

Rebreathing new life into oxygen therapy

Ms Carol Doherty - ANP RIC

Ms Hazel Gillespie - Respiratory CNS

Ms Sinead Keating - Respiratory CNS

Dr Olga Mikulich - Consultant Respiratory
Physician

Letterkenny University Hospital



Oxygen Therapy

- Oxygen is a prescribed medication and should be regarded as any other therapeutic drug (BNF 2017)
- The mismanagement of supplemental oxygen therapy can result in the deterioration of a patient or contribute to death through inappropriate prescribing, administering & monitoring (Nippers & Sutton 2014).

“

‘Without a valid prescription which includes a target range, there is the danger that patients will be given too little oxygen or too much oxygen and thus be placed at risk of increased mortality’

(O Driscoll, R. [2016] BTS Emergency oxygen audit report, page 1)

”

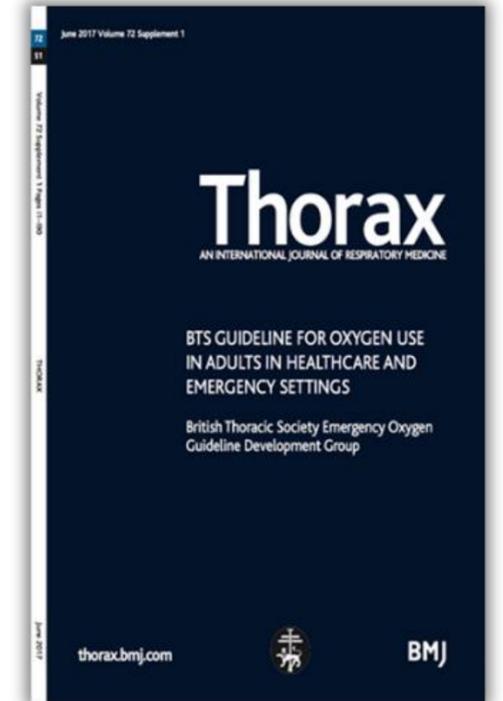
“

‘Oxygen Therapy is the administration of oxygen at concentrations greater than that in the ambient air with the intent of treating or preventing hypoxia’

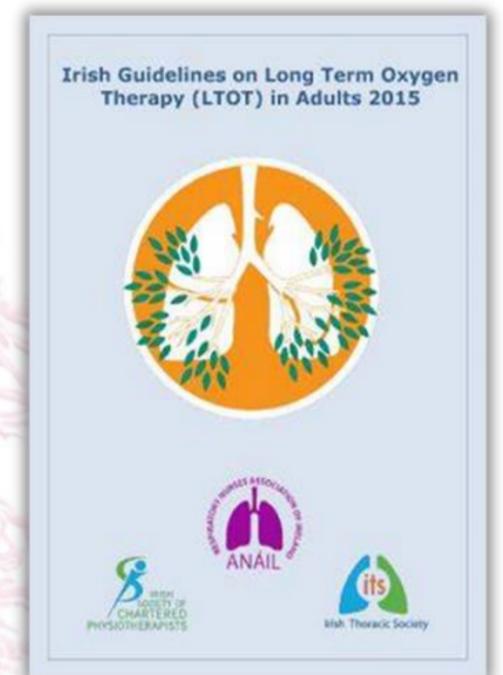
(ITS Irish Guidelines on the Administration of Oxygen Therapy in the Acute Clinical Setting in Adults [2017], page 6)

”

