Allied Health Professions

Adult Oxygen Management: Category 3 Allied Health Staff

Health Shared Services

This document is intended to support **Category 3** Allied Health staff working with adult patients requiring supplemental oxygen in various clinical settings. It serves as a companion resource to the **Allied Health – Adult Oxygen Management – Category 3** module available on MyLearningLink (MLL).

The content of this document will be reviewed and updated every five years or as required, based on substantial changes to policies or accepted practices.

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Revision History:

- **2026:** Reviewed and revised by Allied Health Professions (AHP) and subject matter experts to align with *Adult Oxygen Management: Practice Guidance for Allied Health Providers* which replaced the previous 2019 Oxygen Management Guideline – Allied Health Adult Acute Care Inpatients. Document was expanded to include allied health providers working in diverse clinical settings including community and continuing care.

- **2019:** Reviewed and revised to reflect changes in the Oxygen Management Guideline – Allied Health Adult Acute Care Inpatients.

- **2015:** Reviewed and revised by an Allied Health provincial multidisciplinary group to reflect the needs of all areas of the province. At this time, the focus of the document was on allied health staff working in acute care settings only.

- **2013:** Reviewed and revised by Allied Health Educators of the Calgary zone.

- **2006:** The original version of this document was developed by a group of Calgary Health region staff including Physical Therapists, Management and Program Facilitators.

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Definitions and Abbreviations

Acute care - Includes rural and community hospitals, regional hospitals, metropolitan hospitals, and tertiary hospitals.

Adult - 18 years or older.

Artificial Airway – A medical device inserted into the respiratory tract to maintain or secure an open passage for air. Examples include endotracheal tubes, tracheostomy tubes or nasotracheal tubes.

Category 1 Staff – Occupational Therapists, Physical Therapists, Speech Language Pathologists, and students of these disciplines.[1]

Category 2 Staff – Therapy Assistants and Therapy Assistant students.[1]

Category 3 Staff – Audiologists, Dieticians, Kinesiologists, Psychologists, Psychometrists, Recreation Therapists, Social Workers, Spiritual Health Practitioners, Therapy Aides and students of the above disciplines.[1]

FiO_2 - Fraction of inspired oxygen.

Initiate – To place a patient on supplemental oxygen, when they were previously not on supplemental oxygen.

LPM - Liters per minute

Most Responsible Health Practitioner - The healthcare practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized to perform the duties required to fulfill the delivery of such a treatment/procedure(s), provided it is within their scope of practice.[1]

Order – A directive issued by a regulated healthcare professional, instructing the initiation or discontinuation of specific medical interventions, treatments or care plans for a patient. An Order may be written (including handwritten and or electronic), verbal, by telephone or facsimile. [1]

Oxygen Therapy Risk Assessment - Clinical determination of the patient's level of risk related to oxygen administration, including the ability of the patient to tolerate interruptions in therapeutic oxygen administration.

Pulse Oximetry – A non-invasive method used to measure the oxygen saturation of hemoglobin in arterial blood, with 100% as the maximum reading possible. It is a measure of the average amount of oxygen bound to each hemoglobin molecule.

Significant Change - A variation in values outside of a predefined range, set by an appropriate regulated health professional (e.g., physician, nurse practitioner, registered nurse, respiratory therapist, or category 1 staff). The predefined range will be individual for each patient.

SpO_2 - The measurement of functional saturation of oxyhemoglobin. This measurement is obtained non-invasively using a sensor, typically attached to a finger, toe, or earlobe (i.e. via pulse oximeter).

Student - An individual enrolled in an entry-level educational program for a healthcare discipline, aiming to achieve initial entry-to-practice as either a regulated or non-regulated healthcare provider.[1]

Section 1: Assessment, Monitoring and Signs of Respiratory Distress

Physical Assessment and Monitoring

All staff must be proficient in monitoring patients and promptly identifying values that fall outside the patient's defined normal range. In addition, staff must be able to recognize the signs and symptoms of respiratory distress. Measurement and observation of key respiratory parameters should be completed **pre and post** intervention on all patients receiving supplemental oxygen.

