

Understanding Sleep Apnoea



The Respiratory Medicine service provides inpatient and outpatient care on acute and chronic respiratory diseases.

Apart from treating conditions, we also provide diagnostic services in the form of pulmonary function tests, bronchoprovocation tests, methacholine challenge test, cardiopulmonary exercise testing, sleep study, flexible bronchoscopy and thoracocentesis and pleural biopsy. Therapeutic services in the form of intensive care, non-invasive ventilation, vaccination (pneumococcal and influenza), smoking cessation, chest tube insertion and pleurodesis are also offered to patients.

Our multi-disciplinary care team comprises of Sleep and Respiratory Medicine specialist physician, Ear, Nose & Throat (ENT) surgeon, Dental specialist, CPAP counsellor, psychologist, dietitian, case manager and Sleep Laboratory technician to provide holistic and continuous care to patients with sleep-related disorders.

What is sleep apnoea?

Sleep apnoea is a serious sleep disorder that affects a person's breathing and interrupts sleep. People with sleep apnoea stop breathing repeatedly, sometimes hundreds of times, when they sleep.

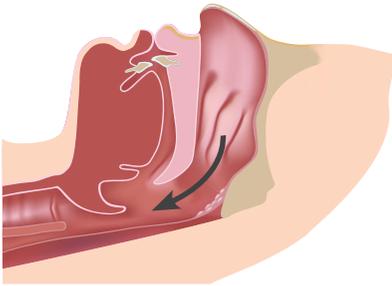
There are two types of sleep apnoea: obstructive and central.

Obstructive sleep apnoea (OSA) is more common and causes a complete or partial upper airway blockage at sleep. In OSA, the diaphragm and chest muscles work extra hard to open the airway, causing breathing to resume with a loud gasp or body jerk. People with OSA rarely have a sound sleep as oxygen flow to vital organs is reduced and can cause them to experience irregularities in heart rhythm.

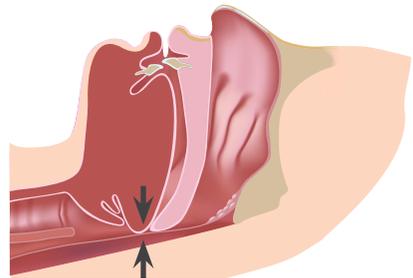
In central sleep apnoea (CSA), the airway is not blocked, but the brain is unable to send signals out to the muscles to breathe normally.

Who gets sleep apnoea?

Sleep apnoea occurs in about 25 percent of men and 10 percent of women. It affects people of all ages, including babies and children. Common in people over forty years old and overweight individuals, certain physical traits also contribute to OSA: a large neck, nasal obstruction, low-hanging soft palate, enlarged tonsils, small jaw with an overbite.



Normal person lying on back, asleep



Person with OSA. The arrows indicate a complete obstruction in the back of the throat

What causes sleep apnoea?

Obstructive sleep apnoea (OSA) occurs when the soft tissues at the back of the throat collapse during sleep and block the airway. Central sleep apnoea (CSA) occurs in patients with a central nervous system dysfunction after a stroke or those with neuromuscular diseases, such as amyotrophic lateral sclerosis. It is also common in people with heart failure and other cardiac and pulmonary diseases.

What are the symptoms of sleep apnoea?

- Daytime sleepiness or fatigue
- Dry mouth or sore throat upon awakening
- Frequent urination at night
- Headaches upon waking
- Intellectual impairment, such as trouble concentrating
- Night sweats
- Restlessness at sleep
- Sexual dysfunction
- Snoring
- Sudden awakenings with gasping or choking, forgetfulness or irritability



Symptoms in children:

- Bedwetting
- Difficulty breathing through the mouth or swallowing
- Excessive sweating at night
- Inward movement of the ribcage when inhaling
- Learning and behavioural disorders
- Poor school performance
- Sluggishness or sleepiness, sometimes misinterpreted as laziness in the classroom
- Unusual sleep positions, such as sleeping on the hands and knees, or with the neck hyper-extended

What are the effects of sleep apnoea?