BTS
British Thoracic Society

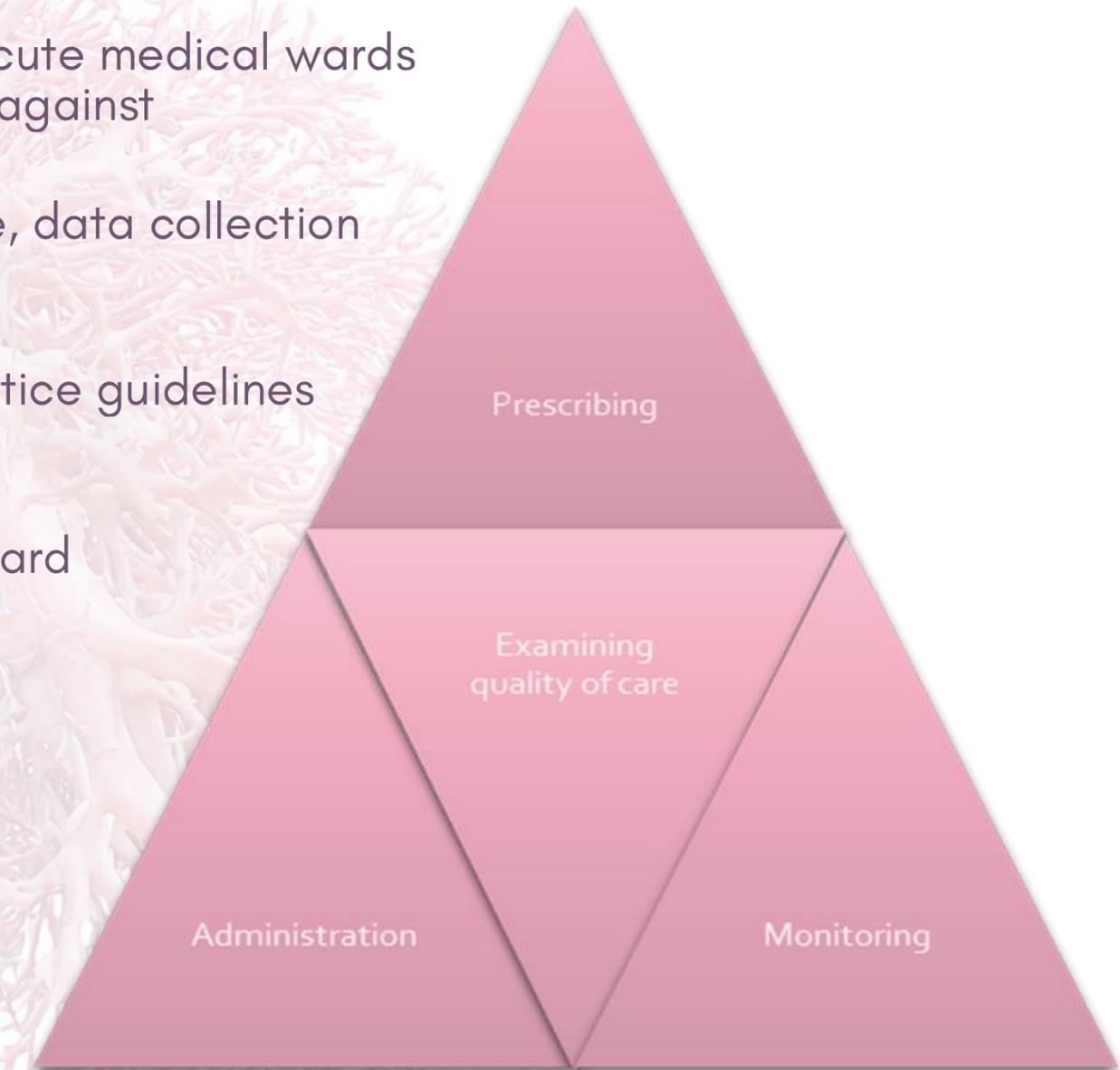


ITS
Irish Thoracic Society



Rebreathing new life into oxygen therapy - Audit Stages

- 1** **Stage 1:** Practice of prescribing, administering and monitoring of patients on oxygen therapy in the acute setting
- 2** **Stage 2:** 60 Patients requiring oxygen in LUH in two acute medical wards and set best practice guidelines (BTS/ITS) to measure against
- 3** **Stage 3:** Audit tool based on BTS emergency template, data collection weekly
- 4** **Stage 4:** Data analysed and compared with best practice guidelines (BTS/ITS)
- 5** **Stage 5:** Report communicated to stakeholders and ward staff
- 6** **Stage 6:** QI plan and action discussed with team
- 7** **Stage 7:** Re-audit concluded December 2025



Audit - October 2024

For the **60** patient in the original audit there were **334** opportunities for the Drug Prescription & Administration Kardex to be signed for administration of oxygen in the 24-hour prior to the audit.

Administration of oxygen was signed for **9 (2.7%)** times during the 24-hour period.

