Snoring and sleep apnoea (OSA)
Developing knowledge

Remember:
- All patients can be treated for snoring with Sleepwell
- Even is OSA is suspected, Sleepwell can be provided to help treat
- OSA referral is simple - complete the tear off part of this questionnaire and give to the patient.

Snoring and day time sleepiness can have a profound impact on quality of life:
- Day time sleepiness: Less effectiveness at work and increased risk of accidents
- Reduced energy: Seulting in poor motivation to exercise and weight gain
- Relationship issues: Sleeping in different bedrooms, reduced sex life and higher stress levels
- Hypertension: Those who snore or suffer from OSA have an elevated risk of high blood pressure

Obstructive sleep apnoea is a serious condition in which a person stops breathing (or suffers extreme low oxgen levels) whilst asleep and often occurs in conjunction with snoring.

Patient name: ...................................................................................................................................................................
Address: ......................................................................................................................................................................
Postcode: ....................................................................................................................................................................
Telephone - home: ........................................................................................................................................................
Telephone - mobile: .....................................................................................................................................................

The following questions relate to your lifestyle and general health. Please indicate whether you have suffered with any of the below, providing further details when the answer is yes.

Heart problems Y / N ........................................................................................................................................................
High blood pressure Y / N .............................................................................................................................................
Diabetes Y / N ............................................................................................................................................................
Thyroid syndrome Y / N ..................................................................................................................................................
Do you take any prescribed medicines Y / N ...........................................................................................................................................

Please indicate
- Alcohol consumption .................................................................................................................................................... units/week
- Smoking level ............................................................................................................................................................. units/week
**PRE-TREATMENT QUESTIONNAIRE**

**PLEASE ENSURE THAT THIS FORM IS COMPLETED USING BLACK INK AND IN CAPITALS**

**PATIENTS MAIN CONCERNS**

Please indicate whether you have suffered with any of the conditions below, giving further details when required.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Yes / No</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headaches on waking</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Daytime sleepiness</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Sleepiness whilst driving</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Snoring most nights</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Snorting or gasping during sleep</td>
<td>Y / N</td>
<td></td>
</tr>
</tbody>
</table>

**PREVIOUS TREATMENT IN RELATION TO SLEEP DISORDERS**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Yes / No</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifestyle change</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Nasal CPAP</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Surgery</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Previous sleep study</td>
<td>Y / N</td>
<td>If yes, note AHI score:</td>
</tr>
</tbody>
</table>

**SLEEPING PARTNER QUESTIONNAIRE (optional information if partner is present)**

<table>
<thead>
<tr>
<th>Partner's Name</th>
<th>Details</th>
</tr>
</thead>
</table>

Please indicate your quality of sleep:

- Good
- Average
- Poor

Please indicate your partner's quality of sleep:

- Good
- Average
- Poor

How would you rate the severity of your partner's snoring - please tick one box only:

- No snoring
- Mild snoring
- Moderate snoring
- Loud snoring
- Very loud snoring

Does your partner's snoring disturb your sleep - please tick one box only:

- Never
- Hardly ever
- Sometimes
- Usually
- Always
EPWORTH SLEEPINESS SCALE - TO BE COMPLETED BY THE PATIENT

How likely are you to doze off or fall asleep in the following situations (in contrast to just feeling tired)? Even if you haven’t been in some of these situations recently, try to work out how they may affect you. Choose the most appropriate number for each situation.

0 - NEVER doze  1 - SLIGHT chance of dozing  2 - MODERATE chance  3 - HIGH chance

Sitting and reading ........................................
Watching TV ........................................
Sitting, inactive in a public place (i.e. theatre, meeting) ........................................
As a passenger in a car for an hour without a break ........................................
Lying to rest of an afternoon when circumstances permit ........................................
Sitting and talking to someone ........................................
Sitting quietly after lunch when NO alcohol has been consumed ........................................
In a car, whilst stopped for a few minutes in traffic ........................................
Total (0-24) ........................................

FLEMONS ADJUSTED NECK CIRCUMFERENCE

Next size - not collar (cm) ........................................
Hypertension Y / N if YES add 4 ........................................
Habitual snorer Y / N if YES add 3 ........................................
Choke or gasp most nights Y / N if YES add 3 ........................................
Total ........................................

