



Obstructive
Sleep
Apnoea
(OSA)

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Useful Contacts

General Enquiries

Telephone 307 8908

Email sleep@adhb.govt.nz

For appointments

Telephone 307 4949 extension 26458

CPAP User Support

Telephone 630 9860

Email sleep@adhb.govt.nz

Sleep Apnoea Association of New Zealand (SAANZ)

Telephone 021 344 253

<http://www.sleepapnoeanz.org.nz/>

P O Box 88, Hamilton 3240

Introducing ADHBSleep



The Sleep Service is a department within Respiratory Services at ADHB. Our primary focus is to diagnose and treat patients with disordered breathing during sleep. This section is intended to guide you through your journey with our service.

Please read it carefully and keep it safe for future reference.

ADHBSleep receives over 1600 sleep referrals every year, with each patient following the same care pathway. These are the steps you can expect during your care with us:

ADHBSleep Care Pathway

Referral

Usually from your family doctor, but may be from another doctor

First Clinic Appointment with Sleep Doctor

Assessment of sleep complaint, held at Green Lane Sleep Clinic

Investigation(s)

*May include, but not limited to, sleep studies, blood tests, sleep diary, activity records
Please note sleep studies are not relevant for all patients*

Follow Up Clinic Appointment with Sleep Doctor at Green Lane Sleep Clinic

Intended to discuss findings and relevant treatments, held at Green Lane Sleep Clinic

Treatment(s)

May include, but not limited to, continuous positive airway pressure (CPAP), behavioural therapies, weight loss, and in some instances surgical options.

Ongoing treatment & support

Patients on CPAP may remain under the care of Green Lane Sleep Clinic team long term

We endeavour to assess, investigate, and treat your sleep disorder as quick as possible. With such a large number of referrals received each year there can be periods of waiting, and we thank you for your patience. It is also important to note there are some sleep disorders our service does not provide specialist care for, such as insomnia. If you have been referred for a condition outside our scope we will let your doctor know as we can.

“What can I do to help myself right now?”

- We advocate healthy sleep habits (called “**sleep hygiene**”) for everyone, whether you have sleep health concerns or not.
- If your sleep patterns are abnormal you may find it useful to keep a **sleep diary**. This is particularly useful for shift workers or in other circumstances where sleep times vary. Information to collect may include sleep time, wake time, and brief records of when you eat, take medication, exercise, and consume alcoholic or caffeinated foods and drinks.
- Holding any NZ driver’s license is dependent on being medically safe to drive. **Being excessively sleepy means you may not be safe to drive**, and drivers are responsible for only driving when it is safe to do so. See the end of this book for more info.
- Being excessively sleepy can have an impact on your ability to do your job. If sleepiness is having a marked impact on your capacity to work please let your family doctor or referring doctor know.
- **We generally sleep better when we’re in good health**. Leading a healthy, balanced lifestyle can improve our sleep, and making sure we eat well and exercise regularly can have a positive effect on how well we sleep. If you are carrying extra weight (overweight or obese) we strongly recommend you consider weight loss. If you are unsure where to start ask your family doctor about the **Green Prescription** initiative, or find out more at:

<http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/green-prescriptions>

“Are there private sleep services in Auckland?”

Yes. We welcome the opportunity to see all potential cases in our catchment area, but if you would prefer to be seen in private we encourage you to discuss relevant options with the doctor who referred you to us - this is usually your family doctor.

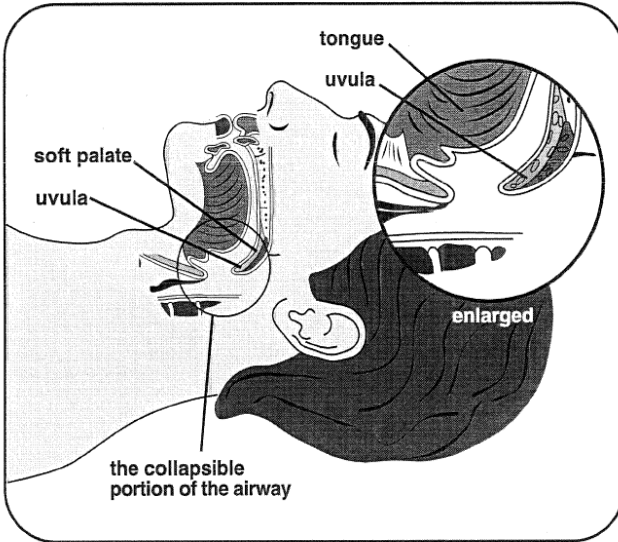
“My health, circumstances, or contact details have changed – who do I tell?”