1. **Respiratory rate (RR)**: Normal adult range = 12-16 breaths per minute[2]
    - Assessed by observing the movement of the chest wall and/or abdomen. The client should be unaware that this measurement is being performed, or they may alter their breathing pattern. The health care provider should not place their hands on the patient to complete this measurement.
2. **Respiratory pattern**:
    - Normal breathing:
        - Thoracic (upper chest) – the thorax elevates and expands during inspiration, while the abdomen stays still.
        - Diaphragmatic (abdominal) – the abdomen expands during inspiration, while the chest remains still.
    - Abnormal breathing:
        - Excessive accessory muscle use – significant upper chest movement with increased use of sternocleidomastoid, scalenes and other accessory muscles of inspiration.[2]
        - Paradoxical breathing pattern – the reverse pattern of normal breathing where the abdomen is drawn inward during inspiration.[2]
3. **Heart Rate (HR):** Normal adult range = 60 – 100 beats per minute[2]
    - Assessed by palpating the radial pulse. Count for 15 seconds and multiply by 4. If pulse is irregular, count for a full minute.
4. **Oxygen saturation (SpO_2):** Normal adult range = 95 – 100%
    - Assessed via pulse oximetry.

Signs of Respiratory Instability

The signs of respiratory distress or instability may include:

1. **Oxygen saturation** consistently below the prescribed acceptable range indicated in an order from the most responsible health practitioner, or below 90% on supplemental oxygen when no range has been specified.[1]

2. **Respiratory rate** less than eight (8) breaths per minute, greater than twenty (20) breaths per minute, or a significant change from baseline (as per clinical judgement).[1]

3. Evidence of excessive use of accessory respiratory muscles, forced exhalation or increased work of breathing which may be demonstrated by:

    - **Grunting** – A grunting sound may be heard each time the person exhales. This is the body's way of trying to keep air in the lungs so they will stay open.
    - **Nasal Flaring** – Nostrils spreading open while breathing may indicate the person is working harder to breathe.
    - **Retractions** (indrawing) – The inward movement of the chest wall during inhalation (usually seen between the ribs or above the clavicle).
    - **Sweating** – There may be increased sweat on the head, but the skin may feel cool or clammy. May occur with increased respiratory rate.
    - **Wheezing** – A whistling or musical sound with each breath may indicate the air passages are smaller, making it harder to breathe.[3]

4. Excessive secretions requiring suctioning.

5. A known unstable airway. Risk factors for an unstable airway may include:

    - Retropharyngeal abscess
    - Laryngospasm
    - Smoke inhalation & facial burns from a thermal or chemical injury
    - Neck masses
    - Epiglottitis
    - Inflammation by whatever cause
    - Foreign body
    - Laryngitis
    - Asthma and COPD exacerbations
    - Tracheostomy
    - Laryngectomy or tracheal stent
    - Chest injuries
    - Fractured ribs causing hemothorax and/or pneumothorax

Respiratory Distress Response

A patient who is showing signs of respiratory instability/distress is considered to be breathing inadequately and requires immediate clinical attention.

If a category 3 staff encounters a patient experiencing one or more of these symptoms, they should **immediately** stop any activity and notify any physician, nurse, respiratory therapist, or category 1 staff member. This individual should do an assessment of the situation and treat the patient accordingly. Please refer to Section 4 on responding to medical emergencies for further information.

Section 2: Level of Patient Risk and Oxygen Management

Level of Patient Risk

Oxygen therapy risk assessment involves determining the patient's ability to tolerate interruptions in therapeutic oxygen administration. This document defines two levels of patient risk: High-Risk and Low-Risk.

High-Risk patient criteria:

a) requires eight (8) litres per minute (LPM) or greater of oxygen; or
b) requires high-flow oxygen and greater than 50% concentration; or
c) exhibits one or more signs of respiratory instability; or
d) requires extra support and monitoring due to a medical condition or diagnosis (e.g., altered cognition or decision-making capacity, less than seven (7) days post-operative artificial airway insertion), or as determined by the care team

Low-Risk patient criteria:

a) requires supplemental oxygen and does not meet the high-risk criteria

Oxygen Management

Category 3 staff:

- May work with patients receiving oxygen therapy, but are not authorized to initiate, adjust, or discontinue oxygen therapy.
- In acute care settings, Category 3 staff may work with low-risk patients away from the patient care unit, provided they are competent in identifying signs of respiratory distress and assessing oxygen tank volume. High-risk patients should remain on the patient care unit unless a registered health care professional competent in oxygen therapy is present.
- If determined to be appropriate by the program manager or supervisor, Category 3 staff may switch oxygen sources for stable, low-risk patients, **only** if they have received additional training and have demonstrated competency in this skill.
- In cases of acute respiratory distress, Category 3 staff must immediately notify the nearest health care professional competent in oxygen therapy or call for emergency response (e.g., 911).

