

SESLHD PROCEDURE COVER SHEET



Health
South Eastern Sydney
Local Health District

NAME OF DOCUMENT	Continuous Positive Airway Pressure (CPAP) and Non-Invasive Ventilation (NIV) Domiciliary Device use by Inpatients with previously diagnosed obstructive sleep apnoea / sleep related breathing disorder
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FUNCTIONAL GROUP(S)	Cardiac and Respiratory Care
KEY TERMS	Obstructive sleep apnoea, Continuous Positive Airway Pressure (CPAP), Non Invasive Ventilation (NIV), sleep related breathing disorder
SUMMARY	Outlines the requirement for patients, who use domiciliary CPAP or NIV at home, to continue to use their device while an inpatient. i.e. Patients with diagnosed Obstructive Sleep Apnoea / Sleep Related Breathing Disorder who use a CPAP or NIV device at home.

COMPLIANCE WITH THIS DOCUMENT IS MANDATORY

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Continuous Positive Airway Pressure (CPAP) and Non-Invasive Ventilation (NIV) Domiciliary Device use by Inpatients with previously diagnosed obstructive sleep apnoea

1. POLICY STATEMENT

Patients with obstructive sleep apnoea (OSA) have an increased risk of developing complications following sedation, analgesia or anaesthesia (ACI). These risks are lowered if patients, who use domiciliary CPAP or NIV devices, continue to use their device while an inpatient.

This procedure will be read in conjunction with:

- [NSW Health Policy Directive PD2023_025 - Infection Prevention and Control in Healthcare Settings](#), and
- [SESLHDPR/754 – Aerosol-generating interventions \(AGI\) for conditions during the COVID-19 pandemic period](#).

AIM

Patients who use domiciliary CPAP and NIV devices continue to safely and correctly use their device while hospitalised. Patients who normally use CPAP at home should continue to do so during hospital admission.

Patients with chronic respiratory failure undergoing sedative procedures or surgery, receive adequate ventilatory support during procedure or surgery to minimise the risk of developing respiratory complication¹.

NB: Domiciliary CPAP or NIV devices are exempt from the mandatory Clinical Biomedical Engineering electric device check unless the device fails to operate, or the cable is visibly frayed or pins are bent.

2. BACKGROUND

Unmanaged obstructive sleep apnoea may contribute to myocardial ischemia, cardiac arrhythmias, heart failure, confusion and cerebral vascular accidents. Sedation, analgesia or anaesthesia exacerbates the risk of airway loss, respiratory failure, aspiration, pneumonia and Acute Respiratory Distress Syndrome (ARDS) in this patient group².

3. DEFINITIONS / KEY TERMS

Continuous positive airway pressure (CPAP)	A CPAP device consists of a unit that generates airflow, which is directed to the airway via a mask. Positive pressure is generated by the airflow, which prevents upper airway collapse. For CPAP treatment to be effective the person must always wear their device when they sleep ²
Non-invasive ventilation (NIV)	Non-invasive ventilation (NIV) refers to ventilator assistance without the use of an invasive airway. In most situations this is via a <i>positive pressure</i> device.
Obstructive	Apnoea is defined as a temporary absence or cessation of breathing.

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sleep apnoea (OSA)	OSA is a condition in which a person experiences repeated episodes of apnoea because of a narrowing or closure of the pharyngeal airway during sleep. This is caused by a decrease in the tone of the muscles supporting the airway during sleep. Complete closure (obstruction) stops airflow (apnoea) whereas partial obstruction decreases airflow (hypopnoea). OSA results in episodes of brief awakening from sleep to restore normal breathing ²
Symptoms of OSA	Symptoms include impaired alertness, cognitive impairment, excessive daytime sleepiness, snoring, nocturia, morning headaches and sexual dysfunction. The sleep quality of partners may also be affected. Excessive daytime sleepiness can adversely affect cognitive function, mood and quality of life. OSA is associated with high blood pressure, which increases the risk of cardiovascular disease and stroke. OSAHS has also been associated with an increased risk of road traffic accidents ²
OSARAT	Obstructive sleep apnoea assessment tool.

4. RESPONSIBILITIES

4.1 Medical Officers will:

- Identify patients who use CPAP or NIV devices at home during the admission process. For planned admissions request patient to bring their device to hospital.
- For emergency admissions request patient’s family/carer to bring the device to hospital.
- Document if CPAP (patient care notes) or NIV (Ventilation Assistance SESLHD chart) is to be used. If the patient requires NIV the required NIV pressures should be prescribed on the SESLHD Ventilation Assistance chart.

4.2 Registered Nurses will:

- Identify patients who use CPAP or NIV devices at home during the admission process.
- In most cases patients will be proficient with the use of their own device. In some situations, when the patient is incapable, the nurse will be required to assist the patient to fit the mask and operate the device.
- If unfamiliar with CPAP or NIV devices seek advice prior to use (education can be provided by the Respiratory Clinical Nurse Consultant or Respiratory Clinical Nurse Educator).
- Ensure patient’s domiciliary CPAP or NIV device and ancillary equipment is transferred with the patient to theatre, medical imaging or to any procedure where the patient is required to lie flat.
- Ensure the patient uses domiciliary CPAP or NIV device nightly during the admission.

