

# Documenting oxygen therapy and response for safety

## What you need to know

The use of oxygen therapy in hospital settings must be documented appropriately and consistently using paper-based or digital formats. Documentation needs to include the:

- Commencement date and time
- Delivery system when commencing and varying oxygen therapy – for example, a mask or nasal prongs/cannulae
- Oxygen flow rate/concentration when commencing and when varying oxygen therapy
- Target oxygen saturation range, either individualised ranges or according to standard vital sign observation and response charts, as appropriate for the patient
- Monitoring of response against targets or thresholds and cessation of therapy.

Measurement and recording of vital signs, including oxygen saturation, contributes to best practice monitoring for signs of acute deterioration. Every patient is required to have a clear individualised monitoring plan, with vital signs graphically documented. Thresholds for oxygen saturation should be documented in the individualised monitoring plan.

In a medical emergency with acute physiological deterioration, administration of oxygen should not be delayed. Documentation of the outcome and ongoing oxygen requirements should occur as soon as possible.

Clinician education and training should include appropriate prescribing, administration, monitoring and documentation of oxygen therapy.

There is no legislation to require a prescription order for oxygen prior to administration. However, oxygen carries the same risk as high-risk medicines and safe management requires similar documentation to medicines. There are systems and protocols in place for prescribing and documenting oxygen therapy in the ICU setting.

Guidance on oxygen therapy for specific clinical indications, oxygen saturation targets and oxygen delivery mechanisms is outlined in the Thoracic Society of Australia and New Zealand [Position Statement on Acute Oxygen Use in Adults: Swimming between the flags \(2022\)](#).<sup>1</sup>

## Purpose and rationale

**Variation in the documentation, administration and monitoring of oxygen therapy in hospital settings can lead to hypoxaemia or hyperoxaemia, with the risk of significant patient harm.**

## This fact sheet:

- Provides guidance for health service organisations and clinicians on processes to support appropriate documentation around the administration, and monitoring of oxygen therapy for adults in acute healthcare settings
- Is an addendum to the National Consensus Statement: Essential elements for recognising and responding to acute physiological deterioration<sup>2</sup>, which recommends the use of graphical observation and response charts for documenting and tracking changes of vital signs and other observations
- Complements the Commission's Chronic Obstructive Pulmonary Disease (COPD) Clinical Care Standard<sup>3</sup>, which includes specific guidance on the use of oxygen and ventilatory support during COPD exacerbations in acute healthcare settings.

## Out of scope

This guidance does not provide recommendations on oxygen therapy for specific clinical indications, oxygen saturation targets or oxygen delivery mechanisms. Guidance on these issues is provided in the Thoracic Society of Australia and New Zealand [Position Statement on Acute Oxygen Use in Adults: Swimming between the flags \(2022\)](#).<sup>1</sup>

Oxygen administration during procedural sedation and anaesthesia is also out of scope.

## Oxygen therapy

Oxygen is a medicinal (or therapeutic) gas and an important treatment option in acute healthcare settings.

Unlike most other medicines, the amount of oxygen and mode of delivery requires adjustment in real-time to achieve a targeted outcome. This contrasts with a traditional "prescribed" dose and route of administration of a medicine with a subsequent treatment outcome. This means that the documentation and monitoring requirements for oxygen therapy differ to those of most other prescribed medicines.

Oxygen titrations, or changes to the oxygen flow rate, are often managed by nurses which may influence where they are most appropriately documented within clinical systems. Inadequate documentation, administration and monitoring of oxygen therapy can result in hypoxaemia or hyperoxaemia, with the potential for serious patient harm.

## Documenting the requirement for oxygen therapy

Documentation to support the safe use of oxygen needs to include the:

- Commencement date and time
- Delivery system to be used when commencing and varying oxygen therapy – for example, a mask or nasal prongs/cannulae
- Oxygen flow rate/concentration when commencing and when varying oxygen therapy. This could be in the form of a range.

The clinician who documents the requirement for oxygen therapy should sign and date and print/record their name legibly on the patient's individualised monitoring plan, for instance, a vital sign observation and response chart (paper-based or digital format). Paper-based or digital tools need to include variations designed to address the needs or circumstances for specific populations such as maternity and paediatric patients or specific diagnoses, such as sepsis, stroke or COPD.<sup>3</sup>

### **Documenting the target saturation range for oxygen therapy**

To manage the risks of hypoxaemia and hyperoxaemia, a specific target oxygen saturation range should be documented using the local vital sign observation and response chart. For many patients, the target oxygen saturation indicated on the vital sign observation and response chart will be appropriate. However, altered targets and calling criteria may apply for specific patient groups. For example, a target oxygen saturation of between 88% and 92% is recommended for most patients with COPD, unless otherwise advised.<sup>3</sup>

Refer to the Thoracic Society of Australia and New Zealand [Position Statement on Acute Oxygen Use in Adults: Swimming between the flags \(2022\)](#)<sup>1</sup> and state and territory policies for recommended target oxygen saturation ranges.

### **Documenting the monitoring and cessation of oxygen therapy**

Patients should be monitored accurately for signs of clinical improvement or deterioration against their individualised oxygen saturation targets or thresholds as clinically appropriate. Pulse oximetry measurements should be recorded with a frequency dependent on the indication being managed, and the stability of the patient's condition in accordance with local guidelines and context-specific protocols and pathways. Cessation of oxygen therapy should also be documented.

### **Where and how to document oxygen therapy**

Oxygen therapy should be appropriately and consistently documented using paper-based or digital formats. This may include the patient's electronic medication record (EMR), progress notes or a structured paper-based tool, such as a vital sign observation and response chart.

