Sleep disordered breathing/suspected Obstructive Sleep Apnea (OSA)

There are associations between OSA and hypertension, cardiovascular disease and arrhythmia, impaired glucose tolerance, mood disorders and road traffic accidents. Sleep apnea (including mild OSA) is thought to have a prevalence of 4% in the male population, 2% in the female population (~ 4,000 + 2,000 individuals here in Southland). On average the diagnosis is not made until 7 years after the problem develops.

Snoring alone is not necessarily harmful although it may be disruptive. Most people will occasionally snore and experience apnea. A significant disorder can generally be excluded by performing a sleep study.

There are several levels of sleep studies:

- The current “default” study done by the Diagnostic testing team here at Southland Hospital is a “Level III” study which includes monitoring of the patient’s position, leg movements, heart rate, oxygen saturations, nasal flow, thoracic expansion. The analysis of all channels determines the “Apnea/ Hypnea Index or AHI” i.e. how many disturbances can be found on average per hour. An AHI of < 5/h is normal. This test will also allow to differentiate between OSA and sleep apnea due to a “central” cause i.e. not OSA
- More advanced is a “Level I” study = Polysomnography (PSG) currently only done at the Sleep unit in Dunedin Hospital. This includes EEG and EOG monitoring in addition to the information obtained from a level III study and does allow to determine sleep staging (eg. how much REM sleep ) and the diagnosis of other (non-respiratory) sleep disorders.
- Less advanced are “Level IV” sleep studies (oximetry and heart rate) or limited flow studies such as Apnealink ® study which can be utilised to “rule out” significant OSA in patients with a low clinical concern or to “rule in” severe OSA in those with a high pre-test probability.

Level III and Level IV studies are currently available in Southland in the public and the private sector.

Who to refer for a sleep study / sleep assessment?
The only proven treatment for OSA is CPAP (nasal continuous positive airway pressure). This generally will only be tolerated by those with significant symptoms. Thus referral of patients who deny significant daytime sleepiness (ESS<11/24) may not be warranted. If daytime sleepiness is related to sleep deprivation this should be addressed. In those who are obese, significant life style modification and weight reduction may minimise the problem of OSA.

High risk patients should be referred promptly, where there is a history of gross daytime sleepiness leading to risk, e.g. falling asleep repeatedly whilst driving short distances or operating machinery.

Referrals for Sleep Studies should be sent to Southland Hospital – Respiratory/ Medicine Services. Referrals will be “triaged” by the Respiratory specialist. Waiting times will depend on the urgency thought to be present.

Information required

- Patient history (snoring? witnessed apnea? previous ENT treatments / assessments? co-morbidities such as Hypertension, CVD)
- Current medications
- The Epworth Sleepiness Score (ESS see questionnaire below) is an essential parameter /tool needed for adequate referral triage
- Occupational hazard due to sleepiness - this will increase the level of urgency
- BMI/ weight – weight change over recent years
- If blood work-up has previously been undertaken please attach (in particular thyroid function tests but this is not essential)

If there is evidence of significant OSA, patients will be offered a trial of CPAP in the public sector. The urgency will depend on the severity of OSA (i.e. AHI) but also the degree of clinical concern including the patient’s sleepiness.
Some (other) management options for OSA / snoring / sleepiness

Obesity: - Weight reduction
Sleep restriction/ deprivation: - Identify & address if possible (sleep hygiene, shift work…)
Alcohol & drug use: - marked reduction
Sedative Medications- including TCA, SSRI - Change or Stop if possible
Sleep Position: - 40% of patients have positional snoring:
  Modify sleep position- Try securing an object ( eg golf ball or corks) to back of night attire, large button, pillows
Chronic nasal/sinus disease: - treat if possible
Oral appliances can be useful for some patient but should best be custom made . This requires the patient to have adequate (own) dentition
Upper Airway Surgery may be indicated in some patients – requires specialist ENT review

An assessment of nasal patency and examination of the oral space using a torch, spatula, and the Friedman scoring scale (describes the oral-pharyngeal space) will help to assess the upper airway.

Friedman Scoring Tool
## ESS Score Sheet

Epworth Sleepiness Score (ESS) is a subjective assessment of daytime sleepiness. This form must be filled out by the patient.

How likely are you to doze off or fall asleep in the following situations (in contrast to just feeling tired)? This refers to your usual way of life in recent times. Even if you have not done some of these things recently, try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation:

- 0 = I would **never** doze
- 1 = slight chance of dozing
- 2 = moderate chance of dozing
- 3 = high chance of dozing

An ESS of > 10 is considered abnormal, with a score of > 16 indicative of pathological daytime sleepiness.

<table>
<thead>
<tr>
<th>Dozing</th>
<th>Chance of...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting and reading</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Watching television</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting inactive in a public place (i.e., theatre, meeting)</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>As a passenger in a car for an hour without a break</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Lying down to rest in the afternoon when circumstances permit</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting and talking to someone</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>Sitting quietly after lunch without alcohol</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>In a car, while stopped for a few minutes in traffic</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>