Category 3 students:

- May work with patients receiving supplemental oxygen therapy as outlined in this document, under supervision (direct or indirect) by Category 3 staff.

- Must be able to recognize signs of instability and respiratory distress, assess oxygen tank volume, and know how to respond appropriately in each situation.
- The preceptor is responsible for assessing the student's knowledge and need for additional training and ensuring appropriate supervision to support patient safety.

Assignment of Interventions to Therapy Assistants

Audiologists or Recreation Therapists may assign tasks to Therapy Assistants for low-risk patients only if both the assigning clinician and Therapy Assistant are competent in the assigned activities. The assigning clinician is responsible for verifying that the Therapy Assistant staff has the required oxygen management training.

Section 3: Oxygen Equipment

Low-Capacity Alarm Tanks

If low-capacity alarm tanks are in use at your site and an alarm sounds immediately replace the tank or switch to a wall oxygen source.

Oxygen Cylinders (e.g., Grab'nGo)

- Made of steel or aluminum; contain compressed oxygen at 2000-2200 psi
- A pressure regulator reduces cylinder pressure to 50 psi for safe use
- The flow meter controls the rate of delivery

Important Guidelines:

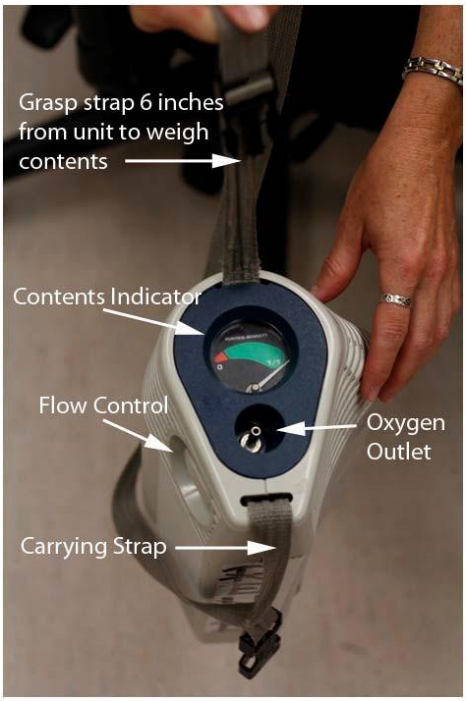
- Change tanks at 500 psi – never allow them to run dry.
- Grab'nGo systems only deliver oxygen at marked flow rates. There is no oxygen flowing between the knob is between the two numbers. The flow rates are marked in litres per minute (LPM). Refer to Grab'nGo flow rate chart in Appendix A.

Liquid Oxygen Tanks/Units

- Not best practice due to cost and safety risks.
- Contents are measured by weight:
    - Hold the strap ~ 6 inches above the tank
    - Lift the tank off the floor
    - Observe the needle movement:
        - Green zone = Indicates the amount of oxygen remaining
        - Red zone = Indicates a new oxygen source is needed
    - Repeat 3 times for accuracy

- Please refer to the chart at your site for approximate use times (see example on page 12). The approximate use time will vary depending on tank size.

- If a tank is not functioning, remove it from circulation and report it to the patient care unit so it can be sent for maintenance (as per site policy).



Approximate use time of a FULL portable liquid oxygen tank	
Flow control knob setting	**Approx. use time**
1	15.5 hours
1.5	11 hours
2	8 hours
2.5	6.5 hours
3	5.5 hours
3.5	5 hours
4	4 hours
5	3 hours
6	2.5hours
8	2 hours
10	1 hour
15	0.5 hours

Portable Oxygen Safety

Improper handling of portable oxygen can create a potentially unsafe work area. Improper handling of a portable oxygen cylinder can convert it into an unguided missile with enormous destructive power. If the oxygen cylinder is punctured, or if a valve breaks off, the results can be lethal.

Transport & Storage:

- Always transport E-size cylinders in a holder.
- Secure all tanks to prevent tipping.
- Liquid oxygen tanks must remain upright – never place on a stretcher or a patient's lap.
- Spilled liquid oxygen can cause frostbite or corrosion of building materials.

Patient & Family Safety Instructions (provided as appropriate):

- No open flames or smoking near oxygen.
- Avoid synthetic fabrics due to static electricity risk.
- Do not apply oils or petroleum products to the face while using oxygen.
- Prevent oxygen tubing from becoming tangled or kinked.