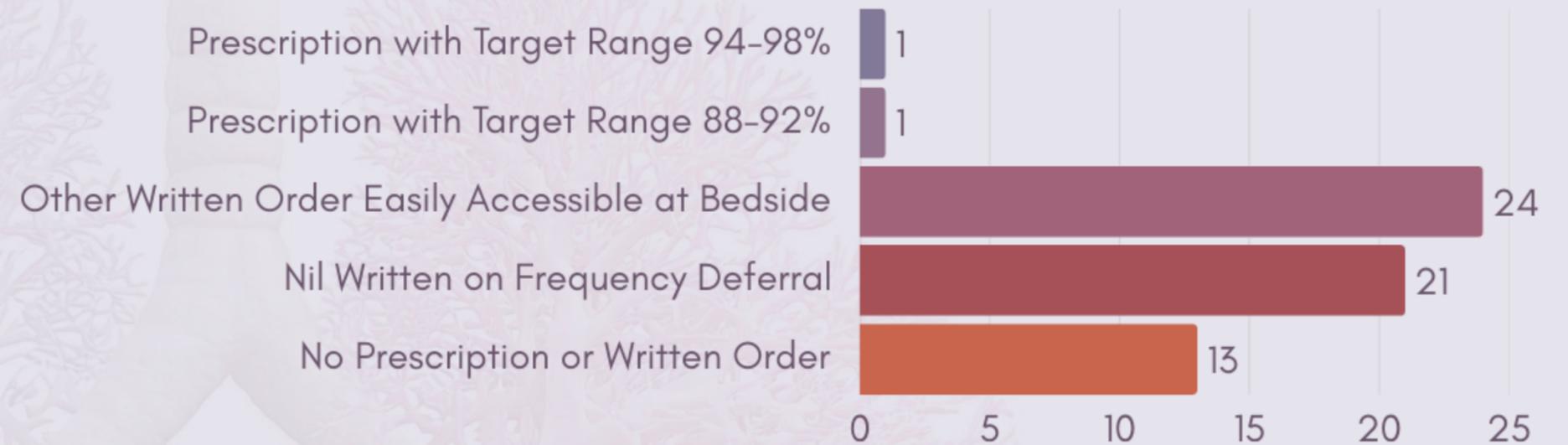
Oxygen prescribed on Drug Kardex

Oxygen prescribed on Drug Kardex
3.3%

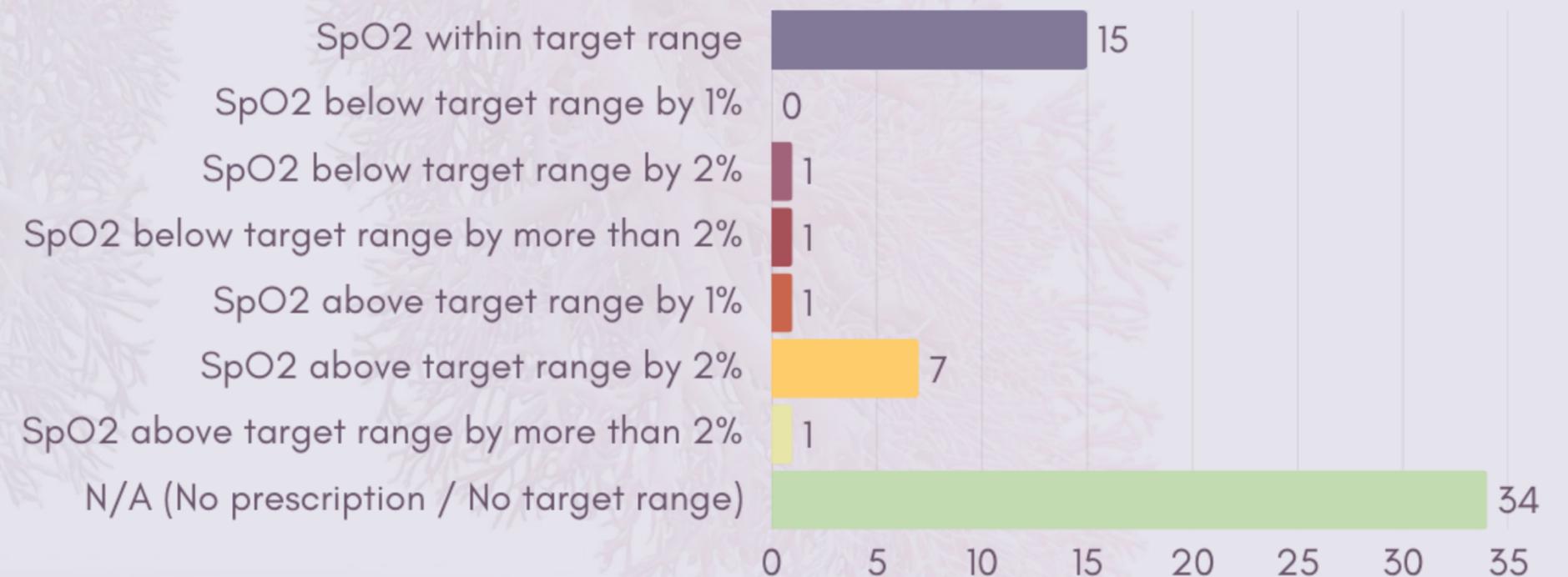


Oxygen NOT prescribed on Drug Kardex
96.7%

Prescription



Monitoring (at last assessment)



Identifying the Key Issues

Oxygen Questionnaire - 30 questionnaires completed

1. What are target saturations for a patient with COPD with a history of carbon dioxide retention?

Correct Answers 27/30 - **Incorrect Answers 3/30**

2. What is the minimum amount of oxygen you can use with a non-rebreather mask?

Correct Answers 16/30 - **Incorrect Answers 14/30**

3. What is the maximum amount of oxygen that can be given via nasal specs?

Correct Answers 25/30 - **Incorrect answers 5/30**

4. How many litres of oxygen is 40% FiO₂?

Correct Answers 6/30 - **Incorrect answers 24/30**

5. Does oxygen need to be prescribed?

Correct Answers 20/30 - **Incorrect Answers 10/30**

Quality Improvement Plan

ISSUE	ACTION/TIME FRAME
<p>Oxygen not been prescribed within a target range <i>Time frame: August 2025</i></p>	<ol style="list-style-type: none"> 1. Ward based education sessions. 2. Placing notices in relevant areas to remind Doctors to prescribe oxygen. 3. Placing notices on drug trolleys to highlight the need to sign for the administration of oxygen therapy. 4. Present at Respiratory Journal club/LUH Grand rounds
<p>Oxygen is not been weaned appropriately <i>Time frame: August 2025</i></p>	<ol style="list-style-type: none"> 1. Respiratory team have developed a poster highlighting the various oxygen devices. 2. HFNC (Airvo) training facilitated for ED/AMAU/ward staff.
<p>Knowledge on home oxygen devices (patients are been discharged home on inappropriate devices & there is a risk of readmission) <i>Time frame: August 2025</i></p>	<ol style="list-style-type: none"> 1. The Respiratory team have produced a booklet on various home oxygen devices in the form of a picture board. Available on all medical wards/ED/AMAU. 2. A discharge on oxygen checklist was developed and distributed to wards outlining the process for prescribing oxygen therapy for discharge in accordance to best practice recommendations. 3. Training organised for Physiotherapy team on portable home concentrator.
