

Provincial Adult Obstructive Sleep Apnea Primary Care Clinical Pathway

- Quick Links: [Primer & Expanded details](#) [Provider resources](#) [Patient resources](#) [Provide feedback](#)

1. History

Suspect OSA in adult patients (≥18) with:

- Snoring
- Witnessed apneas
- Nocturnal choking/gasping
- Restless sleep
- AM headache
- Excessive daytime sleepiness
- BMI ≥ 30kg/m²
- Hx HTN/CVA/CHF

If excessive daytime sleepiness present or the patient has a safety critical occupation, counsel on driving safety

2. Assessment

- Physical exam of upper airway ([Mallampati classification and neck circumference](#))
- Complete STOP-BANG to assess OSA probability. Add 1 point for each 'yes' answer

Snoring	BMI >35kg/m ²
Tiredness	Age >50 years old
Observed apnea	Neck size ≥17in/43cm (M), ≥16in/41cm (F)
High blood Pressure	Gender = Male

score 0-2

Low probability OSA

- Home Sleep Apnea Test (HSAT) not indicated
- Consider other causes of sleepiness

score 3-8

Intermediate/high probability OSA

STOP-BANG may underestimate risk in some groups (e.g., females); clinical correlation is required

Other Considerations

- Chronic/regular opiate medication use
 - Significant cardiopulmonary disease
 - Inability to complete HSAT
 - Equivocal testing attempts with high clinical suspicion
- Consider if HSAT or referral will best meet patient needs

3. Red Flags

- Neuromuscular disease
 - Supplementary oxygen use
- HSAT is recommended only for patients at increased risk of moderate-to-severe OSA and without red flags present**

6. Refer to respirologist or sleep specialist

4. Investigations: HSAT must be completed at a [CPSA accredited facility](#)

5. Management

HSAT negative

Normal
AHI or RDI <5/hr

Consider other causes for symptoms

HSAT positive

Discuss healthy behaviors including weight loss, alcohol use and sleep positions, if indicated

Mild

AHI or RDI 5-14/hr

Red Flag: Sustained hypoxemia/suspected hypoventilation. Do not initiate treatment

No treatment required if asymptomatic

If symptomatic, and patient interested:

- 1st line - CPAP trial
- 2nd line - Oral appliance, if patient prefers or CPAP not tolerated

Moderate

AHI or RDI 15-29/hr

Treatment options:
• 1st line - CPAP trial
• 2nd line - Oral appliance, if patient prefers or CPAP not tolerated

Severe

AHI or RDI ≥30/hr

CPAP trial recommended to address significant OSA risks

Minimum therapy target: 4 hours/night for 70% of nights and symptoms have improved. Follow-up with CPAP provider or physician in 2-4 weeks

Assess treatment effectiveness

Not Effective

- **Causes:** Non-adherence, intolerance, good adherence but patient not improving
- **Solutions:** [Troubleshoot CPAP](#), if appropriate consider oral appliance (fitted by certified sleep dentist), consider other sleep disorders

Effective (resolution of symptoms, adequate use of therapy)

- Continue CPAP
- Re-test only if change in clinical status

Funding

Is PSG required for coverage?

6. Refer to respirologist or sleep specialist (include HSAT results)



This primary care pathway was co-designed provincially by Primary Care Providers, Specialist Physicians (sleep specialists, respirologists), Patient and Family Advisors, and the Provincial Pathways Unit. It is intended to be used in conjunction with specialty advice services, when required, to support care within the medical home.

EXPANDED DETAILS

Pathway Primer

Obstructive sleep apnea (OSA) is a sleep-related breathing disorder characterized by intermittent closure of the upper airway associated with desaturation and/or arousal from sleep (Figure 1). Approximately 30% of Canadians may have OSA, but only about 6.4% have been diagnosed [1].

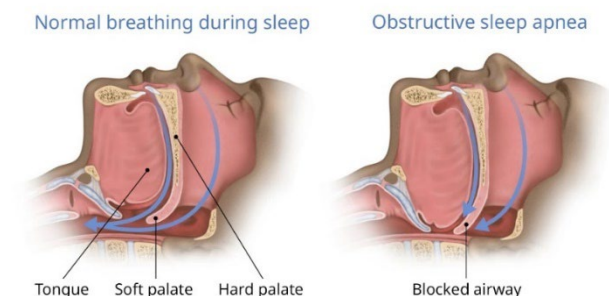


Figure 1: Image from [DynaMed](#) [2]

Untreated OSA is associated with excessive daytime sleepiness, increasing risk of motor vehicle crashes, poor quality of life and decreased workplace productivity. Untreated severe OSA is associated with increased risk of hypertension and may also increase risk of ischemic heart disease and stroke. Patients with OSA may also be at increased risk of perioperative complications [3]. However, there is considerable variability between patients; not all patients with severe OSA have symptoms and some individuals are symptomatic with mild disease [4].

