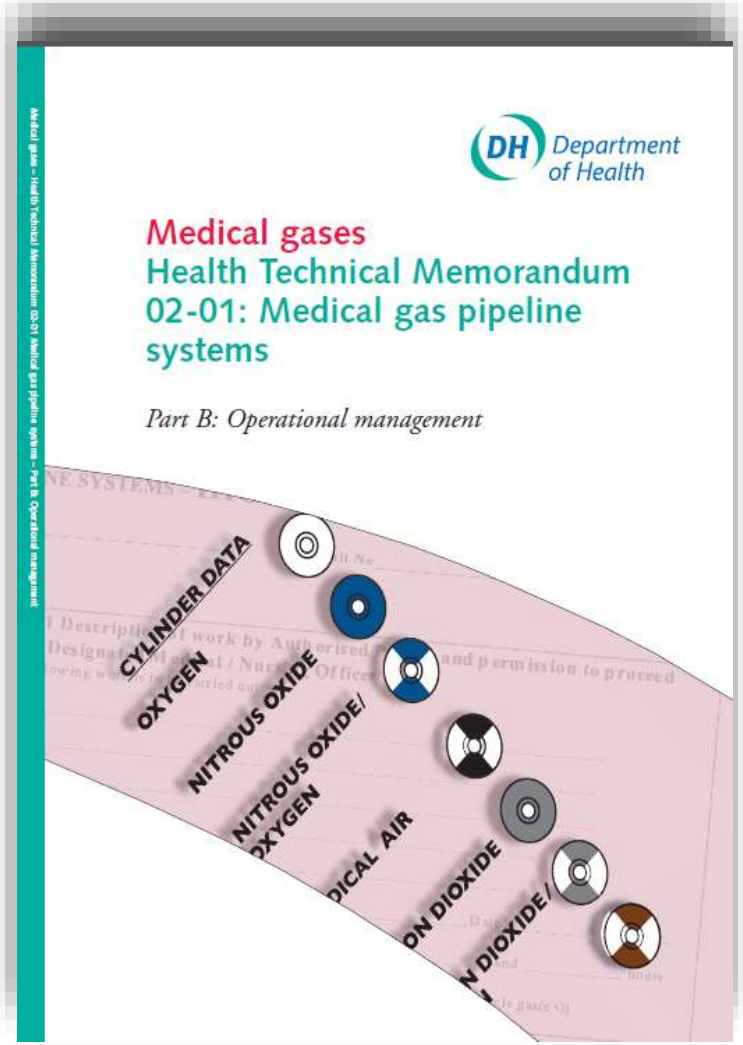
Scrub-Laddy · Creator

That's fair, honestly we rarely do this. Typically only in more critical situations which result in bipap or intubation. Then we eventually get vbgs ect. People who get it get it

6-13 Reply

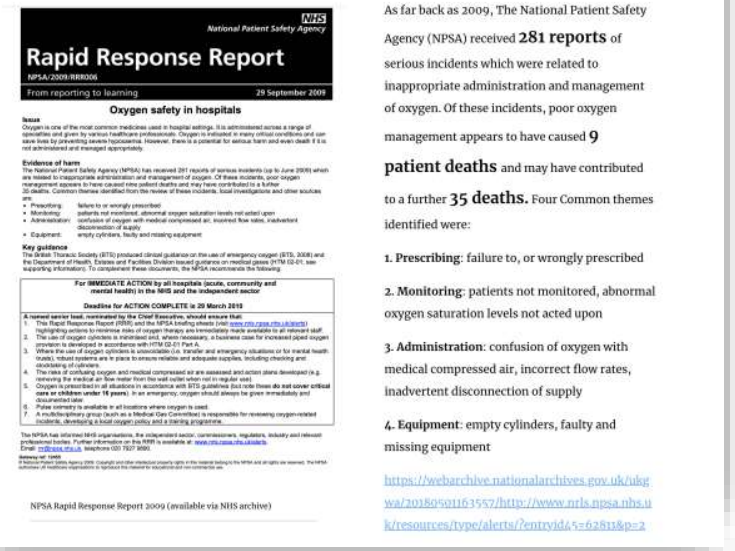
Hide

Not to mention the Guidelines……



https://www.hsib.org.uk/investigations-cases/

In particular; Oxygen (Since 2009)



NHS National Patient Safety Agency

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- Equipment: empty cylinders, faulty and missing equipment

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Email: rrr@npsa.nhs.uk, telephone 020 7927 3668.

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https://webarchive.nationalarchives.gov.uk/ukgwa/20180501163557/http://www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=62811&p=2

NPSA Rapid Response Report 2009 (available via NHS archive)

NHS Improvement

Patient Safety Alert

Risk of death and severe harm from failure to obtain and continue flow from oxygen cylinders

6 January 2016

In 2016, a Patient Safety Alert was issued warning about risk of death and severe harm form failure to obtain and continue flow from oxygen cylinders.

Over **400 incidents** involving incorrect operation of oxygen cylinder controls were reported to the National Reporting and Learning System (NRLS).

Six patients died, five patients had a respiratory and/or a cardiac arrest but were resuscitated, and **four became unconscious**.

Other incident reports described patients experiencing difficulty breathing and low oxygen saturations that required urgent medical attention.

https://www.england.nhs.uk/wp-content/uploads/2016/01/Patient_Safety_Alert_-_Failure_to_open_oxygen_cylinders.pdf

NHS Patient Safety Alert: failure to obtain flow from oxygen cylinder

HSIB

DESIGN AND SAFE USE OF PORTABLE OXYGEN SYSTEMS

I2017/013

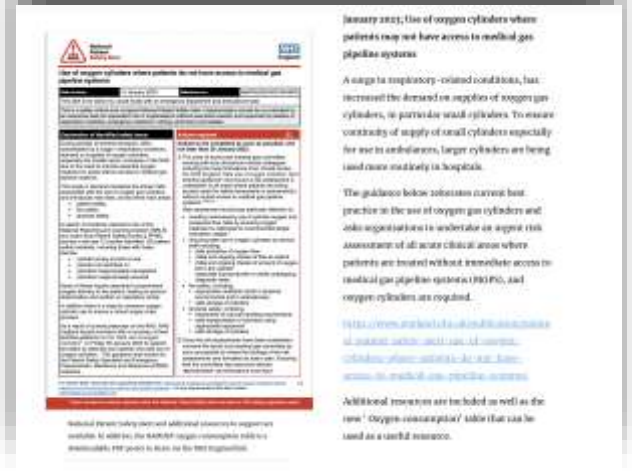
In 2016, the HSIB (Healthcare Safety Investigation Branch) shared their report and recognised that oxygen is widely used throughout the NHS and found clear evidence of an ongoing risk to patient safety.