<p>Patients are discharged from hospital on new prescription of LTOT/AOT with no written information <i>Time frame: August 2025</i></p>	<ol style="list-style-type: none"> 1. The Respiratory team have collaborated with patients to develop an informational leaflet for patients been discharged on oxygen therapy entitled 'Going home on Oxygen' 2. Patients will be issued with an oxygen alert card with prescribed target saturation range which should be presented if they contact National Ambulance Service or attend ED/AMAU. 3. Tosca training facilitated for hospital and community Respiratory teams.
<p>Re-Audit</p>	<p>Oct 2025</p>

Funding NMPDU

Equipment

Tosca-transcutaneous
co2 detector



Inogen portable
concentrators (x2)



Nonin pulse oximeters
(x2)



Staff Poster

SIMPLE OXYGEN DELIVERY DEVICES

Oxygen Safety

- Oxygen is a medication so it **must be prescribed and signed** as administered on every medication round
- Target saturations should be identified for all patients
- Special attention should be given to patients who retain CO2 i.e COPD to maintain target saturations of 88% - 92%
- Efforts should be made to **wean oxygen** as soon as clinically appropriate

NASAL CANULA

- 1 - 6L O₂/min
- Any more than this is in-effective
- Can be humidified to prevent dry nasal passages

VENTURI MASK

Delivers a fixed amount of Oxygen up to 15L O₂

Blue	White	Yellow	Red	Green
3L/min	4L/min	5L/min	6L/min	7L/min
24%	28%	35%	40%	45%

NON-REBREATHER MASK

- Delivers between 60% - 90% FIO₂ when at a flow rate of 12L - 15L O₂
- Concentration is not accurate and depends on flow rate and patients breathing pattern
- Should only be used in emergency situation when carbon dioxide retention is unlikely

Patient Information Leaflet

our Oxygen Supplier

In Donegal, your oxygen is delivered by a company called **Air Liquide**. This company is responsible for delivering and setting up your oxygen, maintaining your equipment and repair of your oxygen equipment.