If your health has changed please contact your family or referring doctor.

*If you have been referred to our service and your contact details change, or you no longer wish to be seen please do let us know by calling us on **307 8908**.*

Breathing during sleep

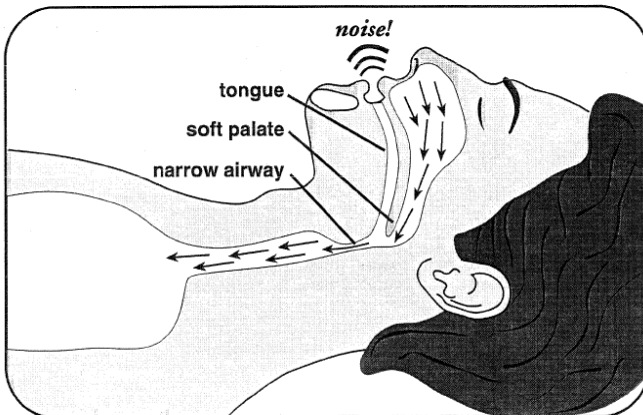
Your upper airway during normal sleep



The airway in people who do not snore or have apnoea remains open during sleep.

When a person goes to sleep most of the muscles in the body become relaxed and soften. This helps the person have a comfortable, relaxed sleep. The muscles in the soft palate (roof of the mouth) and tongue remain firm and toned enough to allow clear passage of air through the throat and in and out of the lungs. In this situation he person is able to get quality sleep without any breathing problems and then wakes in the morning feeling refreshed and able to perform during the day.

What happens to cause snoring?

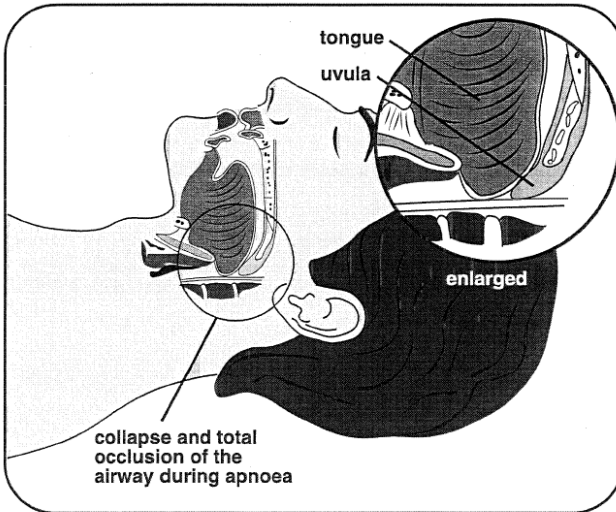


If these muscles relax the airway becomes narrower, which causes snoring and breathing difficulties.

Snoring is a noise made by vibration of the soft palate and other soft tissue due to narrowing in the throat while breathing when asleep. This happens because the muscles controlling the soft palate and tongue relax too much and narrow the airway to the lungs. The breathing muscles then have to work much harder than normal to get air into the lungs.

Snoring is not generally considered a health risk but because sleep during snoring is not as relaxed and comfortable the person may feel less refreshed in the morning and more tired during the day. Snoring can also be socially disruptive and damaging to relationships.

What happens during Obstructive Sleep Apnoea?



The airway in people who have obstructive sleep apnoea collapses during sleep.

Some narrowing of the throat results in snoring. In some people as the muscles relax the airway becomes completely blocked and causes the airflow to stop. This is called an “apnoea”, meaning “lack of breath”. The apnoea can last 10 seconds or more, and can be repeated hundreds of times a night. During the apnoea efforts are made to breathe against the blocked airway. The brain soon recognises

there is a problem and rouses the body to a lighter level of sleep, or wakes the person up. This allows the muscles to firm up which in turn opens the airway to allow breathing to begin again. As the person relaxes into the deeper level of sleep again the cycle of apnoea and breathing repeats itself again and again.