This investigation focuses on:

- Reviewing how the design of portable oxygen systems is regulated by the Medicines and Healthcare products Regulatory Agency (MHRA).
- Reviewing the design of portable oxygen systems used in other industries to determine if there are appropriate lessons for healthcare.

The investigation also looks at the design and regulation of medical devices and how people interact with systems and devices (i.e. human factors).

https://www.hsib.org.uk/investigations-and-reports/design-and-safe-use-of-portable-oxygen-systems/design-and-safe-use-of-portable-oxygen-systems/



January 2017, Use of oxygen cylinders where patients may not have access to medical gas pipeline systems

A surge in respiratory-related conditions, has increased the demand on supplies of oxygen gas cylinders, in particular small cylinders. To ensure continuity of supply of small cylinders especially for use in ambulances, larger cylinders are being used more routinely in hospitals.

The guidance below addresses current best practice in the use of oxygen gas cylinders and asks organisations to undertake an urgent risk assessment of all acute clinical areas where patients are treated without immediate access to medical gas pipeline systems (MGPS), and oxygen cylinders are required.

https://www.england.nhs.uk/ourwork/patient-safety-alert/use-of-oxygen-cylinders-where-patients-do-not-have-access-to-medical-gas-pipeline-systems/

Additional resources are included as well as the new 'Oxygen consumption' table that can be used as a useful resource.

BOC Integral valve Oxygen cylinder. Remember to OPEN the main valve BEFORE use. Then CLOSE the main valve and vent down after use

In particular; Oxygen (Since 2009)

Home / News

Young worker loses fingers in accident

Paphos officials investigate explosion in company's basement following oxygen cylinder

Paphos officials investigate explosion in company's basement following oxygen cylinder accident

Newsroom

25 FEBRUARY 2021 - 08:35

February 2021

According to the Cyprus News Agency, a 21-year-old worker at an electrical repair shop was attempting to transfer oxygen from a large tank to a smaller one, **when an explosion took place**

A young man in Paphos was seriously injured in explosion in a company basement Wednesday morning, with reports saying doctors could be **attempting to reattach his fingers.**

https://knews.kathimerini.com.cy/en/news/young-worker-loses-fingers-in-accident

In particular; Oxygen (Since 2009)

Hong Kong society Hong Kong / Health & Environment

Hong Kong's Hospital Authority investigates death of patient, 79, after finding his oxygen cylinder valve was closed during transfer to intensive care unit

Elderly patient's oxygen levels dropped during transfer from eye ward to intensive care unit before he died, Caritas Medical Centre says

After he arrived at intensive care unit, medical staff discovered oxygen cylinder valve had not been opened

November 2023

Hong Kong's Hospital Authority has launched an investigation into the death of a 79-year-old patient…..

….. after finding that **the valve** of his oxygen cylinder used during his transfer to an intensive care unit **had not been opened**

In particular; Oxygen (Since 2009)

20 February 2024

A patient in north Wales suffered **"catastrophic" consequences**

"On review, the cylinder had **not been prepared correctly,** resulting in no flow of oxygen to the patient.

"It isn't cutting edge medical science – it should be **everyone's basic knowledge** who touches that equipment to ensure that oxygen is flowing.

https://www.bbc.co.uk/news/articles/cge7kwll8x1o

In particular; Oxygen (Since 2009)

Bangkok Post

NEWS THAILAND BUSINESS SUSTAINABILITY LIFE GURU

Gas cylinder explosion kills man at home used for storage

Owner uncertain how accident happened, saying only empty cylinders are stored on property

https://www.bangkokpost.com/thailand/general/2798165/gas-cylinder-explosion-kills-man-at-home-used-for-storage

May 2024

A worker was killed when an **oxygen cylinder exploded** at a two-storey house being used for an oxygen distribution business in Nong Khaem district of Bangkok on Thursday.

Rescue workers rushed to the scene and found a severely injured worker aged 30, with the **lower part of his body and two arms torn away by the blast.**

In particular; Oxygen (Since 2009)

https://www.bbc.co.uk/news/articles/c1ez63j4e7eo

January 2025

Patients continue to be put at risk because of **"ongoing difficulties"** with oxygen cylinders used in hospitals, an inquest has heard.

Coroner Kate Robertson said a 74-year-old patient's was hastened by him being **starved of oxygen for roughly ten minutes.**

A **health care worker** obtained a portable oxygen cylinder but soon noticed Mr Abrahams had **changed colour** and rung the emergency bell.

"It appears the oxygen cylinder **hadn't had any oxygen being released**," the coroner said.