Treatment has been shown to improve symptoms of OSA, reduce motor vehicle crashes, and reduce blood pressure [5]. Lifestyle modifications, including weight reduction, high dietary quality, regular physical activity and good sleep hygiene are crucial in managing OSA, as they help improve symptoms and enhance overall treatment outcomes [3]. Continuous Positive Airway Pressure (CPAP) may improve cardiovascular outcomes in patients with severe OSA based on data from observational studies; this benefit has not been confirmed in definitive intervention studies [5].

The Provincial Adult Obstructive Sleep Apnea (OSA) Clinical Pathway has been established to optimize the identification, management, and care of individuals aged 18 years and older in Alberta. This pathway is specifically designed for adults and does not encompass the assessment or diagnostic processes for children or adolescents.

Acronyms:

- AHI:** Apnea-Hypopnea Index
- CPAP:** Continuous Positive Airway Pressure
- HSAT:** Home Sleep Apnea Test
- OSA:** Obstructive Sleep Apnea
- PSG:** Polysomnography
- RDI:** Respiratory Disturbance Index
- ODI:** Oxygen Desaturation Index

1. History

A thorough history identifies key risk factors, symptom patterns, and comorbid conditions, guiding appropriate testing and treatment decisions. While this is not a comprehensive list of symptoms, OSA should be considered in adult patients (>18 years) who present with one or more of the following clinical features [6].

Table 1: Symptoms and Risk Factors of OSA

Symptoms and risk factors of OSA	Description
Snoring	Loud and persistent snoring is a common symptom of OSA, often reported by bed partners.
Witnessed apneas	Observed episodes of breathing cessation during sleep.
Nocturnal choking/gasping	Episodes of choking or gasping for air during sleep.
Restless sleep	Frequent changes in sleep position or signs of discomfort during sleep.
AM headache	Reporting headaches upon waking.
Excessive daytime sleepiness	Persistent fatigue or drowsiness during the day.
Obesity (BMI ≥ 30 kg/m²)	Obesity is a significant risk factor for OSA, contributing to airway narrowing and increased respiratory effort during sleep.
History of cardiovascular disease	Including treatment resistant hypertension, stroke or congestive heart failure.

Driving Safety: If excessive daytime sleepiness is present during the assessment or if the patient has a safety critical occupation (where impairment could result in harm to patient or others, for example, truck driving, taxi and bus drivers, railway engineers, and commercial pilots), counsel on driving safely.

- In Alberta, patients are required by law to report any medical, physical, or functional conditions or changes in health that may affect their ability to safely operate a motor vehicle [7].
- Commercial drivers must complete the [Medical Examination for Motor Vehicle Operators](#) form, and sleep apnea is treated like any other chronic condition. If stable and well-managed, reporting is not typically required beyond this form.

Reporting concerns about driver fitness:

- The Canadian Council of Motor Transport Administrators has a National Safety Code that outlines [how to determine driver fitness in Canada](#).
- In Alberta, reporting unsafe drivers is discretionary. If a condition is well-managed, there is no obligation to report. However, if reporting is necessary, the Canadian Medical Protective Association (CMPA) recommends informing the patient beforehand.
- Concerns about unsafe drivers can be reported to Alberta Transportation: [Report a driver fitness concern](#).
- Once a report is received, Alberta Transportation will review the case and determine the necessary steps, including medical evaluations or potential restrictions on the driver's license. All information related to the complaint remains confidential.

2. Assessment

Physical examination: Helps identify comorbidities or alternative diagnoses contributing to the patient's symptoms. Establishing a differential diagnosis through this initial assessment is vital, as it provides the foundation for selecting the most appropriate diagnostic tests, ensuring accurate identification of OSA and the best course of treatment [8].

- **Airway inspection:** Look for anatomical abnormalities (e.g., high palate, large tongue, enlarged tonsils).

- **Modified Mallampati classification** (done with the tongue protruded and includes four grades): Class I (full visibility) to Class IV (only hard palate visible). A Modified Mallampati score of 3 or 4 indicate increased obstruction risk (Figure 2).



Figure 2: Image from [DynaMed](#) [2]

- **Inspect and measure neck circumference:** Measure the neck circumference at the midpoint between the mid-cervical spine and the mid-anterior neck. Ensure the patient is standing upright, facing forward, and with their shoulders relaxed. For men with a visible laryngeal prominence (Adam's apple), the measurement should be taken just below the prominence. A neck circumference greater than 17 inches (for cis-men) or greater than 16 inches (for cis-women) is associated with an increased risk for OSA.

Calculate STOP-BANG score: The STOP-BANG questionnaire is a widely used screening tool for assessing the risk of OSA. It provides a simple and effective way to identify individuals who may require further evaluation.