A number of health problems have been associated with untreated sleep apnoea, such as hypertension, stroke, arrhythmias, cardiomyopathy (enlargement of the muscle tissue of the heart), heart failure, diabetes, heart attacks, depression and sudden death.

Untreated sleep apnoea is also linked to poor job and academic performance, work and road accidents.

How is sleep apnoea diagnosed?

Sleep apnoea is diagnosed by looking at one's sleep history, a physical health examination and an overnight sleep study (polysomnogram). The overnight sleep study looks at the brain, eyes, muscles, heart, breathing patterns, air flow, and blood oxygen levels to determine the severity of sleep apnoea. It is performed under the supervision of a trained technologist in a sleep laboratory. At times, a multiple sleep latency test is performed the next day to observe how quickly a patient falls asleep. This test offers the patient opportunities to fall asleep when they should be awake.

What are the treatments for sleep apnoea?

Conservative treatments

Such treatments are used for mild cases of sleep apnoea.

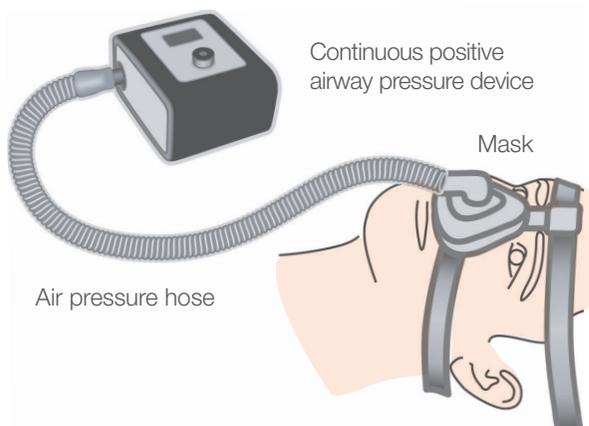
Overweight people can benefit from losing weight as a 10% weight loss can improve sleep apnoea and reduce breathing pauses. Lowering alcohol and the consumption of sleeping pills, using pillows/devices to sleep on your side can also reduce sleep apnoea.

People with sinus problems or nasal congestion are prone to sleep apnoea. The use of nasal sprays can reduce snoring and improve airflow, but limiting late nights and having enough sleep is the best way to improve sleep apnoea.

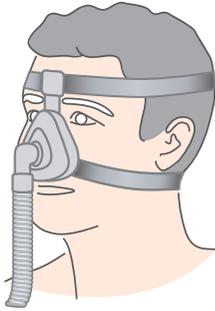
Mechanical therapy

Continuous positive airway pressure (CPAP) is the most effective treatment to-date for moderate to severe obstructive sleep apnoea. Patients wear a mask over their nose and/or mouth as an air blower forces air through the airway to prevent upper airway tissues from collapsing during sleep. CPAP is effective in preventing the airway from closing.

The longer a patient uses the CPAP during sleep, the more he or she benefits from it.



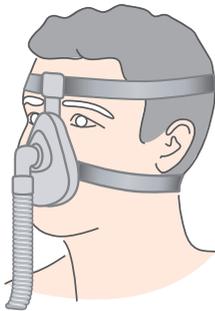
Patients experiencing difficulty with CPAP may be recommended other types of positive airway pressure devices, such as the bilevel positive airway pressure (BIPAP).



Standard nasal mask



Nose inserts, also known as nasal pillow



Full face mask

Side effects of PAP treatment

- Dryness of the mouth or nose
- Mask air leaks
- Nasal stuffiness or congestion
- Noise made by PAP machine
- Sensation of too much air pressure
- Skin irritation from the mask and/or straps
- Sore, dry or red eyes

Please alert our hospital if you experience any of the symptoms above. In most cases, we can help you to manage them comfortably.