In particular; Oxygen (Since 2009)

https://teeslaw.com/nhs-trust-death-inquest-into-st-albans-womans-empty-oxygen-cylinder/

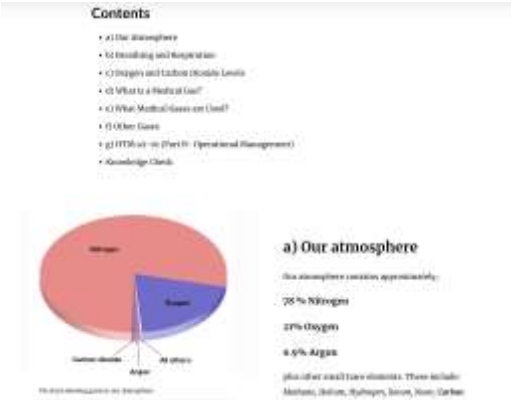
News January 2025

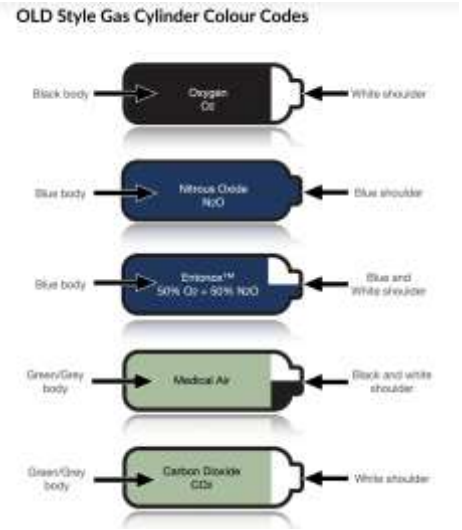
Cecilia Harper (71) died in Watford General Hospital on 9 February 2022, while **being transported from her ward to the radiology** department.

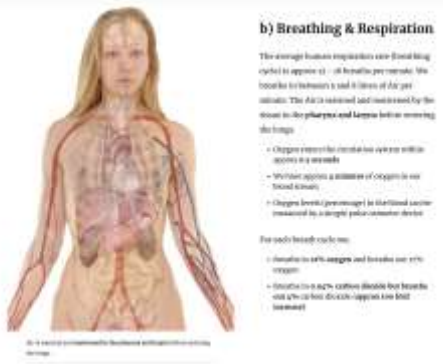
… however the journey is understood to have taken **at least six minutes.**

…… contrary to best practice for a porter and a trainee nurse to accompany a patient; Instead, she should have been **accompanied by appropriately trained professionals.**

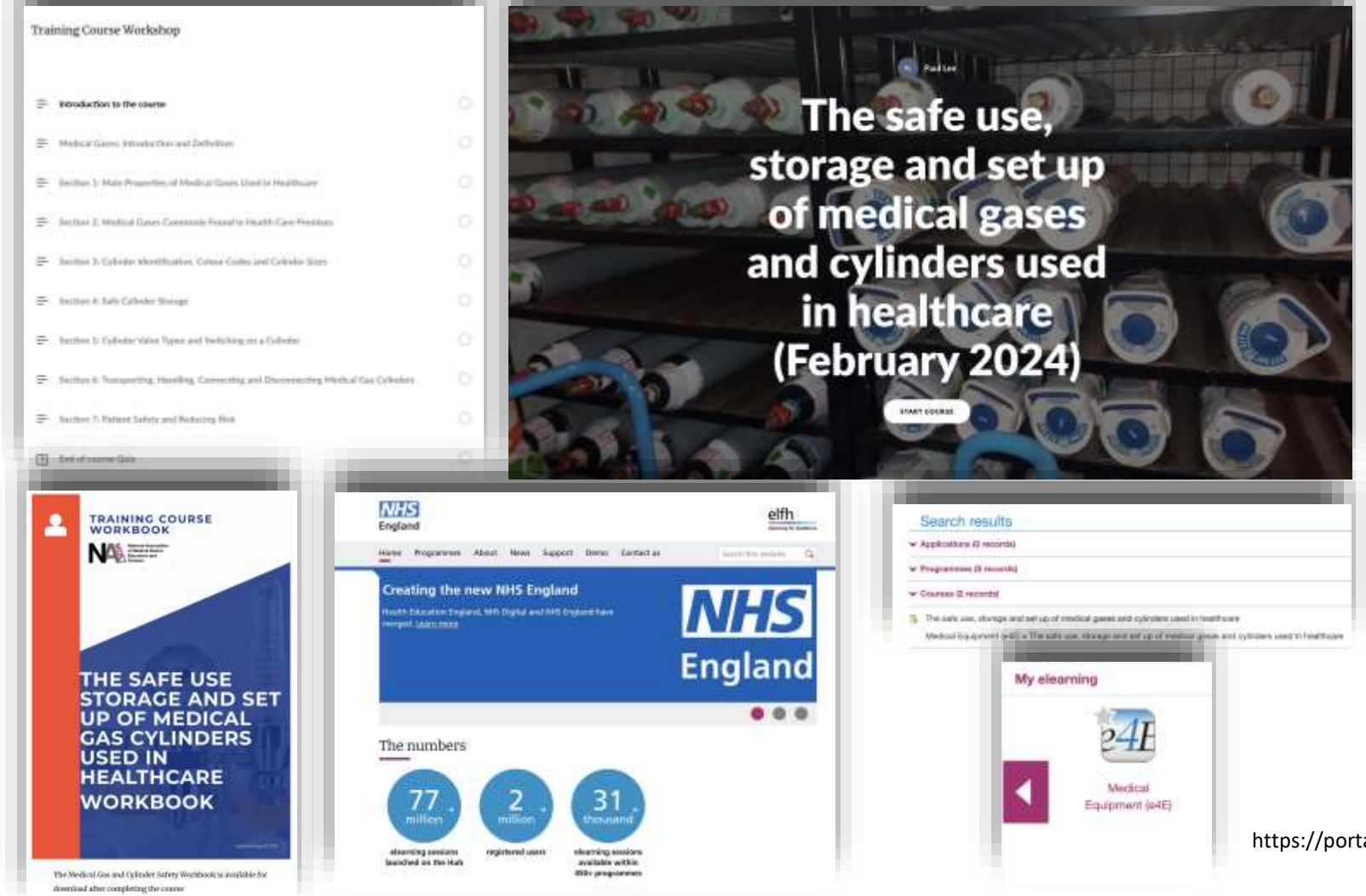
What to include……







Free to access e-learning course since August 2023 (updated February 2024)



Barts Heath NHS Trust; London;

6,000 completed in less than 1 year

NHS Wales

Now mandated as part of NHS Wales regulation 28 reply, 2025

https://portal.e-lfh.org.uk/Dashboard

2024, Winners celebrate success

IPEM

The IPEM Award for the best collaboration across clinical, academia and industry

Sponsored by the Institute of Physics and Engineering in Medicine

WINNER

The safe use, storage and setup of medical gas cylinders used in healthcare

Paul Lee, Consultant Clinical Scientist and Chair of the National Association of Medical Device Educators and Trainers, and Jordan Lee, Undergraduate Admin Assistant and Managing Editor MDET Journal, Swansea Bay University Health Board

"The judges felt that the winning team worked together to deliver quickly available and cost-effective learning. This training programme will lead to improved benefits for patients and enhance staff health and safety."