STOP-BANG questions

Assign one point for each "yes" answer to the following questions:

- Do you **Snore Loudly**? (loud enough to be heard through closed doors or your bed partner elbows you for snoring at night)
- Do you often feel **Tired, Fatigued or Sleepy** during the daytime? (such as falling asleep during driving or talking to someone)
- Has anyone **Observed** you Stop Breathing or Choking/Gasping during sleep?
- Do you have or are you being treated for **High Blood Pressure**?
- **BMI** > 35 kg/m²?
- **Age** > 50 years old?
- **Neck size** ≥ 17 inches/43 cm (M) or 16 inches/41 cm(F)?
- **Gender** = Male

Determine Probability of OSA based off STOP-BANG questions:

Low = 0-2

Intermediate = 3-4

High = 5-8

or Yes to 2 or more of 4 STOP questions + male gender

or Yes to 2 or more of 4 STOP questions + BMI > 35kg/m²

or Yes to 2 or more of 4 STOP questions + neck circumference 16 inches / 40cm

Next Steps

STOP-BANG Score 0-2: Low probability

- **HSAT not indicated:** If the STOP-BANG score indicates low probability for OSA, HSAT is not recommended as the pre-test probability of OSA is low. HSATs were validated in patients with at least moderate pre-test probability of OSA.
- **Consider other causes of sleepiness:** Recognizing the broad differential diagnosis of excessive daytime sleepiness is key. Many conditions can cause or contribute to sleepiness, and some of these may co-exist with OSA. [Table 3](#) presents a differential diagnosis of various causes of daytime sleepiness, though it is not exhaustive.

STOP-BANG intermediate score 3-4 / high probability score 5-8

- If the STOP-BANG score indicates an intermediate or high probability of OSA, further diagnostic evaluation is recommended. This may include home sleep apnea testing (HSAT) or polysomnography (PSG), depending on clinical circumstances, [red flags](#), and available resources.

NOTE: STOP-BANG is a widely used test for obstructive sleep apnea but may underestimate risk in certain groups. For the populations listed in Table 2, clinical correlation is required.

Table 2: Special Populations

Special Population Considerations	
Females	<p>Females may be underdiagnosed with OSA as they often do not present with classic symptoms such as snoring, gasping or witnessed apneas [1] [9]. To determine clinical correlation in these cases, it is important to do a symptom review and use clinical judgement by assessing medical history and physical exam findings. If the HSAT results are inconclusive, or if symptoms persist despite a low AHI, further diagnostic testing, including PSG may be warranted [9].</p> <p>Post-menopausal women may have the same risk of OSA as their male counterparts [10].</p> <p>Atypical Symptoms in Females [9] [11]:</p> <ul style="list-style-type: none">• Neuropsychiatric symptoms: Women with OSA frequently report mood disturbances, including anxiety, memory impairment and poor concentration. These symptoms may be mistakenly attributed to other causes, leading to misdiagnosis.• Cognitive Impairment: Complaints of memory problems and difficulty concentrating are common among women with OSA.• Fatigue: Fatigue is often multifactorial and is different than excessive daytime sleepiness. While fatigue may have many causes, it may result from sleep disruption due to OSA. It is very important to determine the pretest probability of OSA and differential diagnosis of fatigue before considering testing for OSA. A finding of mild OSA in a patient with low pre-test probability may represent a false positive; thus, clinical judgement should guide the decision to initiate a trial of treatment.• Bruxism and Orofacial Pain: Teeth grinding, jaw clenching, and associated facial pain may be linked to OSA, possibly as a response to airway obstruction during sleep.
Pregnancy	<p>Women with OSA have increased risk of adverse pregnancy outcomes compared to women without OSA [10].</p>

High risk craniofacial anatomy	Craniofacial structure may contribute to upper airway narrowing and obstruction during sleep [12]. Examples include small or posteriorly positioned mandible (microretrognathia) or an enlarged tongue (macroglossia). Tonsillar hypertrophy is rarely a cause of OSA in adults.
Post Traumatic Stress Disorder (PTSD)	While it's unclear if PTSD directly causes OSA, studies show a strong link between the two, with one increasing the likelihood of the other. PTSD often leads to heightened arousal and hypervigilance, disrupting sleep and potentially worsening sleep-disordered breathing. Similarly, fragmented sleep and oxygen desaturation with OSA can exacerbate PTSD symptoms, creating a cycle of poor sleep and increased distress. This interaction makes treatment more challenging, and an integrated approach is needed to address both conditions simultaneously [13] [14] [15].

Other causes of daytime sleepiness: If the assessment suggests a low probability of OSA, consider other causes of daytime sleepiness.