Who gets OSA?

Anyone. More males than females, and older people are more likely to get OSA. Those who have nose / throat problems, such as large tonsils, or a small throat are also more prone. If you are overweight you are more likely to get OSA.

How do I know if I could have OSA?

Persistent loud snoring is characteristic (and usually one or more of the following:

- *Excessive daytime sleepiness (overwhelming and irresistible need to sleep when not busy)*
- *Apnoea (usually described by a partner. Not all apnoea are caused by blockage of the throat)*

- *Waking with a headache*
- *Poor memory/concentration*
- *Sexual dysfunction*
- *Irritability, mood changes, and/or depression*

It is important to recognise there are many other illnesses which can also cause these symptoms – this sometimes makes OSA tricky to identify and diagnose.

How is OSA diagnosed?

Polysomnography (Sleep Lab) Sleep Studies

Polysomnography (SAY: “po-lee-som-nog-ra-fee”) is a comprehensive sleep study performed in a hospital environment called a sleep laboratory. Because this test collects a lot of data it can be useful for a wide range of different patients, including those who have more complicated medical backgrounds, or aren’t suitable for a home study.



What can I expect if I am referred for a test in the sleep lab?

- You will be sent an inpatient appointment for the Sleep Lab at Auckland City Hospital in Grafton, and a list of things to bring or be aware of.
- The day of or before your study the sleep lab will call you to confirm your booking and check any details such as dietary requirements and parking.
- You will arrive at the sleep lab early evening and be given your own room.
- During the evening you will have a number of sensors applied to your skin and body – these do not hurt, but can feel a little strange. In the morning the sensors are removed and you are able to dress and prepare for your day as normal. You will be discharged around 8am, or earlier if you prefer.
- Data from your study will be reviewed thoroughly after you leave – this process can take some time because of the volume of information collected.
- Afterwards (6-8 weeks later) you will be offered a follow up appointment at the Sleep Clinic, at Green Lane, to discuss the results of your study.
- **You may trial CPAP during your study night, or be offered a trial later at your follow up appointment if significant OSA is identified.**

Portable (Home) Sleep Studies



Portable sleep studies are one of the tests used to investigate sleep disorders. Consisting of a simple recorder and several attached sensors, portable studies are often performed in the comfort of a patient's home, and are particularly useful to identify problems with breathing during sleep.

Home studies may be a good option for:

- Patients with uncomplicated medical backgrounds
- Patients who are able to follow guided steps to operate a home testing unit
- Patients identified by their sleep doctor as having a high chance of sleep disordered breathing

However a study at home may **not** be suitable for:

- Patients who live a long way from the hospital (usually 20km or more)
- Patients who have limited confidence or experience with technology
- Patients with complicated or serious aspects to their health history
- Patients being investigated for specific disorders best tested for in hospital

What can I expect if I am referred for a home sleep study?

- You will be sent an outpatient appointment for the Sleep Clinic.
- During your appointment you will be issued with a portable study unit, and provided with a demonstration, and clear, simple written instructions.
- You take home the study unit, wear it overnight, and then return it to the clinic by 10am the next day. No appointment will be made for this return.
- Data from your study will be downloaded and reviewed thoroughly.
- Afterwards you will be offered a follow up appointment to discuss the results of your study
- **You may be offered a trial of CPAP therapy if your study shows you have obstructive sleep apnoea – usually no overnight stay at the lab is needed**

“I have a sleep ‘app’ on my smart phone. Is this a portable sleep study?”

There are hundreds of “apps” and personal health monitoring systems related to sleep-wake cycles and activity. They usually work by recording movement and/or sound, and then apply pattern recognition software. Whilst these can be useful indicators of sleep disturbance, they are not valid diagnostic tools for OSA.

We strongly discourage the use of computers, tablets, televisions, and mobile phones in the bedroom because of the disruption they cause to good sleep habits.

How is OSA Treated?