FINALISTS

A winning combination

For the first time in the 20 years' history of the Advancing Healthcare Awards, a father and daughter team are award winners. With their project to create an e-learning course to train staff in the safe handling and use of medical gases and cylinders, they won the award for the best collaboration across clinical, academia and industry, sponsored by the Institute of Physics and Engineering in Medicine.

Paul tells The Link what winning the Award has meant.

Paul Lee and his daughter Jordan (far right).

NAMDET team wins Advancing Healthcare Award

The safe use, storage and set up of medical gas cylinders used in healthcare

NHS Wales Awards 2024

Finalist

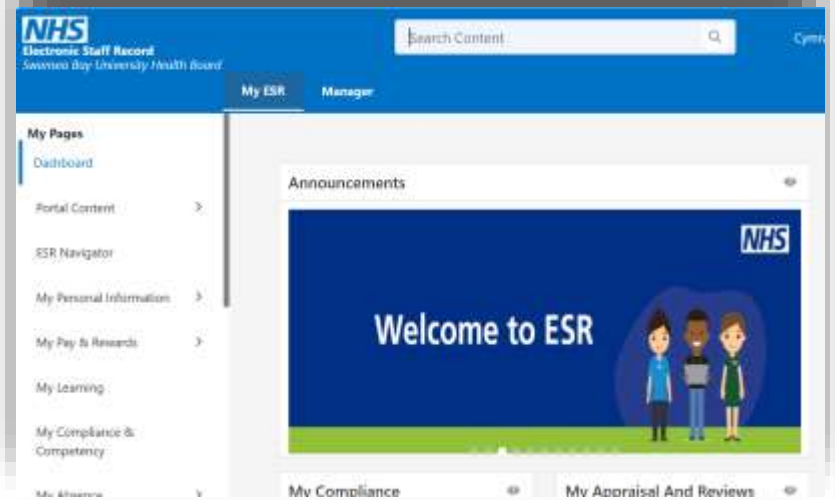
NHS Wales Learning & Research Award

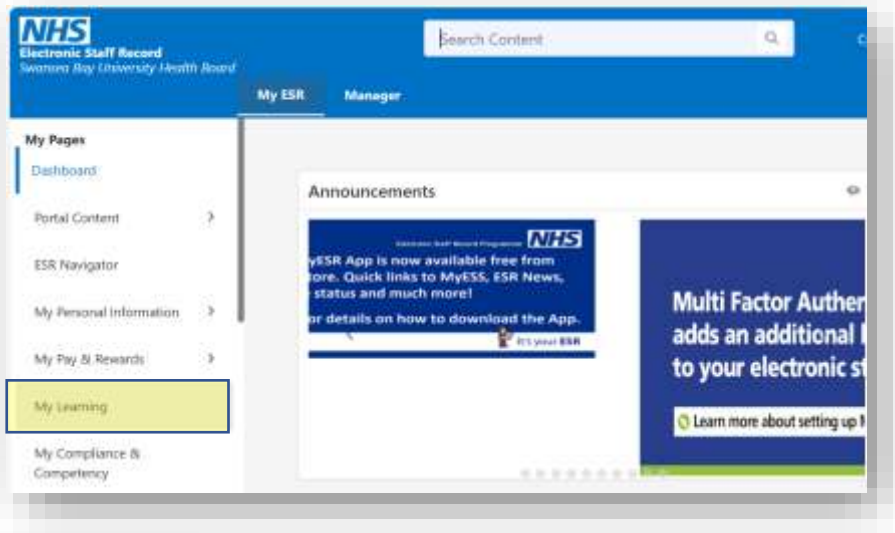
Paul Lee, Consultant Clinical Scientist, Head of MEMS, Swansea Bay University Health Board

NAMDET Team

Paul Lee, Marry Caddies, Jordan Lee, Sheryl Miller, Federica Mangione, Robert Matthews (Eugene Doherty). MHRA, NHS England, BOC, Pharmacy Specialists, NAMDET members.