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- Complete NIV observations as per prescribed orders (as documented on the SESLHD Ventilation Assistance chart).

4.3 Nursing Unit Managers (NUM) or delegate (i.e. the nurse admitting the patient) will:

- Visually inspect domiciliary CPAP or NIV devices for frayed cables, damaged power points, bent pins and damage to the main housing unit before the patient uses their device in the ward / unit.
- Arrange to have a relative / carer bring the device to hospital if the patient does not bring the device.

4.4 Clinical Biomedical Engineering will:

- Check domiciliary devices if required on request from the ward.
- Replace damaged electrical cables on request from the ward.

5. PROCEDURE

5.1 Identify patients who use home CPAP or NIV

- All patients should be screened for pre-existing diagnosed obstructive sleep apnoea (OSA) at the time of admission or prior i.e. preadmission clinic.
- Ideally, all NIV patients should be assessed perioperatively to ensure adequate ventilatory support during their inpatient encounter to avoid last minute emergency NIV consults on patients who have probably not been recently assessed, not brought in or have been non-compliant with their BPAP machines.
- Patients who use domiciliary CPAP or NIV are to be requested to bring their device, mask and additional ancillary equipment to hospital (or arrange to have a relative / carer bring the device to hospital if the admission is via the Emergency Department)
- If the patient does not bring their personal CPAP or NIV device to hospital the admitting nurse / doctor should notify senior members of the patient's medical team for advice. If the patient's medical treating team requests CPAP / NIV the admitting ward will need to source a machine on behalf of the patient.
 - Options include borrowing a machine from the fleet held by Respiratory Medicine, renting a machine on behalf of the patient from an external provider or requesting a relative / carer to bring the patient's device
 - To borrow a device at POWH contact the Respiratory CNC. After hours contact the Respiratory Team on call
 - To access a device at SGH contact the Respiratory CNC who can advise how the ward or patient can source an alternative / replacement device
 - To access a device at TSH contact the Respiratory CNC who can advise how the ward or patient can source an alternative / replacement device.

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5.2 Checking the Patient's CPAP or NIV Device prior to use

- Prior to use the NUM or delegate must visually check the entire device for cracks paying particular attention to the main body and electrical cable of the device to ensure it is not frayed or damaged and the pins are not bent.
 - If the cable is frayed or pins are bent the device should not be used.
 - Contact the provider i.e. Enable, for a replacement or Clinical Biomedical Engineering for a cable replacement.
 - If the device is unable to be used and a replacement device is not available, advise the treating medical team.
- Document that the device was checked in the patient's health care record.

5.3 Infection Prevention and Control

- The device should be cleaned before use if visibly soiled by the staff member assisting the patient (in most cases this would be the nurse responsible for the patient)
- Check the dust filter prior to use to ensure it is clean and not dusty by the staff member assisting the patient.
- Water in the humidifier should be completely emptied and changed daily with water for irrigation. Patients self-managing should be given water for irrigation to be able to do this.
- Please refer to [SESLHDPR/754 - Aerosol-generating interventions \(AGI\) for conditions during the COVID-19 pandemic period.](#)

5.4 Operation of Device

- Domiciliary CPAP or NIV devices when used in hospital must be plugged into a red emergency power point.
 - Health care worker to connect device to red emergency power (in most cases this would be the nurse responsible for the patient).
- If oxygen is required insert an oxygen connector between the mask and tubing.
- Turn machine on before fitting the mask. Ensure there is air flow through the mask before fitting the patient's face.

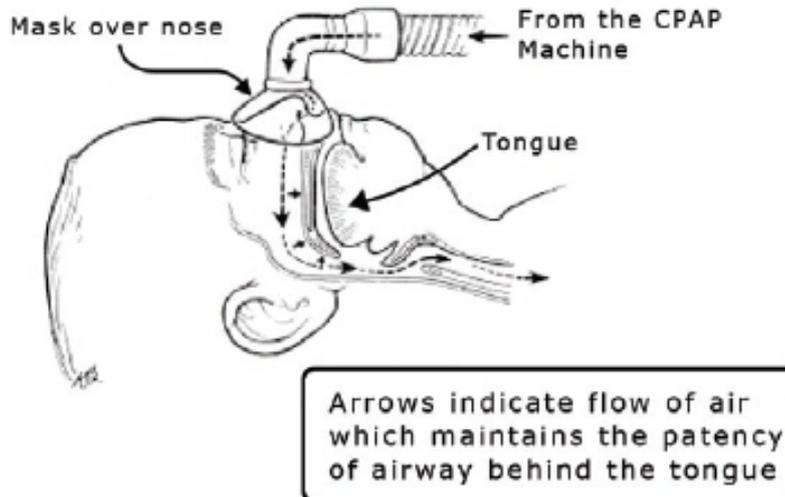
5.5 Correct use of Equipment / Fitting of Mask

- If required, assist patient to fit mask. Fit the mask gently to the patients face and check for air leaks.
- Check all pressure points from the mask and head straps, especially the bridge of the nose and ears. Where pressure points are identified clinical judgement should be used to protect / alleviate pressure to maintain skin integrity.