Oral appliance therapy

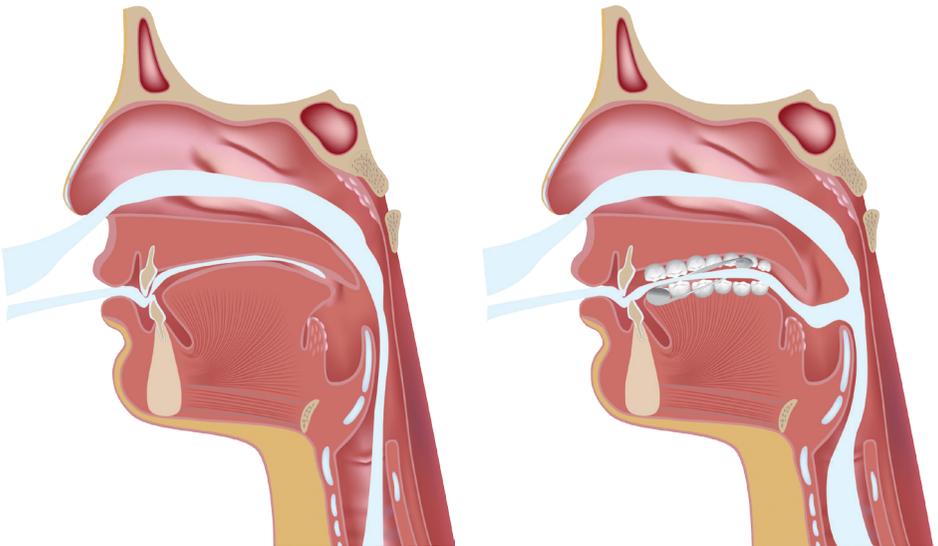
Under this treatment, patients wear a tongue-retaining device (TRD) or mandibular advancement device (MAD) in the mouth to reduce vibration, improve airflow and enlarge airway as they sleep. These devices pull the base of the tongue and soft palate forward and put walls of upper airway under tension to keep the mouth from opening during sleep.

Oral appliances reduce daytime sleepiness and sleep apnoea episodes, improving sleep patterns, snoring and the loudness of snoring. Side effects from this treatment may include dry lips/mouth, tooth discomfort, excessive salivation/drooling and possible teeth position changes.

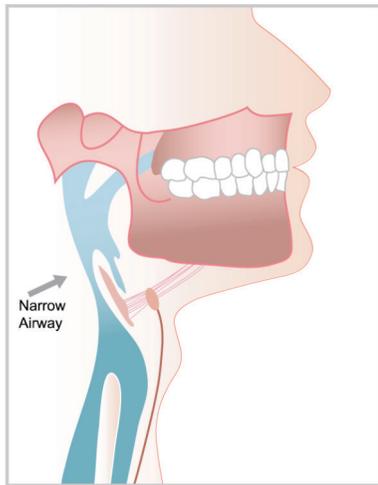
A follow-up is required every six months for the first year and once a year subsequently.

Surgical management

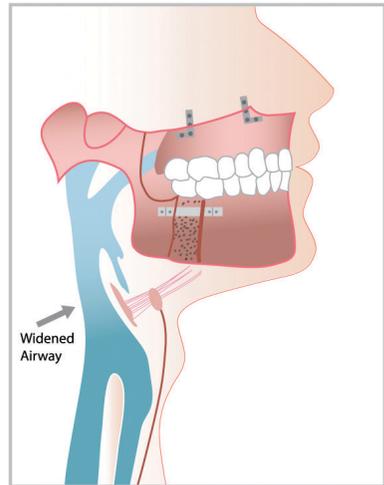
Surgery is an effective way to treat OSA, especially if a patient cannot tolerate CPAP. Surgery widens and/or stiffens the upper airway to prevent airway vibration and closure during sleep.



A nasoendoscopic examination is performed before surgery to determine where the narrow airway is. The first stage of surgery, known as uvulopalatopharyngoplasty (UPPP) operation widens the throat by removing soft tissues (tonsils and part of the soft palate) in the throat. It may be combined with laser or radiofrequency application to shrink the tongue base and nasal surgery for a blocked nose.