It is important to follow the guidelines given to you by the company on the delivery of the equipment. Should you have any issues you must contact the company as soon as possible.

Air Liquide
Head Office: 01 809 1800
Email: health@airliquide.ie

GOING HOME FROM HOSPITAL WITH OXYGEN

WHY HAVE I BEEN PRESCRIBED OXYGEN?

Oxygen is needed to enable the organs of the body to work efficiently. Sometimes the lungs cannot get enough oxygen into the blood and this can put a strain on the heart and other blood vessels.

Some patients may require oxygen at home after a severe illness or due to a deterioration in a chronic condition such as COPD or Pulmonary Fibrosis.

In the case of acute illness, your oxygen levels should return to normal and oxygen treatment can be discontinued. This however, may take a number of weeks or months.

HOME OXYGEN EQUIPMENT

PORTABLE OXYGEN CYLINDER

This can be used when mobilising outside of the home. It can deliver up to 15L on continuous flow. When set at a flow rate of 2L/min, this cylinder will last up to 4 hours.

STATIONARY OXYGEN CONCENTRATOR

Oxygen concentrators take air from your surroundings, extract oxygen and filter it into purified oxygen for you to breathe. This can deliver from 0.5L/min up to 5L/min. This will be used when at home when requiring oxygen 24hrs/day.