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5.6 Transferring the Patient to other Departments

- If the patient is transferred to theatre, medical imaging or to a procedural area where the patient is required to lie flat, ensure the CPAP or NIV device and ancillary equipment is transferred with the patient.
- The NUMs or delegate at the transferring and receiving unit / department must ensure that the person transferring / receiving the patient knows how to correctly fit the mask and to operate the CPAP or NIV device.
- Oxygen saturations should be continuously monitored if the patient is critically ill.
- If there is a risk of the patient becoming hypoxic or hypercapnic when lying flat, then CPAP or NIV should be used during the procedure/recovery. This should be discussed between the MOs from the transferring and receiving unit / departments.

5.7 Post Op – Recovery

- Surgical patients who routinely use domiciliary CPAP / NIV may require CPAP / NIV in Recovery and should be considered if the patient has trouble breathing when supine. The requirement to use CPAP / NIV should be documented by the treating medical team or the Respiratory CNC.

Education Note

- Sedative medicines have the potential to relax the airway, worsening OSA and/or decreasing respiratory drive
- Benzodiazepines, antidepressants, antipsychotics, opioid analgesics and other centrally acting medicines can worsen OSA and their individual effects may be potentiated when more than one of these agents is used³
- Sedative procedures which are normally tolerated by the general population without assisted ventilation, may cause significant hypoventilation in patients and also precipitate acute on chronic respiratory failure¹

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- The risk of acute on chronic respiratory failure can be minimised in chronic respiratory failure patients by ensuring adequate ventilatory support during and post sedative procedure. NIV can play an important role during sedative procedures and surgical anaesthesia¹

5.8 Monitoring Requirements

The frequency of vital sign monitoring should at least follow the routine observation frequency required for all patients but tailored at a frequency appropriate to the patient's clinical condition. Record observations on the SESLHD [Ventilation Assistance Chart](#).

5.9 Trouble Shooting

- Escalate any acute deterioration via the Between the Flags (BTF) system.
- Refer any equipment issues to the Respiratory CNC i.e. alarms or device malfunctioning.

6. DOCUMENTATION

Document NIV orders and ventilation observations on the SESLHD Ventilation Assistance chart [Ventilation Assistance Chart](#).

7. AUDIT

Review IMS+ incidents.

8. REFERENCES

1. NSW Agency for Clinical Innovation / Domiciliary Non-Invasive Ventilation Working Group. Domiciliary Non-Invasive ventilation in adult patients a consensus statement. 2012.
https://aci.health.nsw.gov.au/_data/assets/pdf_file/0008/159794/ACI-Domiciliary-non-invasive-ventilation-adult.pdf
2. National Institute for Health and Care Excellence (NICE). Guideline: CPAP for the treatment of obstructive sleep apnoea / hypopnea syndrome. 2008. Last updated: 20 August 2021. <https://www.nice.org.uk/guidance/ta139>
3. [UNSW NDARC Fact Sheets 2021 - Benzodiazepines](#)
4. [PD2023_025 - Infection Prevention and Control in Healthcare Settings](#)
5. [SESLHDPR/754 - Aerosol-generating interventions \(AGI\) for conditions during the COVID-19 pandemic period](#)

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9. VERSION AND APPROVAL

Date	Version	Version and approval notes
February 2015	1	Application to Develop endorsed by Executive Sponsor
August 2015	1	Draft for Comment
February 2016	1	Endorsed by Clinical and Quality Council
March 2018	2	Minor changes including: Respiratory CNE added as the contact person for TSH; the term Sleep Related Breathing Disorder added to document title; Routine observation frequency reworded; Link to Ventilation assistance chart updated.
April 2018	2	Processed by Executive Services prior to publishing.
August 2020	3	Minor changes including: Daily change of water in the humidifier; PACE terminology updated to BTF.
October 2020	3	Approved by Executive Sponsor. Published by Executive Services.
November 2022	4	Procedure reviewed and no change made. Approved by Executive Sponsor.
23 September 2024	4.1	<p>Minor changes including:</p> <p>Reference to TSH CNE changed to CNC.</p> <p>Section 5.3 – included link to SESLHDPR/754</p> <p>Section 6: updated link to Ventilation Assistance Chart.</p> <p>Added to section 5.1 Ideally, all NIV patients should be assessed perioperatively to ensure adequate ventilatory support during their inpatient encounter to avoid last minute emergency NIV consults on patients who have probably not been recently assessed, not bought in or have been non-compliant with their BPAP machines.</p> <p>Reference List:</p> <p>Removed reference Number 3 - Clinical Excellence Commission. Patient Safety Watch - Sleep Apnoea. Edition 1/13.NSW Clinical Excellence Commission as not available.</p> <p>Added references:</p> <p>3. UNSW NDARC Fact Sheets 2021 - Benzodiazepines</p>