Table 3: Other Causes of Daytime Sleepiness [16] [17]

Category	Causes
Sleep restriction	<ul style="list-style-type: none"> • Behavioural (sleep hygiene) • Circadian rhythm disorder • Altered sleep phase (jet lag or shift work)
Sleep-disordered breathing	<ul style="list-style-type: none"> • Central sleep apnea • Sleep-related hypoventilation
Movement disorders in sleep	<ul style="list-style-type: none"> • Restless legs syndrome (delays sleep onset) • Periodic limb movement disorder • Parasomnia (e.g., sleep-talking; sleep-walking)
Primary hypersomnia	<ul style="list-style-type: none"> • Narcolepsy (with or without cataplexy) • Idiopathic hypersomnia
Neurological	<ul style="list-style-type: none"> • Parkinson Disease • Multiple Sclerosis • Stroke • Epilepsy • CNS tumors
Psychiatric	<ul style="list-style-type: none"> • Depression/other mood disorder • Anxiety disorders • Schizophrenia • Post traumatic stress disorder
Medications/substances	<ul style="list-style-type: none"> • Alcohol • Antidepressants (almost all) • Anti-seizure • Antihistamines • Antipsychotics • Benzodiazepines • Barbiturates • Caffeine (may delay sleep)

	<ul style="list-style-type: none"> • Narcotics • Stimulants (may delay sleep) • Sedatives
Other medical conditions	<ul style="list-style-type: none"> • Chronic disease (e.g., CHF, CKD, COPD, fibromyalgia, diabetes, liver disease) • Malignancy and paraneoplastic syndromes • Kleine-Levin syndrome • Hormonal fluctuations associated with perimenopause/ menopause • Hypothyroidism: There is an observed association between OSA and thyroid disorders, including hypothyroidism, which may influence the severity and presentation of sleep apnea. • Chronic Fatigue Syndrome or Fibromyalgia

3. Red Flags

HSAT is an appropriate diagnostic tool only for patients at an increased risk of moderate to severe OSA who do not have any red flags. Patients with red flags should be referred to a sleep specialist or respirologist for further evaluation and management [18, 8]:

- **Neuromuscular disease:** Patients with neuromuscular disorders, such as amyotrophic lateral sclerosis (ALS) or muscular dystrophy, are at increased risk for more complex forms of sleep-disordered breathing. These conditions can weaken the respiratory muscles, which may exacerbate OSA or lead to respiratory failure requiring specialist management.
- **Supplementary oxygen use:** The presence of supplemental oxygen complicates the interpretation of HSAT results, as oxygen therapy can mitigate the hypoxemia typically associated with OSA.

Other considerations: If encountered, consider if HSAT or referral will best meet patient needs.

- **Chronic or regular opioid use:** Patients who use opioids regularly are at higher risk for central sleep apnea or opioid-induced respiratory depression. These conditions are not well-assessed by HSAT, and the results may not be straightforward to interpret.
- **Significant cardiopulmonary disease:** A history of serious cardiopulmonary conditions (e.g., CVA) necessitates a more detailed evaluation. These conditions can complicate the clinical picture of OSA, and HSAT alone may not provide sufficient diagnostic information in these cases.
- **Unsuccessful HSAT:** If the patient has physical, cognitive, or other barriers to self-administered HSAT (e.g., difficulty with device application, interpreting instructions, or adhering to the procedure), consider alternative diagnostic strategies.
- **Equivocal HSAT:** If the patient has undergone HSAT previously and results were either negative or inconclusive, but you continue to strongly suspect that OSA contributes to their symptoms, a referral to a sleep specialist is recommended rather than repeating the HSAT.

4. Investigation

Home Sleep Apnea Test (HSAT):

HSAT is a convenient diagnostic tool for confirming a diagnosis of OSA in an individual with moderate to high pre-test probability, especially for patients who meet criteria based on clinical assessment and the STOP-BANG score. HSAT does not exclude OSA in individuals who are at high risk; clinical correlation is required.

A list of clinics accredited in Alberta by the College of Physicians & Surgeons of Alberta to provide HSAT is available: [Accredited Facility Listing Sleep Medicine](#). Using an accredited clinic ensures that you will receive formal interpretation of results by an Alberta-licensed physician (accreditation requires formal interpretation by a licensed physician). Please be aware that there may be a cost for the patient to complete the HSAT, and the amount can vary significantly depending on the provider.

Table 4: Common terminology used in sleep study results. This information may be found in the HSAT report.

Term	Definition
Apnea Hypopnea Index (AHI) *Note that AHI derived from HSAT may be lower than AHI derived from PSG	Number of apneas and hypopneas per hour. AHI severity: <ul style="list-style-type: none">• <5: Normal• 5-14: Mild• 15-29: Moderate• ≥30: Severe
Oxygen Desaturation Index (ODI)	Tracks the number of times per hour that a person's oxygen saturation level drops by 3% or more during sleep. This is an important measure of how often the body experiences significant oxygen deprivation, which can be associated with respiratory events such as apneas or hypopneas. Some devices may report events based on a 4% desaturation threshold. ODI is also known as RDI .
Sleep position /Positional OSA	For some individuals, supine position exacerbates airway collapse, while lateral position may reduce the occurrence of apneas. The report may specify the number of apneas in a variety of sleep positions (e.g., supine, side-lying) or it can be calculated. Generally, supine index ≥ 2 times the lateral index.