CPAP Therapy



CPAP is the most common and effective treatment for OSA. Made up of an air pump, a tube, and a face mask, a CPAP circuit is used to “splint” or hold the airway open, preventing the soft tissue blocking the passage of air to and from the lungs. CPAP is a treatment, not a cure, and needs to be worn each time the patient sleeps.

CPAP (said C-PAP) is short for Continuous Positive Airway Pressure

CPAP machines available today are easy to operate, compact, and designed to look more like a household appliance and less like a medical device. They contain a range of comfort and lifestyle settings, allowing patients to adapt their therapy to personal preferences – many even have a built in alarm clock.



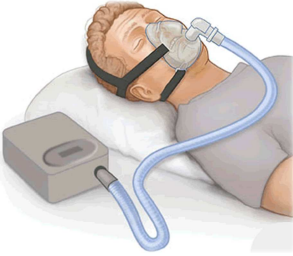
Air is delivered through a face mask which seals over the nose and/or mouth. Modern masks are made from silicone, modern plastics, and fabrics, and are designed to be lightweight, durable, and comfortable to wear.



Getting used to CPAP can take time, and our service offers ongoing care to all CPAP users – both when CPAP is first prescribed, but also on a long term basis. Many patients experience significant relief of symptoms and increase in quality of life, and enjoy the idea of being treated without the use of medication or invasive procedures.

However CPAP is not right for everyone, and will only treat sleepiness as a result of OSA. If you have more than one reason for being excessively sleepy you may still have residual symptoms even if your OSA is well treated on CPAP.

APAP Studies



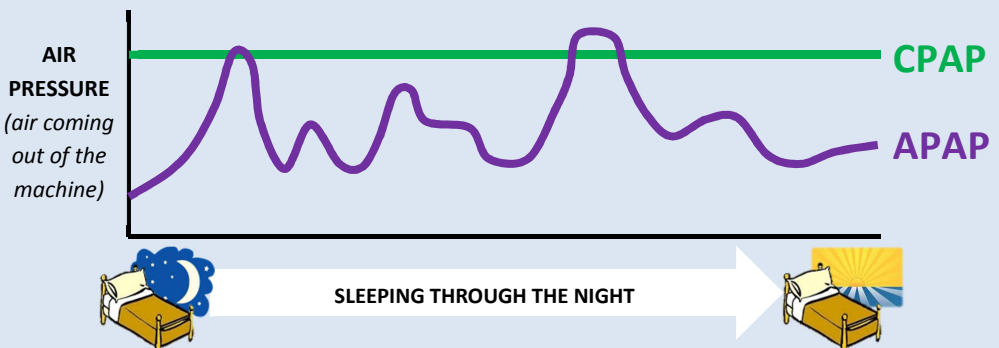
An APAP study is a tool used to find a safe and effective air prescription pressure for CPAP therapy. APAP units look and feel very much like CPAP machines, but have added technology and features which adjust the pressure to change with each breath you take.

APAP (said A-PAP) is short for Automatic Positive Airway Pressure

APAP units combine a pressure pump and a face mask, and deliver air through the mask in order to hold your airway open when you are sleeping. APAPs monitor your breathing for signs of apnoeas, snoring, and other changes in breathing pattern and depth. When they register these breathing problems they gently increase the air pressure until your breathing returns to normal. However if your breathing is clear and regular then air pressure delivered will reduce, or remain at low levels.

“How does APAP differ from CPAP?”

- **APAP** machines **automatically** change the amount of air delivered to you during the night in response to breathing changes. Not used for long term treatment by ADHB.
- **CPAP** machines **continuously** deliver the same pressure throughout the night, with this pressure being the right level of air pressure to hold your airway open all night. CPAP therapy is used for long term treatment (years) by patients with OSA.



Non-CPAP Treatments

Continuous Positive Airway Pressure, or CPAP, is the most effective and accessible treatment for Obstructive Sleep Apnoea (OSA). There are, however, other options which may be suitable for some patients.

Oral Appliances

A large range of oral appliances devices are available in New Zealand, ranging from “over the counter” options to those made specifically for each patient. The two main types are Mandibular Advancement Splints (MASs) and Tongue Stabilising Devices (TSDs). Both work by bringing your lower jaw or tongue forward to open a narrow airway.