As of 2025, via main WELCOME page in ESR



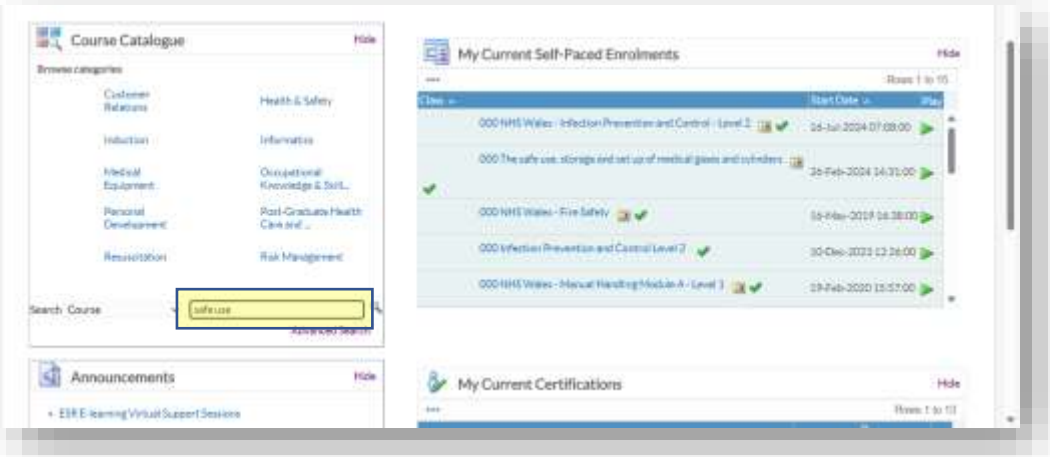


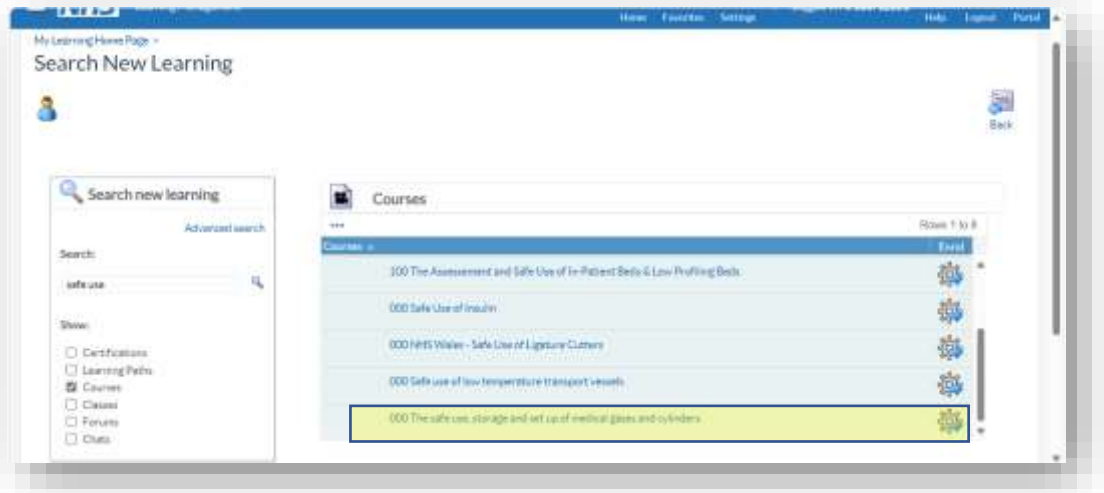
Step 1; log into ESR

Step 2; Find ‘my learning’

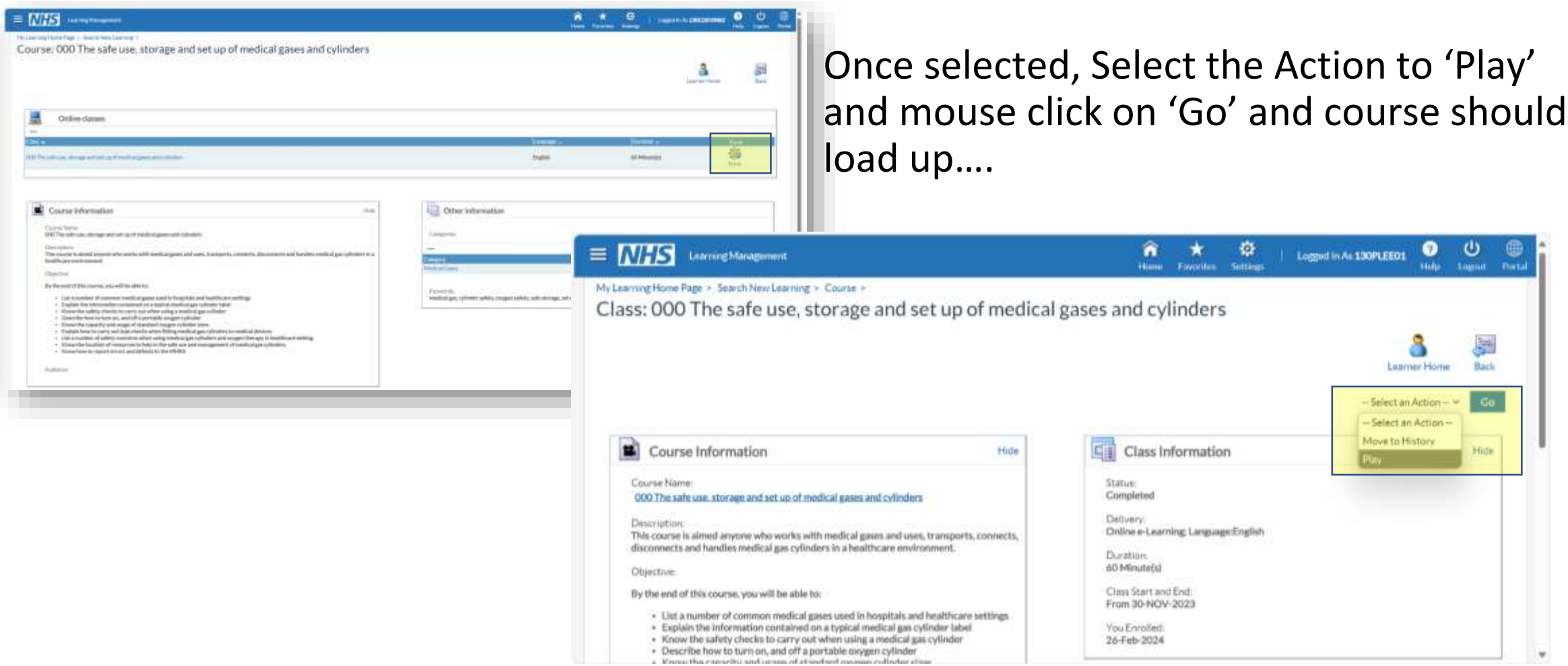
Step 3; Search for ‘safe use’