5. Management

Treatment indications and options vary depending on the severity of OSA. Management goals include:

- reducing symptoms
- improving quality of life
- preventing potential complications such as cardiovascular disease, and motor vehicle accidents.

Lifestyle modification

In the management of OSA, lifestyle modifications play a critical role in improving symptoms and enhancing overall treatment outcomes [3, 8, 6]. These adjustments should be tailored to the individual patient, considering their specific needs, health status, and preferences.

Healthy behaviors: Balanced nutrition, regular physical activity, and sleep hygiene may help reduce OSA severity by improving muscle tone, reducing weight, and increasing sleep quality. Gradual, sustainable changes will increase the likelihood of long-term maintenance.

If applicable to the patient explore:

Weight loss: Excess weight can contribute to airway obstruction. A reduction in body weight may lead to significant improvements in symptoms and a decrease in the severity of OSA [19]. Patients should be encouraged to work with healthcare professionals to develop a personalized weight management plan that is both effective and realistic.

Alcohol use: Alcohol can exacerbate OSA symptoms by relaxing the muscles of the upper airway, which may lead to increased airway obstruction and more frequent apneas during sleep. Patients with OSA should be advised to limit alcohol consumption, especially in the hours leading up to bedtime, as it can worsen the severity of the condition. Reducing alcohol intake can help improve sleep quality and the effectiveness of treatment.

Sleep positions: Encouraging patients to experiment with sleeping on their side, using positional therapy devices, if necessary, may help reduce symptoms, particularly in cases of mild to moderate OSA. Note: Patients should use the positional therapy devices that work best for them, as there is considerable variation in available devices and recommendations depending on the provider and individual preferences.

Incorporating these lifestyle changes into a comprehensive treatment plan may improve the management of OSA, especially when used alongside other therapeutic interventions. It is important for healthcare providers to work closely with patients to identify the most appropriate and sustainable changes to support both their immediate and long-term health.

HSAT Results

Severity of OSA is determined by the number of respiratory events per hour, expressed as the Apnea-Hypopnea Index (AHI) or Oxygen Desaturation Index (ODI)/Respiratory Disturbance Index (RDI).

- Normal: AHI or ODI/RDI < 5/hr
- Mild OSA: AHI or ODI/RDI 5-14/hr
- Moderate OSA: AHI or ODI/RDI 15-29/hr
- Severe OSA: AHI or ODI/RDI ≥ 30/hr

IMPORTANT NOTE: Once HSAT results are available, it's recommended to review them, in-person, with the patient. In this discussion, explain the results and associated risks/benefits of treatment ([Table 5](#)).

Red Flag

Sustained hypoxemia and suspected hypoventilation

If the HSAT report indicates OSA and sustained hypoxemia or suspected hypoventilation, further evaluation is required. Using the report's findings the physician should refer the patient to a sleep specialist or respirologist for additional assessment.

IMPORTANT NOTE: Patients with sustained hypoxemia and suspected hypoventilation **should not** be started on therapy (including oxygen). Such patients are at increased risk of worsening respiratory failure and should be referred for polysomnographic titration of PAP therapy.

Table 5: HSAT Result Summary and Recommendation Table

HSAT result	Recommendation
HSAT Negative (Normal, AHI or ODI/RDI < 5/hr)	<ul style="list-style-type: none"> OSA unlikely [5], explore other causes for symptoms (Table 3).
HSAT Positive (Mild, Moderate or Severe)	<ul style="list-style-type: none"> For all severities (mild, moderate or severe), offer lifestyle modifications if applicable and promote healthy behaviors.
Mild OSA (AHI or ODI/RDI 5-14/hr)	<ul style="list-style-type: none"> Patients with no bothersome symptoms, treatment generally not required. Patients with minimal bothersome symptoms, consider lifestyle modifications [15]. Not initiating treatment in patients with asymptomatic mild OSA is based on the relatively low risk of adverse outcomes [20]. As such, the decision to treat should be personalized, weighing the severity of symptoms, patient preferences, and the potential outcomes of treatment. A trial of therapy is reasonable in symptomatic patients. <ul style="list-style-type: none"> 1st line treatment: CPAP trial 2nd line treatment: Consider referral for oral appliance fitting, if patient prefers or CPAP is not tolerated.
Moderate OSA (AHI or ODI/RDI 15-29/hr)	<ul style="list-style-type: none"> Assess for sustained hypoxemia and suspected hypoventilation BEFORE initiating therapy. Do NOT start therapy if patient has sustained hypoxemia or suspected hypoventilation (see below). Lifestyle modifications, if applicable. Treatment recommended to alleviate symptoms: <ul style="list-style-type: none"> 1st line treatment: CPAP trial 2nd line treatment: Consider referral for oral appliance fitting, if patient prefers or CPAP is not tolerated.
Severe OSA (AHI or ODI/RDI ≥ 30/hr)	<ul style="list-style-type: none"> Assess for sustained hypoxemia and suspected hypoventilation BEFORE initiating therapy. Do NOT start therapy if patient has sustained hypoxemia or suspected hypoventilation (see below). Lifestyle modifications, if applicable. CPAP therapy is recommended to address significant risks associated with OSA, including cardiovascular disease and other comorbidities. 2nd line treatment: Consider referral for oral appliance fitting, if patient prefers or CPAP is not tolerated.