Tongue Stabilising Device (TSD) example

Mandibular Advancement Splint (MAS) example



They can be more discrete than a CPAP, and may be a good option for occasional nights when power is not available, such as camping or boating. Oral appliances are not suitable for everyone, and can cause problems if not well fitted. Most do not collect usage data, so make it difficult to provide proof of use if you are required to do so for employment or driver licensing purposes. Generally they are best for patients with mild to moderate OSA, or more severe OSA for very short periods only. These are not funded by ADHB.

Surgery

Many patients ask if there are “operations” which can fix their OSA. There are some surgeries which may help to open up the upper airway (nose and throat) if they are anatomically narrower than normal, and surgical weight loss options are also an option for some people. Many patients are not candidates for surgery, and for others surgery may be only a partial or temporary fix, or may treat snoring but not OSA. Talk to your doctor about whether surgery is right for you.

Weight Loss

We encourage all patients with OSA to consider weight loss if they are overweight or obese. Reducing your weight by as little as 10kg can begin to reduce your OSA severity. This can increase your range of treatment options, or make your current treatment easier to use. We are often asked OSA can be cured by weight loss – the answer is that everyone is different, and we don’t know how much your OSA will improve with weight loss. We do know is that losing excess weight is a good thing, for OSA, your general health, and other conditions such as diabetes, early onset arthritis, and heart disease. If you unsure where to start ask your family doctor about the Green Prescription initiative, or find out more at:

<http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/green-prescriptions>

Other Treatments

Today there are a vast range of alternative therapies advocated for the treatment of OSA, and many others being developed by various research groups around the world. Some behavioural treatments, such as positional therapies, are well known to our service, whilst others are new. We are open to discussion about options you may be interested in, but please be aware we may not be able to discuss treatments that we are unaware of, or those without evidence to support their effectiveness. We also recommend you use care when reading information about OSA and OSA treatments on the internet – not everything on the internet is true, or may not be relevant to you.

“How do I know which treatments are right for me?”

Your sleep doctor is the best person to discuss treatment options with, and you will be given the opportunity to discuss treatment options after your sleep study. If you have questions later we encourage you to contact the sleep clinic before discontinuing any therapies.

“Is there any medication I can take to treat OSA?”

No, there are no specific medications prescribed to treat OSA.

“Can I use more than one treatment?”

We encourage weight loss to be used in conjunction with other treatments if you are overweight or obese. If you have a CPAP machine you may be able to use an oral appliance on rare occasions where power is not available. There are other combinations of therapies which may also work for you. We recommend you speak with your sleep health professional for more guidance about specific combinations.

“Which treatment options are available through ADHBSleep?”

CPAP is the only funded OSA treatment available through ADHBSleep. Your sleep doctor may be able to refer you to another team at ADHB to consider surgical options, or suggest another organisation specializing in oral appliances. We recommend you discuss weight loss support with your family doctor – there are plenty of community resources available in different areas across Auckland which may help you to lose weight and they will be able to recommend those which are best suited to you.

Sleepiness & Driving

Driver fatigue is one of the most common contributing factors in motor vehicle crashes in New Zealand. The more serious a crash is, the more likely driver fatigue was involved. In 2013 fatigue was identified as a contributing factor in 32 fatal crashes and 109 serious injury crashes. Many hundreds more crashes resulted in minor injuries and property damage only. In all the social cost to New Zealand was about \$274 million – around 9% of the social cost of all injury crashes.

Being tired affects driving by

- *slowing your reaction times*
- *making it difficult to concentrate*
- *reducing the ability to judge risks*

There are many reasons why a driver might be too fatigued to drive, such as:

- *Not getting enough sleep*
- *Taking medications which cause sleepiness (somnolence)*
- *Driving at times when we might normally be asleep*
- *Untreated conditions such as Obstructive Sleep Apnoea (OSA) or narcolepsy*

Holding a driver's license in New Zealand requires a number of criteria to be met, including being medically healthy to drive. It is important to know that if you hold a New Zealand driver's license **you are responsible for only driving when you are safe to do so – this means not driving if you are too tired.** You may also be advised by your doctor not to drive if you are being investigated for a sleep disorder.