Step 4; Access the course



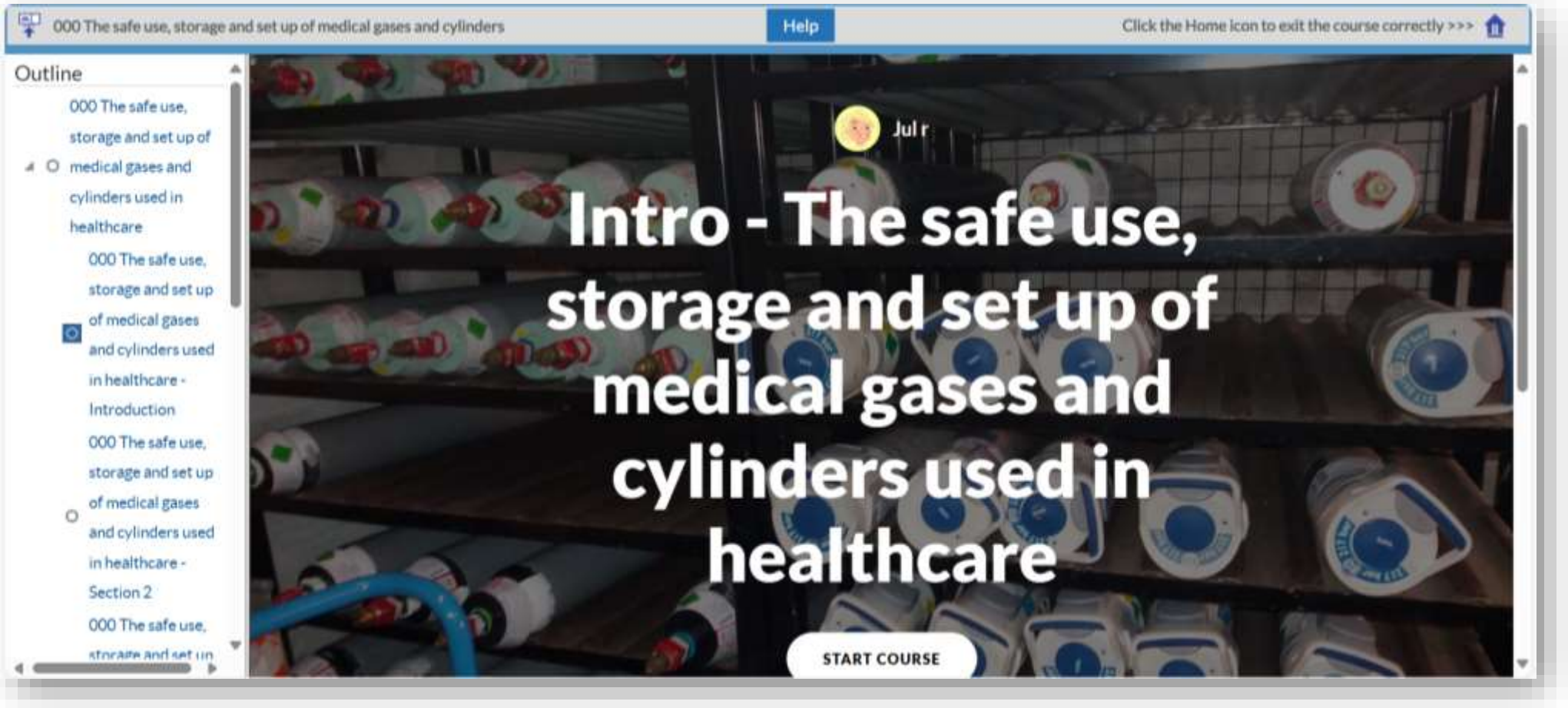


Enrol on the course……..



Once selected, Select the Action to ‘Play’ and mouse click on ‘Go’ and course should load up….

Course should load up and play…
Good luck, and don't forget to save at the end, and save/printout your pass certificate



Oxygen is a life saver

Firefighters administering oxygen to 2 cats rescued from house fire.

Photo: Longview Police and Fire in Washington state, USA.

House owner (who was saved from the fire) informed the firefighters she had 2 cats still inside !!!!!

Safe use of Beds, Bed Rails, Trolleys and Lateral Turning Devices

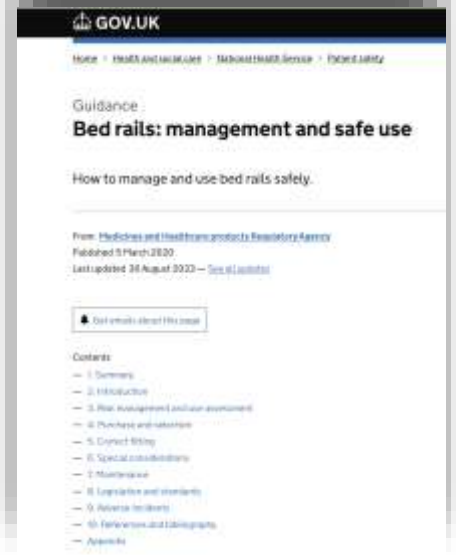
Paul T. Lee, Consultant Clinical Scientist, Head of MEMS
Swansea Bay University Health Board
Chair NAMDET www.namdet.org

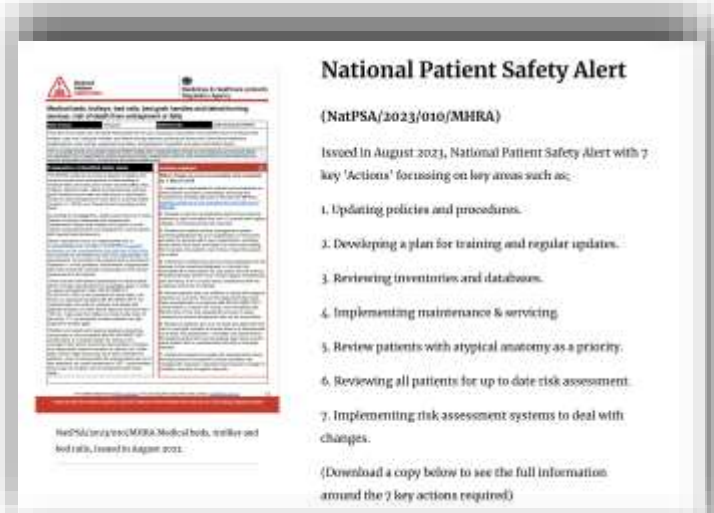
GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Bae Abertawe
Swansea Bay University Health Board