Key Considerations

- Never transport a patient with a low or empty oxygen tank. Replace the tank if the supply is inadequate.
- Check tank levels before and after treatment – ensure sufficient oxygen for the full duration of treatment including transportation and potential delays.
- Always test the tank function and ensure airflow prior to use.
- Ensure back-up oxygen sources are available for high-risk patients.
- If a patient is found connected to an empty tank:
    - Replace the tank immediately.
    - Submit a Patient Safety Learning Report through the Reporting and Learning System (RLS)

Section 4: Allied Health Emergency Response

Allied Health Emergency Response

Calling for Medical Assistance is required for any of the following:

- Any patient you are seriously worried about
- Signs of respiratory instability (see Section 1)
- Acute Change in O_2 Sats less than 90 despite O_2 greater than 5LPM
- Heart rate less than 40 or greater than 140
- Systolic blood pressure less than 90 or greater than 200 or acute drop in systolic blood pressure
- Sudden decrease in level of consciousness or Glasgow Coma Scale (GCS) drops greater than 2 points
- Seizures

In cases of acute respiratory distress, Category 1 and 2 staff may initiate oxygen or increase the flow of oxygen while awaiting further medical direction, unless the patient's oxygen order explicitly prohibits such action.

Calling for Medical Assistance

The process of calling for assistance will vary depending on your area of practice. For example, in acute care environments, a Code Blue may be initiated for any person experiencing acute physiological compromise, airway threat, respiratory and/or cardiac arrest. In the community, clinicians would need to call 911 to seek emergency assistance.

Please refer to your site-specific emergency response guidelines for more information.

Goals of Care Documentation

Staff must be aware of the patient's Goals of Care Designation (GCD) at all times, especially when working away from the patient care unit.

- GCDs are documented in the patient's chart and serve as the source of truth while on hospital property
- The green sleeve (where available) is the universally identified container for Goals of Care documentation in the community.

References

1. Allied Health Professions. *Adult Oxygen Management: Practice Guidance for Allied Health Providers.* Allied Health Professions; 2025.

2. Main E, Denehy L. *Cardiorespiratory Physiotherapy: Adults and Paediatrics*. 5th ed. Elsevier Health Sciences; 2016.

3. Johns Hopkins Medicine. *Signs of respiratory distress.* Baltimore: Johns Hopkins Medicine; [cited 2025 Jul 21]. Available from: https://www.hopkinsmedicine.org/health/conditions-and-diseases/signs-of-respiratory-distress

Appendix A: Portable Cylinders

New All-In-One Portable Oxygen Cylinder

Praxair Vantage Grab'nGo

Never search for a cylinder regulator again!

Never worry about removing or attaching a cylinder regulator again!

No cylinder wrench?
No problem, you won't need one!

Available flow rates of **0.5 to 25 LPM**. Other flow rates available with respiratory or physician consult.

NEVER attach an oxygen connector (Christmas tree) to the Auxiliary Port!

How to Use the Grab'nGo Portable Oxygen Cylinder:

- Ensure adequate amount of oxygen (check pressure gauge)
- Attach O_2 tubing to outlet port
- Turn flow-adjusting knob to desired flow setting
- Verify flow at the patient's end of the tubing before applying on patient
- When patient is returned to wall oxygen, ensure flow-adjusting knob is turned to the "OFF" position

Flow Rates Available on the Grab'nGo (Litres Per Minute)

0.5	1.0	1.5	2.0	3.0	4.0	6.0	8.0	15	25

E-Size Oxygen Cylinder Duration Chart (in Minutes)

	Cylinder Pressure (PSI)									
Flow (LPM)	2200	2000	1800	1600	1400	1200	1000	800	600	500
0.5	1066	941	815	690	565	439	314	188	63	0
1	533	470	408	345	282	220	157	94	31	0
1.5	355	314	272	230	188	146	105	63	21	0
2	267	235	204	172	141	110	78	47	16	0
3	178	157	136	115	94	73	52	31	10	0
4	133	118	102	86	71	55	39	24	8	0
6	89	78	68	57	47	37	26	16	5	0
8	67	59	51	43	35	27	20	12	4	0
15	36	31	27	23	19	15	10	6	2	0
25	21	19	16	14	11	9	6	4	1	0

When you first use the Grab'nGo, tear off the lower section of the label to indicate the cylinder is now in use. Once the tank reaches 500 psi, tear off the IN USE section of the label to indicate that the tank is now empty.