CPAP therapy to alleviate symptoms (If no hypoxia or hypoventilation)

- CPAP works by delivering a continuous stream of air through a mask to keep the upper airway open during sleep, preventing apneas and hypopneas.
- **All** patients who start a CPAP therapy trial (also called a CPAP titration) should be clinically reassessed within 2-4 weeks to ensure that symptoms have improved and that OSA is adequately treated.
 - Hours of PAP use, average mask leak and reduction in ODI/RDI can be obtained from CPAP machine downloads that are generally sent to the referring physician by the CPAP provider. CPAP usage of 4 hours/night on at least 70% of nights is generally considered the minimum required to see improvement in symptoms and quality of life (although many patients require greater nightly use for maximal effect).
 - Even if the patient is considering custom-fitted oral appliances, a trial of CPAP allows the patient to determine if treatment of OSA alleviates symptoms.
- Many respiratory homecare providers offer CPAP trials and purchase. However, there is no obligation for patients to have testing and treatment with the same provider. Patients and physicians may choose the most appropriate treatment provider after discussion about the benefits of treatment and choice of therapy. You may want to refer your patients to the **Provincial OSA Patient Pathway** (coming soon) that includes [Buyer's Information for CPAP Therapy Equipment](#).

Funding and costs for CPAP

Currently, there is no universal public funding program for CPAP therapy in Alberta. Costs of CPAP are usually borne by patients or private insurance plans. CPAP providers should be familiar with available funding options. Patients are encouraged to call their insurance company and/or work with their healthcare provider for details.

In Alberta the cost of CPAP can vary depending on the CPAP provider. Here are some estimated costs:

- CPAP Trial \$100-\$250
- CPAP Purchase \$1500-\$3000 (costs typically include education, troubleshooting and service by CPAP provider)
- Patients may incur ongoing costs for items such as masks, tubing, machine replacements, distilled water, and maintenance, with prices for these items varying.

Some patients with low income may be eligible for government funding support as listed below. CPAP providers should be familiar with these programs.

- [Assured Income for the Severely Handicapped \(AISH\) | Alberta.ca](#)
- [Alberta Supports | Alberta.ca](#): Helping you find and apply for family and social supports
- [Non-Insured Health Benefits- Medical Supplies and Equipment Guide and Benefit Lists for First Nations and Inuit](#)
- [Special Needs Assistance for Seniors | Alberta.ca](#)

Note: For government funding support, a PSG test may be required to confirm the diagnosis of OSA (ODI/RDI > 15) and assess its response to CPAP therapy. If the patient's symptoms have improved but insurance or funding sources require a formal PSG for coverage of continued CPAP therapy, refer the patient to a sleep specialist for formal testing and documentation to facilitate coverage.

Troubleshooting CPAP therapy

If a patient is non-compliant with CPAP therapy, it's essential to identify and address the barriers to use. Refer to Table 6 to troubleshoot causes of CPAP intolerance. CPAP providers should be able to support patients with CPAP intolerance.

Table 6: Causes of CPAP intolerance

Problem	Possible Solution
Air flow too warm	<ul style="list-style-type: none"> Wash or replace machine filter Make sure air intake is not blocked Bedroom too warm - decrease temperature
Air flow too cold	<ul style="list-style-type: none"> Place hose under blankets Make a wrap to cover hose - cut out toes of wool socks and place around hose Make sure CPAP unit not directly under open window Fill CPAP humidifier with warm water Increase room temperature Do not place CPAP machine on floor
Pressure points on face from mask	<ul style="list-style-type: none"> Adjust or loosen mask and headgear Apply Moleskin™ or Advanced Healing™ bandage to tender area If an open sore occurs, stop using CPAP for a few days to allow healing Arrange appointment with CPAP provider to try another size, accessory, or different type of mask
Air leaks onto face or eyes from mask	<ul style="list-style-type: none"> Tighten or adjust mask and headgear If mask has inflatable air cuff, pull mask away from face, while CPAP is running, then reseal mask Arrange appointment with CPAP provider to try another size, accessory or different type of mask
Breathing out is difficult	<ul style="list-style-type: none"> This feeling of breathing out against pressure is normal and is exactly what holds your airway open during sleep - this feeling may pass with time Nose may be congested (see congested nose section) If your machine has a ramp feature, use as often as necessary
Machine is too noisy	<ul style="list-style-type: none"> Check hoses, humidifier, mask and connections for leaks Place machine on towel or mouse pad Place machine a distance away (do not use more than 12 ft. of tubing) Optimize leak or other alarms Build a soundproof container - keep air intake clear Change level of machine to slightly below bed height May be a noisy machine - may need to upgrade if older machine (>5 years) or in poor condition Keep trying - you may need to get used to the noise
Runny nose, sneezing or burning sensation	<ul style="list-style-type: none"> Dry airflow from CPAP machine may be causing nasal irritation — use a CPAP humidifier Use a saline nasal spray (Salinex™, Hydrasense™, or home made: ½ tsp. baking soda, ½ tsp. salt, 1 cup water in small nasal spray bottle) Use a nasal lubricant (Vaseline™ or Secaris™) 2 to 3 times per day applied with Q-tip Caution: Do not use Vaseline if using oxygen Extra humidification in the house may be helpful Mask or mouth leak may cause these problems (try chinstrap or a different mask) May improve with time