NZTA has produced a fatigue calculator and journey planner to make it easier to manage driver fatigue. You can find this and other useful resources online at:

www.nzta.govt.nz/traffic/driving-safely/fatigue/overview.html



“Who decides if I am safe to drive?”

NZTA issues driver licences based on information it receives from a number of sources. Your family doctor holds responsibility for overseeing your overall health and managing medical conditions. They are in the best position to confirm your overall medical safety to drive to NZTA, and receive information from other health teams (such as our sleep service) to do so. All medical practitioners have a legal obligation to advise NZTA of relevant medical concerns they have around a particular patient. It's important to understand that **only NZTA can issue or revoke a drivers licence – doctors, nurses, and physiologists do not have the power to remove or reinstate licences.**

“But I’m a good driver and I never feel sleepy when I drive.”

Sleepiness is a very subjective sensation – each of us experiences it differently. You may never feel sleepy when you are driving **but** the law states that if you have a medical condition associated with increased risk of driver fatigue you will need to show you are either using treatment, or you are not at risk of falling asleep when you drive.

“How do I prove my OSA is not increasing my driver fatigue risk?”

The NZTA may ask you to provide proof you are using your therapy. If you are using a CPAP or APAP machine the NZTA will require at an average use of at least 5 hours per night, and this use must be sustained for at least 6 weeks before you are considered adherent to therapy. You must continue to use your therapy in this way unless advised otherwise by your sleep doctor. Adherence may also be called “use” or “compliance”.

Alternatively you may be asked to provide proof you are not at risk of driver fatigue. If this is the case NZTA will specify what type of proof they need. Further testing for this purpose is not available through ADHBSleep, and will usually be at your own cost through a private provider.

“How do I know if I’m too sleepy to drive?”

STAY AWAKE AND STAY ALIVE. Warning signs may include, but are not limited to:

- Difficulty focusing, frequent blinking and/or heavy eyelids
- Difficulty concentrating/keeping daydreams at bay
- Drifting in your lane, swerving, hitting the midline markers or loose material at the side of the road
- Inability to clearly remember the last few km driven
- Trouble keeping your head up
- Missing exits or traffic signs
- Falling asleep at traffic lights
- Yawning repeatedly
- Feeling restless or irritable

Drowsy Driver Tips



If you feel
tired or drowsy
DO NOT DRIVE



Always follow your
doctor's advice about
your safety to drive



Get a good
night's sleep
before driving



Avoid alcohol
before your trip
& during your trip



Avoid any sedative
medications

*If your current medication
makes you sleepy
speak with your doctor.*



Travel during
NON-SLEEPING
hours of the day



If sleepy
STOP AND REST!

*Drink coffee, walk around
or have a brief nap. Take
a break every two hours.*



Share the driving
with a companion

If you regularly
fall asleep driving:

*Stop driving until the
problem has been resolved*

Speak with your doctor

Notify NZ Transport Agency

**It is the responsibility of the
driver NOT TO DRIVE
if unfit to drive because
of sleepiness**

For further support contact your family doctor.

ADHBSleep

Caring for adults with sleep disordered breathing

Healthy Sleep Hygiene

BEFORE BEDTIME



Avoid caffeine, nicotine and alcohol before bedtime.



Avoid heavy meals within two hours of bedtime.



Avoid energetic exercise within three hours of bedtime.

GETTING READY TO SLEEP



Develop a bedtime ritual so that your body knows you are getting ready to go to sleep.



Reduce extreme light, temperature, and noise in your bedroom.



Include an hour of quiet time before bed such as reading, or listening to music.

SLEEP TIME



Keep your sleep regular – same bedtime, same rise time. Aim for 8 hours of sleep each night.



Bedrooms are ONLY for sleeping and sex.
How many screens do you have in your bedroom?



If you can't sleep after 20 minutes, get up and do something boring until you feel tired, then try again.

Remember everyone has nights where they can't sleep. The more you worry, the worse this worry can become.

If you are concerned about your sleep contact your family doctor.

ADHBSleep

Caring for adults with sleep disordered breathing

Are you a shift worker?

<http://sleephealthfoundation.org.au/fact-sheets-a-z/236-shiftwork.html>