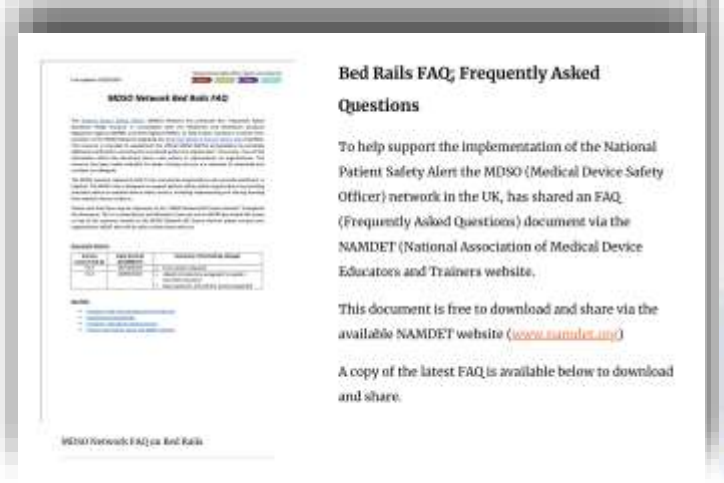
NAMDET National Association of Medical Device Educators and Trainers

EBME Expo, June 25th to 26th, 2025

Bed rails; 2007…. To 2023 and beyond







2007; NPSA

2020: MHRA

2023: MHRA, MDSO, NAMDET

https://www.gov.uk/guidance/bed-rails-management-and-safe-use

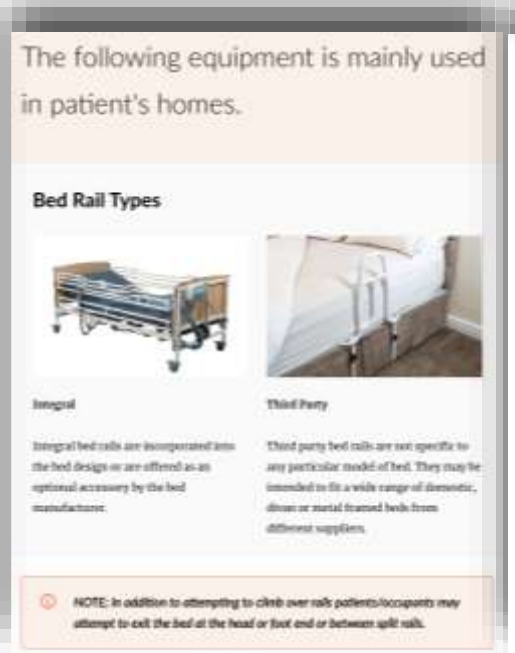
What to include….

From 1 January 2018 to 31 December 2022, the MHRA (Medicines and Healthcare products Regulatory Agency) received;

18 reports of deaths related to medical beds, bed rails, trolleys, bariatric beds, lateral turning devices and bed grab handles

54 reports of serious injuries.

The majority of these were due to entrapment or falls.


The following equipment is mainly used in patient's homes.

Bed Rail Types

Integral

Integral bed rails are incorporated into the bed design or are offered as an optional accessory by the bed manufacturer.

Third Party

Third party bed rails are not specific to any particular model of bed. They may be intended to fit a wide range of domestic, divan or metal framed beds from different suppliers.

NOTE: In addition to attempting to climb over rails patients/occupants may attempt to exit the bed at the head or foot end or between split rails.

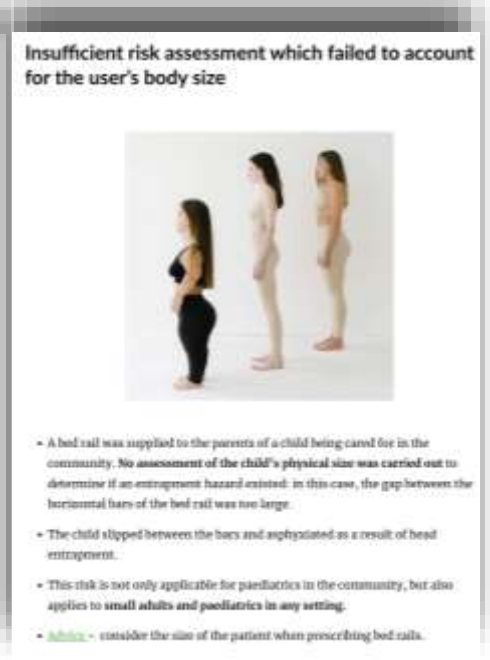
Types of beds rails and devices used in the home setting

There are a variety of beds, rails and levers available on the market. Take a look at the information below to explore the types you may come across

A lateral turning device is a tool that helps caregivers position patients and relieve pressure on body areas. These devices can help prevent and treat pressure ulcers, and can help protect caregivers from injury.

Risks associated with lateral turning devices include:

- **Falls**. If the head of the bed is raised, the risk of falling increases.
- **Entrapment**. Patients can become trapped in gaps between the rails and the mattress, bed frame, or the rails themselves. In serious cases, entrapment can lead to asphyxiation or death.
- **Pressure ulcers**. Patients on lateral rotation beds can develop pressure ulcers on their heels, sacrum (base of the spine) and occiput (back of the head or skull).
- **Incompatibility**. Using the wrong equipment for a patient's body type can be dangerous.
- **Automatic use**. Some devices can be set to turn 'automatically' when the caregivers are NOT present. This of course presents additional risks