A paper-based medication chart such as the national standard medication chart (NSMC) does not accommodate the documentation, administration and monitoring of oxygen therapy. However, the NSMC may be used to record that oxygen therapy has been ordered and refer clinicians to where the administration and monitoring of oxygen therapy is graphically documented.

Oxygen alert stickers may also be useful to apply within a patient's paper-based progress notes or on their NSMC.

Documentation of oxygen therapy should be incorporated in clinician education and training alongside other principles of safe prescribing, administration, and monitoring of oxygen therapy. The College of Intensive Care Medicine of Australia training syllabus recognises oxygen therapy as a therapeutic agent; trainees are taught and assessed to consider the pharmacology of oxygen.

### **Medical emergency**

In a medical emergency with acute physiological deterioration, administration of oxygen should not be delayed and should be documented as soon as possible, including the ongoing requirements for oxygen therapy. Documentation should include the outcome of treatment and other relevant information, such as modification to the usual frequency of monitoring vital signs and whether the patient is at risk of hypercapnia (retains carbon dioxide – CO<sub>2</sub>), which should be recorded in clinical handover or as part of care transition for the patient. Local guidelines and context-specific protocols and pathways also need to include advice on when an urgent clinical review is required.

### **National resources and guidelines**

For further guidance on the management and use of oxygen therapy, refer to:

- Thoracic Society of Australia and New Zealand [Position Statement on Acute Oxygen Use in Adults: Swimming between the flags \(2022\)](#)<sup>1</sup>, with [educational resources](#)

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- National (Thoracic Society of Australia and NZ) Clinical practice guidelines for [Clinical use of pulse oximetry](#) (2014)<sup>4</sup>
- Australian and New Zealand Resuscitation Councils: [ANZCOR Guideline 11.6.1 – Targeted Oxygen Therapy in Adult Advanced Life Support](#)<sup>5</sup>
- Australian Commission on Safety and Quality in Health Care. [Chronic Obstructive Pulmonary Disease \(COPD\) Clinical Care Standard](#)<sup>3</sup>

## Background

### Recognising and responding to acute deterioration

The initiation and monitoring of oxygen is closely aligned to the monitoring of a patient's vital signs. The National Safety and Quality Health Service (NSQHS) Standard: [Recognising and responding to acute deterioration](#)<sup>6</sup> and the National Consensus Statement: [Essential elements for recognising and responding to acute physiological deterioration \(third edition\)](#)<sup>2</sup> outline the essential elements or features of systems for recognising and responding to acute deterioration in patients. Oxygen saturation is a 'vital sign' measured by pulse oximetry.

The Commission's [COPD Clinical Care Standard](#)<sup>3</sup> includes specific guidance on the use of oxygen and ventilatory support during COPD exacerbations in acute healthcare settings.

### Safety issues with oxygen

In Australia, oxygen is an unscheduled item within [The Poisons Standard](#)<sup>7</sup> and there is no legislation that requires a prescription order for oxygen; however, Western Australia requires a prescriber to initiate oxygen therapy. Along with other therapeutic gases, oxygen is classified by the Therapeutic Goods Administration (TGA) as a medicine under the *Therapeutic Goods Act 1989*. Oxygen carries the same risk as high-risk medicines and safe management requires documentation of parameters similar to medicines.

Oxygen is one of the most used emergency therapies.<sup>8</sup> Like other therapies, oxygen can cause harm if used inappropriately. There are risks associated with unrelieved hypoxaemia due to insufficient or delayed oxygen therapy, and hyperoxaemia and hypercapnia due to excessive oxygen therapy.<sup>9</sup>

Evidence-based guidance for oxygen use is available.<sup>1,4,5,10</sup> However, coronial inquiries and state and territory incident reports relating to oxygen therapy identify several safety issues including:

- Wrong route of administration
- Failure to record oxygen requirements
- Insufficient and poorly monitored oxygen therapy
- Failure to record and communicate observations
- Failure to identify and act upon falls in oxygen saturation
- Poor documentation practices.

Oxygen therapy should only be used by personnel trained in its use, and its effects on blood oxygen saturation should be monitored whenever possible. Monitoring is usually with pulse oximetry<sup>5</sup>, noting there are limitations of use; multiple factors, including skin pigmentation, can impact accuracy.<sup>11</sup> Blood gas analysis can also be used to monitor blood oxygen saturation. It is recommended that clinician education and training programs (including at orientation) include the appropriate prescribing, administration, monitoring and documentation of oxygen therapy.

The governance process for safe documentation, administration and monitoring of oxygen described in this statement aligns with the [Thoracic Society of Australia and New Zealand Position Statement on Acute Oxygen Use in Adults: Swimming between the flags \(2022\)](#).<sup>1</sup>

## References

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2. Australian Commission on Safety and Quality in Health Care. [National Consensus Statement: Essential elements for recognising and responding to acute physiological deterioration](#). Sydney: ACSQHC; 2021.
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7. Australian Government. Department of Health and Aged Care. The Poisons standard (the SUSMP) Available from: [www.tga.gov.au/how-we-regulate/ingredients-and-scheduling-medicines-and-chemicals/poisons-standard-and-scheduling-medicines-and-chemicals/poisons-standard-susmp](https://www.tga.gov.au/how-we-regulate/ingredients-and-scheduling-medicines-and-chemicals/poisons-standard-and-scheduling-medicines-and-chemicals/poisons-standard-susmp)
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11. Therapeutic Goods Administration. [Limitations of pulse oximeters and the effect of skin pigmentation](#). Medical devices safety update (7 Jan 2022).

## More information

For more information, please visit: [safetyandquality.gov.au](https://safetyandquality.gov.au)

You can also contact the project team at: [medsafety@safetyandquality.gov.au](mailto:medsafety@safetyandquality.gov.au)

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