Problem	Possible Solution
Congested nose	<ul style="list-style-type: none"> • Dry airflow from CPAP machine may be causing nasal irritation. Use a CPAP humidifier • Mask or mouth leak may cause this problem. Try a chinstrap or a different mask • If it's a temporary problem due to a cold, try inhaling Vicks™ dissolved in boiling water prior to using CPAP or use a short-term decongestant (5 to 7 days) • Contact your family or sleep doctor for nasal steroid spray
Dry mouth or throat	<ul style="list-style-type: none"> • Your mouth may be falling open while you sleep causing CPAP pressure to leak out of your mouth • Try a chinstrap • Dry airflow from CPAP machine may be drying throat. Use a CPAP humidifier • Adequate hydration and heated humidity on CPAP machine - this option is recommended for all machines given dry Alberta climate
Unaware or removing mask at night	<ul style="list-style-type: none"> • May be due to nasal congestion; see "Nasal congestion" • May just take time to get used to CPAP; see "Anxiety"
Anxiety using CPAP/ Shortness of breath/ Suffocating feeling	<ul style="list-style-type: none"> • Take a slow, gradual approach to using CPAP <ul style="list-style-type: none"> - Start by wearing mask for short periods during the day while awake; sitting watching TV or reading - Gradually increase CPAP time as tolerated, progressing to lying in bed and eventually sleeping with CPAP • Try alternate mask systems such as nasal pillows • Treat any nasal congestion • May be due to difficulty using prescribed pressure (see "Breathing out is difficult")
Daytime sleepiness	<ul style="list-style-type: none"> • Correct any mask or mouth leaks. Try a chinstrap or a different mask. • If available, download adherence data to confirm amount of CPAP use • Increase sleep time on CPAP • Pressure may not be adequate to correct sleep apnea — arrange an appointment with sleep doctor • If none of the above, arrange an appointment with sleep doctor
Snoring	<ul style="list-style-type: none"> • Mouth may be falling open while you sleep - use a chinstrap • Correct any mask leaks or try a different mask • Pressure may not be adequate to correct sleep apnea, arrange an appointment with sleep doctor
Eye irritation	<ul style="list-style-type: none"> • Air may be blowing into eyes from mask leak - adjust mask and headgear
Swelling around eyes	<ul style="list-style-type: none"> • Loosen mask and headgear
Nasal, sinus, or ear pain or pressure	<ul style="list-style-type: none"> • May be an infection or blockage - contact your family doctor • As you get more comfortable with CPAP, ear pressure may be less noticeable • Try inhaling Vicks™ dissolved in boiling water prior to using CPAP
Gas or stomach bloating	<ul style="list-style-type: none"> • Try a chinstrap to reduce swallowing of air • As you get more comfortable with CPAP this problem may get better
High Pressure	<ul style="list-style-type: none"> • Gradual increase of pressure over time • Habituate with lower pressure • Auto-titrating CPAP may be preferred by some (note: these features typically incur an extra cost and are not required by all patients)

Oral Appliance Therapy

- If a patient cannot tolerate CPAP therapy despite troubleshooting efforts, or prefers treatment besides CPAP, a customized oral appliance (mandibular advancement device) may be considered as alternative therapy.
- Customized oral appliances can be effective in improving sleep apnea severity by repositioning the jaw and tongue to maintain airway patency.
- The patient should be fitted for the device by a certified sleep dentist and re-testing with the device in place should be conducted by the specialized sleep dentist to ensure it effectively reduces the AHI and improves symptoms.
- Customized oral appliances vary in price and can range between \$1500-\$6000.
- Some insurance companies may cover the cost of oral appliances so patients should be encouraged to check with their insurance company if applicable.
- Note: If a certified sleep dentist is not available in the patient's community, then this may not be the best therapeutic option. Over the counter appliances have not been shown to be effective.

If CPAP is well-tolerated but symptoms have not improved:

- Consider the possibility of other underlying sleep disorders, refer to [Table 1](#).