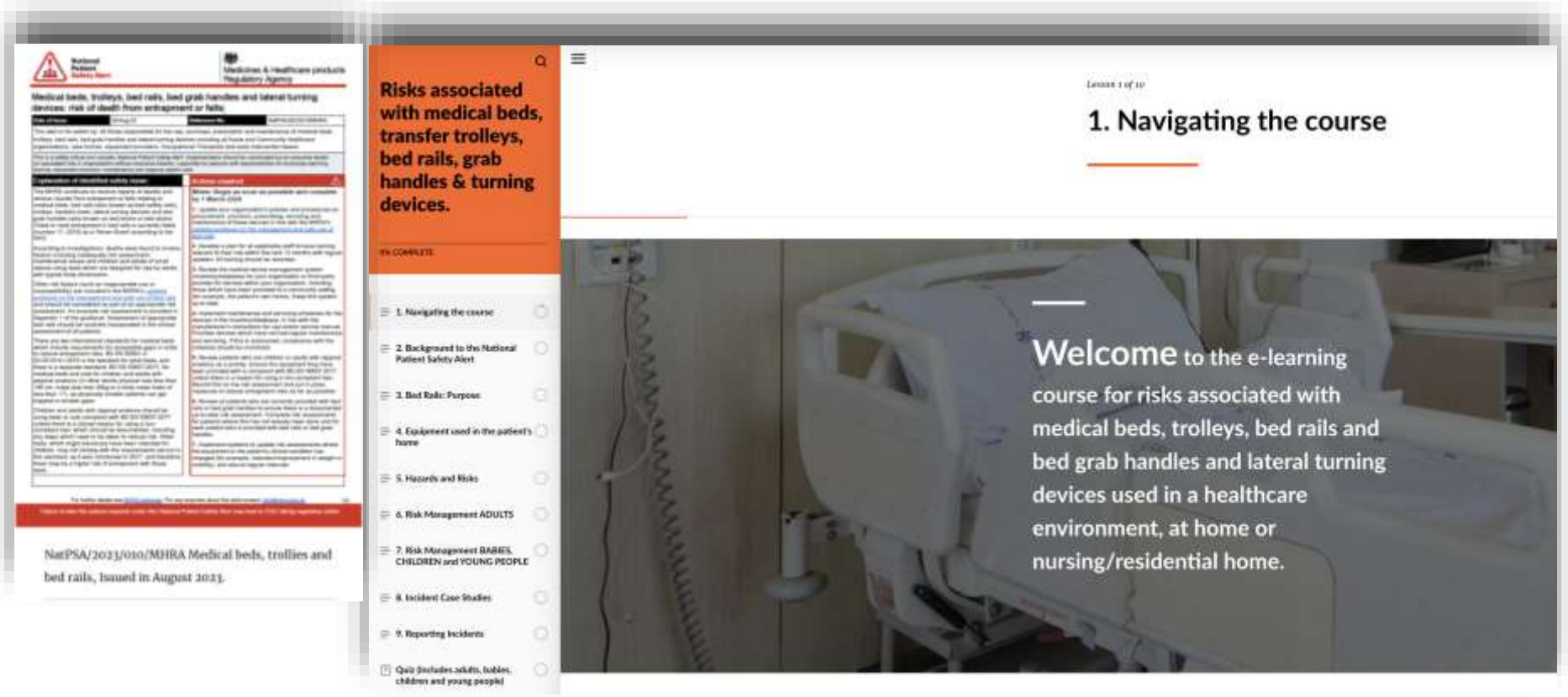

Insufficient risk assessment which failed to account for the user's body size

- A bed rail was supplied to the parents of a child being cared for in the community. **No assessment of the child's physical size was carried out** to determine if an entrapment hazard existed: in this case, the gap between the horizontal bars of the bed rail was too large.
- The child slipped between the bars and asphyxiated as a result of head entrapment.
- This risk is not only applicable for paediatrics in the community, but also applies to **small adults and paediatrics in any setting.**
- Advice – consider the size of the patient when prescribing bed rails.

Incidents, hospital beds, community beds, trolleys, bed rails, grab handles, adults, paeds, atypical anatomy, risks assessments safe gaps and measurements…..

And a quiz !

Here it is; June 2025 via ESR



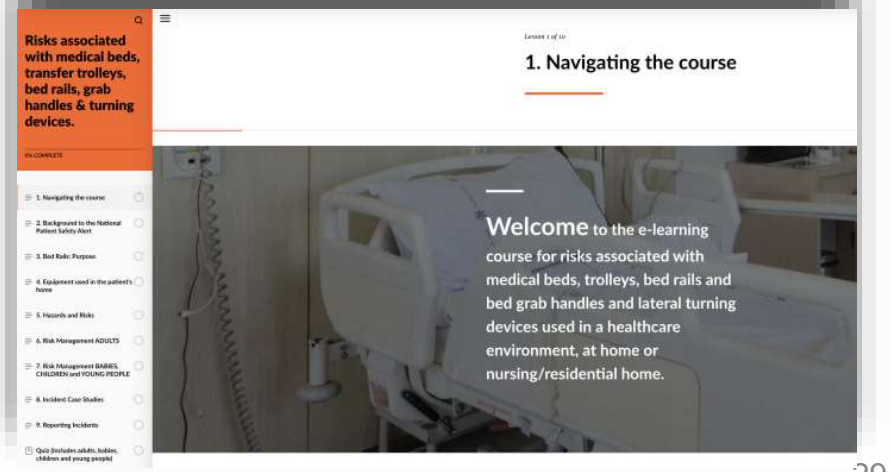
- 30 minute ‘bite size’ learning
- Interaction
- 2 x short videos
- 9 modules
- End of course assessment
- Available via ESR
- Free to other LMS systems

Input from; NAMDET, MHRA, NHS England Patient Safety Team, MDSO Network, Kirklees Council, NRS Ltd.

All this knowledge…….

John C Maxwell; *"The goal of all learning is **action, not knowledge**," make a positive change or achieve a desired outcome.*

***Learn** something new…..*
***Share** what you learn….*
***Change** what you do…..*
(Paul Lee. June 2025)



ebme Expo
25th–26th June 2025
Coventry Building Society Arena, Coventry

EXHIBIT VISIT CONFERENCES EXHIBITOR LIST WORKSHOPS WEBINARS INFO ABOUT US BOOK A STAND PRE-REGISTER

Safe use of Medical Gases and Oxygen Therapy

(… and beds and bed rails….)

Paul T. Lee, Consultant Clinical Scientist, Head of MEMS
Swansea Bay University Health Board
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