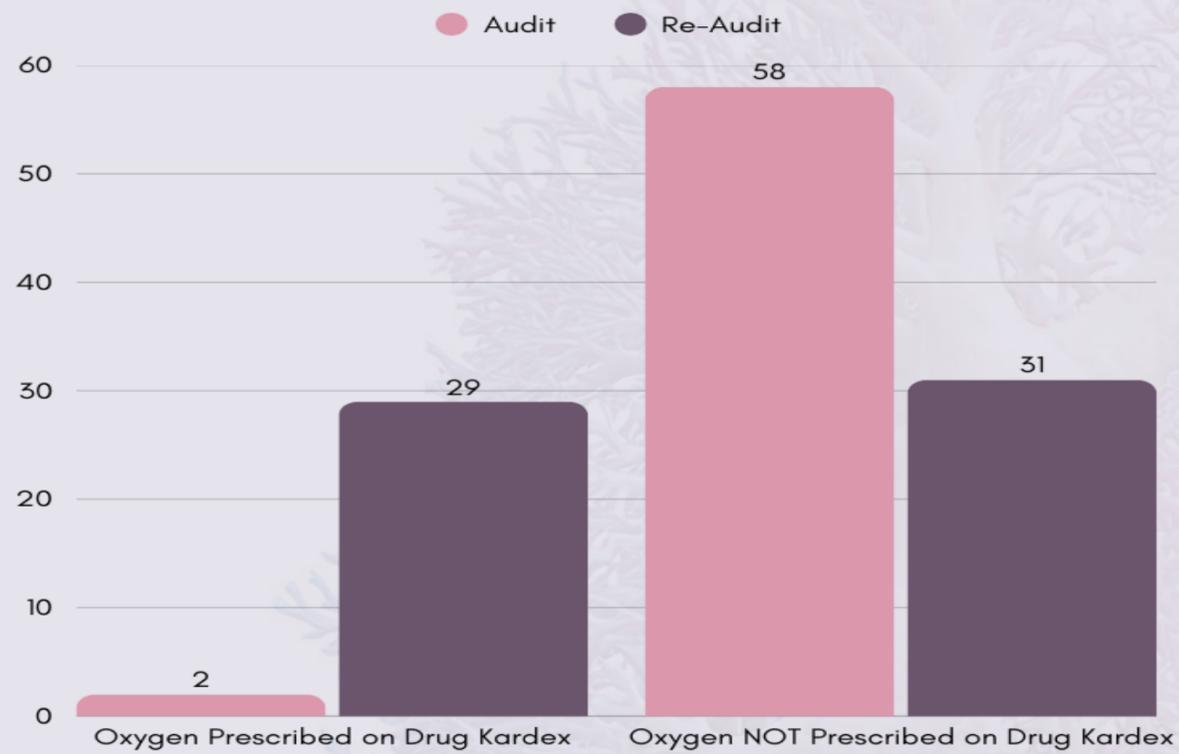
FOLLOW UP CARE

When you are discharged from hospital, you will receive an appointment for the Oxygen Assessment clinic. This will be scheduled for approximately 6 weeks after your discharge. This appointment is to assess if your oxygen levels are still low and if you still require oxygen.

Oxygen is a drug and must be used as prescribed. Too much oxygen can be dangerous for patients with conditions such as COPD. Blood Gas tests will be used to determine how much oxygen is required.

Re-Audit October 2025

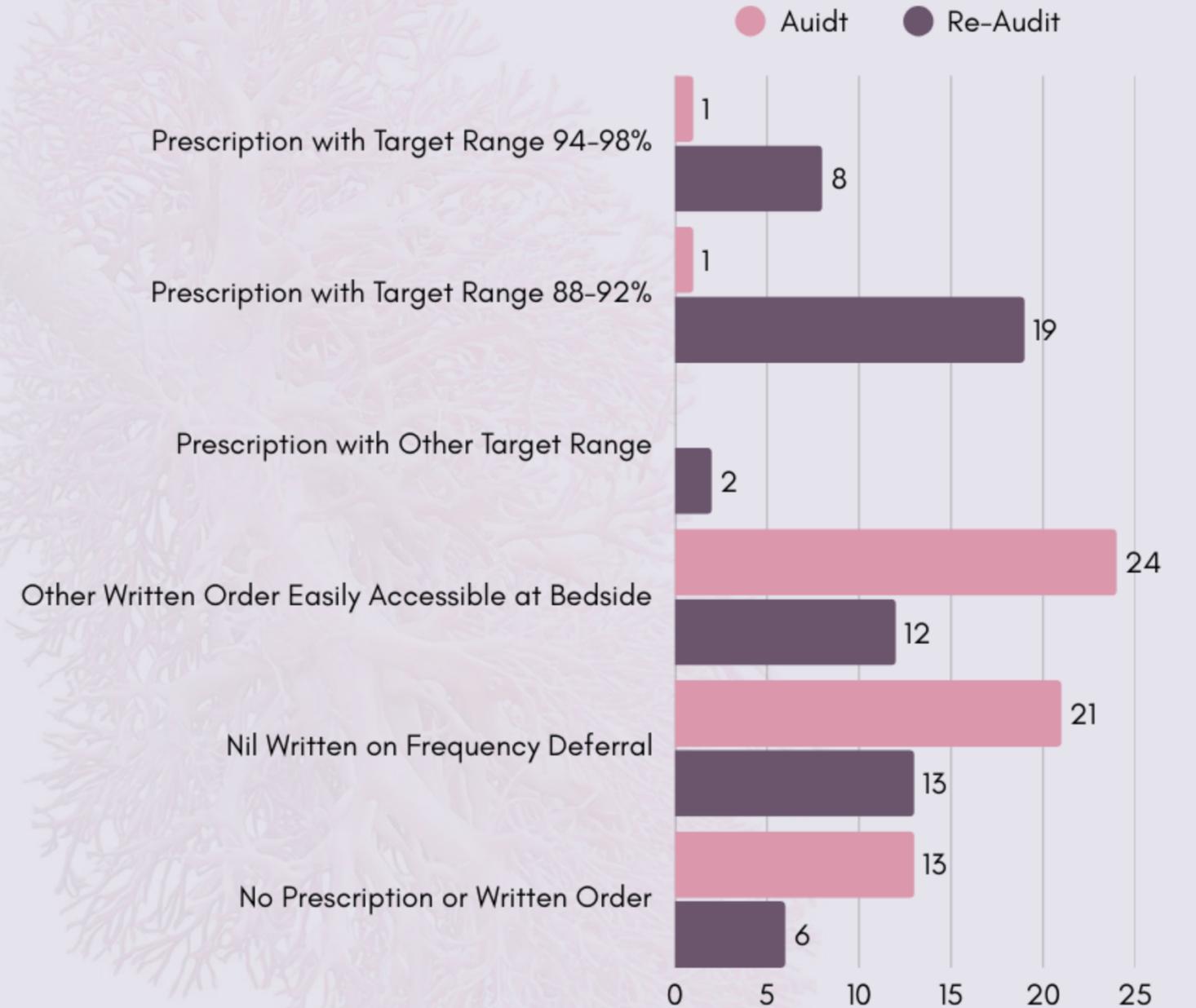
Emergency Oxygen prescribed on drug kardex