Effective CPAP Therapy

- **Resolution of symptoms:** If CPAP therapy is effective, with the patient demonstrating adequate use of therapy indicated on downloads or clinical review (≥ 4 hours/night for 70% of nights) and experiencing significant symptom resolution (reduction in daytime sleepiness, improved mood, and quality of life), continue CPAP therapy with follow up with home care company. Patients will need to replace mask and tubing every 6-12 months for optimal effect of CPAP therapy.

Upper airway surgery

- Upper airway surgery for OSA is a complex multi-stage surgery that is typically reserved for patients that are intolerant or unwilling to use CPAP or oral appliance therapy in the long term. May be considered for patients who have obvious anatomical obstructions [2].
- Upper airway surgery is for highly selected patients and is not included in this general OSA clinical pathway. Consider sleep specialist consultation in these situations.

6. Referral Process

When referring patients to a **sleep specialist or respirologist**, it is important to include the HSAT report with the referral.

- See [Alberta Referral Directory](#) for referral information.

If patients require surgery:

Referral pathways are guidelines to help referring providers know what information, labs and diagnostic imaging are required with their referral to a specialty. These pathways are co-designed with Primary and Specialty Care, AHS Operations, and patients to ensure the right amount of information is included throughout the referral process to triage the patient as quickly as possible.

To ensure referring providers have referral information at their fingertips, referral pathways may link to clinical pathways when available. AHS manages referral pathways and extensive work is ongoing as part of the [Alberta Surgical Initiative](#). If you have questions or want to know more about the referral pathway development process, please email access.ereferral@ahs.ca.

- **Urgent Referral** –via [RAAPID](#) or call 911.
- If patients require surgery, please ensure to follow the [Provincial Oral and Maxillofacial, Adult Referral Pathway](#) or [Provincial Otolaryngology, Adult Referral Pathway](#) (see www.albertapathways.ca).

BACKGROUND

About this pathway

- This pathway was initially developed in 2018 in the Calgary Zone under the auspices of Specialist LINK, Primary Care Networks: Calgary and area, Alberta Health Services and the University of Calgary, Cumming School of Medicine: Division of Respiratory Medicine. In 2025, the original pathway was reviewed and revised by a multi-disciplinary team (see below) to make it a provincial primary care clinical pathway for use in Alberta.
- Condition-specific clinical pathways are intended to offer evidence-based guidance to support primary care providers in caring for patients with a range of clinical conditions.

Authors and conflict of interest declaration

The authors represent a multi-disciplinary team. Names of the content creators and their conflict-of-interest declarations are available on request by emailing albertapathways@primarycarealberta.ca.

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Pathway review process, timelines

Primary care pathways undergo scheduled review every three years or earlier if there is a clinically significant change in knowledge or practice. The next scheduled review is **September 2028**. However, we welcome feedback at any time. Please send us your [feedback here](#).


DISCLAIMER

This pathway represents evidence-based best practice but does not override the individual responsibility of healthcare professionals to make decisions appropriate to their patients using their own clinical judgment given their patients' specific clinical conditions, in consultation with patients/alternate decision makers. The pathway is not a substitute for clinical judgment or advice of a qualified healthcare professional. It is expected that all users will seek advice of other appropriately qualified and regulated healthcare providers with any issues transcending their specific knowledge, scope of regulated practice or professional competence.

PROVIDER RESOURCES

Advice Options

Urgent respirologist telephone advice is available across the province.

Zone	Program	Online Request	Phone Number
Urgent Telephone			
All Zones	RAAPID 	N/A	North: 1-800-282-9911 or 780-735-0811 South: 1-800-661-1700 or 403-944-4486

Resource	Link
Kapur VK, Auckley DH, Chowdhuri S, Kuhlmann DC, Mehra R, Ramar K, Harrod CG. Clinical Practice Guideline for Diagnostic Testing for Adult Obstructive Sleep Apnea: An American Academy of Sleep Medicine Clinical Practice Guideline. J Clin Sleep Med. 2017 Mar 15;13(3):479-504. doi: 10.5664/jcsm.6506. PMID: 28162150; PMCID: PMC5337595.	https://jcsm.aasm.org/doi/pdf/10.5664/jcsm.6506

PATIENT RESOURCES

This section is intended to list resources that primary care providers may find useful to share with patients to help support self-management and care in the medical home.

Resource	Link
Patient Pathway on MyHealth Alberta A webpage and two PDF formats available to allow for easy printing, download, or scanning a QR code with the patient's smart phone for more information at their convenience.	To be launched Spring/Summer 2025
Alberta Lung Association	https://ablung.ca
The Lung Association of Canada	www.lung.ca
Driving safety – patients are responsible to self-report their diagnosis of OSA to the Ministry of Transportation in the province of Alberta (pg. 17)	www.alberta.ca/driver-medical-fitness

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