Pre op-before MMA surgery



Post op-after MMA surgery

A second stage of the surgery involves a more extensive tongue surgery (maxillo-mandibular advancement or MMA) that brings the upper and lower jaws forward to enable soft tissues attached to the bones (soft palate and tongue) to come forward. MMA is the most effective surgery to-date for OSA.

MMA can be performed alone or with the genio-glossus advancement (GGA). Usually advised for small lower jaws where the tongue sits more backwards than usual, GGA is able to pull part of the lower jaw and tongue forward. This widens the airway behind the tongue to improve airflow.

Psychological therapy

Psychologists help patients with sleep breathing disorders manage their mood, anxiety, and ability to cope. Psychological interventions can be individually-tailored to help patients with co-occurring medical and psychological problems manage symptoms more effectively.

Manage your weight

Carrying extra weight in your body can cause serious health consequences. Studies show that bringing your weight down by 5% in six months can improve your health. Pick healthier options that do not compromise on your three meals a day. Our dietitian can customise a meal plan that allows you to enjoy all the nutrition in your meal and in the right portion.

Notes:

For more information

Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

www.ntfgh.com.sg | www.jch.com.sg

Clinic opening hours

Monday – Friday: 8.30am – 5.30pm

Saturday: 8.30am – 12.30pm (Selected clinics only*)

Dental Clinic: Monday – Thursday: 8.00am – 5.30pm, Friday: 8.00am – 5.00pm

*Please refer to our websites for more details.

General enquiries & appointments

General enquiries line: 6908 2222 (24-hr)

Fax: 6716 5500 | Email: contactus@nuhs.edu.sg

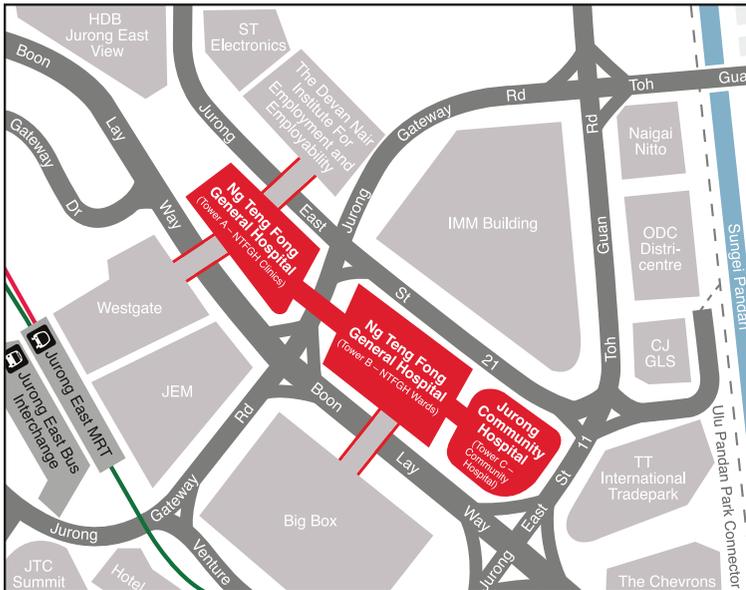
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: appointment@nuhs.edu.sg

Dental appointment line: 6716 2233 (Monday – Friday: 8.00am – 5.30pm)

Fax: 6716 2200 | Email: JHCampus_Dental@nuhs.edu.sg

Getting there



By train

Alight at Jurong East MRT Station

By bus

Jurong East Bus Interchange

41, 49, 51, 52, 66, 66B, 78, 78A, 79, 79A, 97, 97E, 98, 98M, 105, 143, 143M, 160, 160A, 160M, 183, 183B, 197, 333, 334, 335, 506

Along Boon Lay Way

49, 99, 333, Private bus service 625, 990

Disclaimer:

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment or if you have any questions related to your health, physical fitness or medical condition. Information is accurate at the time of printing.