Administration

There was 340 opportunities for the drug kardex to be signed for the administration of oxygen therapy in the 24 hours prior to the audit. The administration of oxygen therapy was signed 54 times (15.9%).

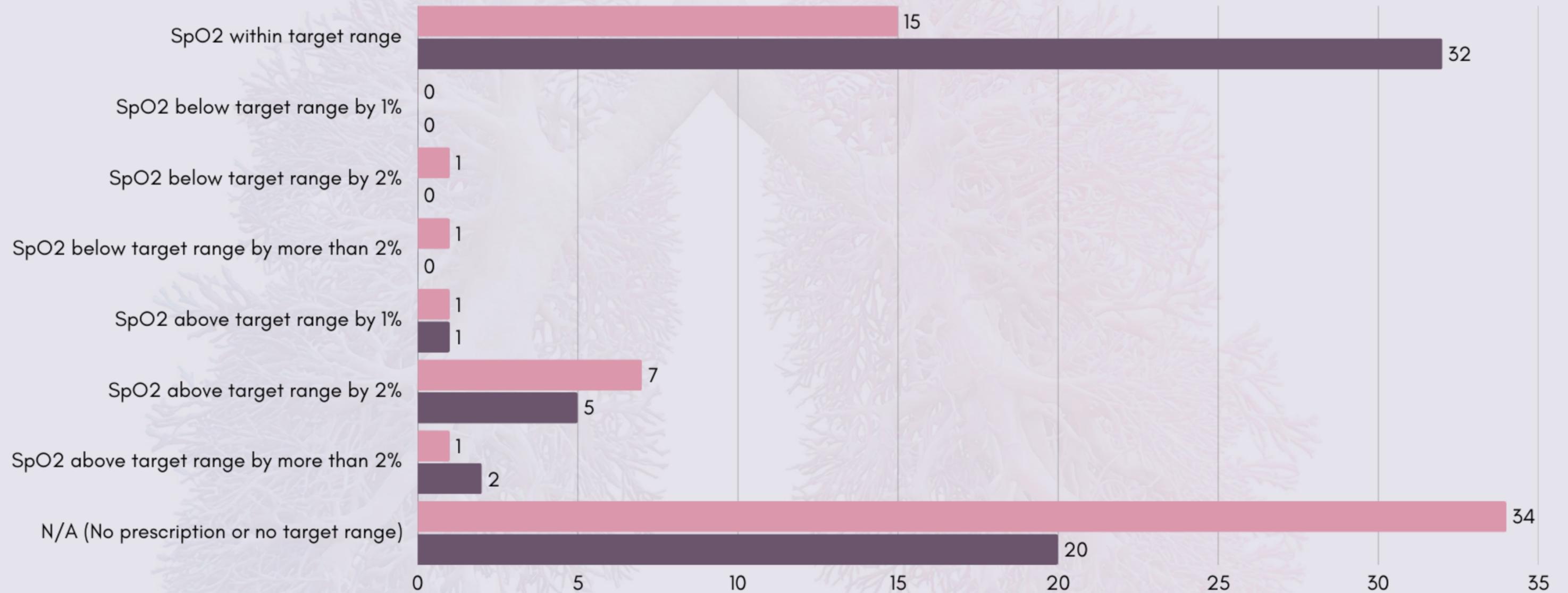
Prescription



Re-Audit October 2025

Monitoring (at last assessment)

Audit Re-Audit



The Future



**Oxygen Alert
Wristband Initiative**
Community Initiative



**Continued
Education**



**Oxygen
Workshops**

The Project Team



***With acknowledgement and thanks to Aine Slevin - Clinical Audit Facilitator (LUH)
and Aoibhinn Moreton (Clinical Audit)***