CARE PATHWAY: SNORING COMPLAINTS (an on-line assessment is available at s4sdental.com)

Epworth - less than or equal to 10 and the patient does not suffer sleepiness whilst driving

<table>
<thead>
<tr>
<th>Flemons</th>
<th>LOW RISK</th>
<th>Prescribe a Mandibular Advancement Splint</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Epworth - greater than 10 or

<table>
<thead>
<tr>
<th>Flemons</th>
<th>MODERATE RISK</th>
<th>Metabolic, cardiovascular or pulmonary conditions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>43 - 48</td>
<td>Yes</td>
<td>Prescribe a MAS and refer to GP for assessment or for a sleep study</td>
</tr>
<tr>
<td>&gt;48</td>
<td>No</td>
<td>Prescribe a Mandibular Advancement Splint</td>
</tr>
</tbody>
</table>

Post-treatment Questionnaire
### Oral examination

<table>
<thead>
<tr>
<th>Incisor relationship</th>
<th>Class 1</th>
<th>Class 2 Div I</th>
<th>Class 2 Div II</th>
<th>Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overjet</td>
<td>.......... mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overbite</td>
<td>.......... mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OH/Peridontal Condition</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Tonsils - enlarged/inflamed</td>
<td>...............................................</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruxism/clenching or grinding of teeth</td>
<td>Y / N</td>
<td>Severe / Not severe (please note severity on lab ticket)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TMJ Assessment

<table>
<thead>
<tr>
<th>Max lateral movements</th>
<th>L ...... mm</th>
<th>R ...... mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max opening</td>
<td>...... mm</td>
<td></td>
</tr>
<tr>
<td>Max protrusion</td>
<td>...... mm</td>
<td></td>
</tr>
<tr>
<td>Tenderness to palpation</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Pain on mandibular movement</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Smooth movement</td>
<td>Y / N</td>
<td></td>
</tr>
<tr>
<td>Locking and /or luxation</td>
<td>Y / N</td>
<td></td>
</tr>
</tbody>
</table>

### PATIENT INFORMATION

Snoring results from a partial closure of the airway during sleep and most commonly occurs in isolation (simple snoring) or less commonly takes place as part of a more serious condition (obstructive sleep apnoea), which can be potentially life-threatening. This screening questionnaire helps to identify the degree of risk that you may suffer from OSA. To identify the severity of or to exclude OSA an overnight sleep study would be required.

Dental appliances have been shown to play an effective role in the management of patients with snoring and/or obstructive sleep apnoea. The appliance will not cure the disorder but works by temporarily repositioning the lower jaw forwards. The tongue and soft palate are moved forwards, alleviating airway obstruction. In order to be effective and remain so, the appliance must be worn each night. If use of the appliance is discontinued the symptoms will recur. There is no guaranteed that an appliance will be effective in every patient due to individual variation in response. A high standard of oral hygiene is important for a successful outcome as is the care and use of the device as per supplied instructions.

If you are later diagnosed with severe OSA you will be provided with a CPAP on a trial basis and may be asked to discontinue using Sleepwell.

It is important that you return for assessment after the fitting of your splint. You will be asked to complete a simple questionnaire designed to assess your response to treatment and gain feedback from your partner.

For patients with obstructive sleep apnoea this post-treatment assessment provides valuable information. A follow-up sleep study with Sleepwell™ in place overnight is the only sure way to know if breathing disruptions have been eliminated sufficiently for you to continue using Sleepwell™ alone.

After wearing the appliance all night, a variety of sensations may be experienced on awakening. Most patients report either dry mouth sensation on awakening or an excessive amount of saliva. These are short-term effects and lessen with time. On awakening some patients feel that their teeth do not come together properly and/or their jaw joints or muscles at the side of the face feel tender. These symptoms usually only last for a few hours. There is a risk that persistent long-term use can result in a degree of movement of your teeth, particularly if you do not maintain the health of your gums. In addition, the splint may require replacement as a result of wear or breakage.
Dear Dr ........................................

Patient name: .....................................................................................

I have assessed the above patient in relation to his/her presentation of snoring. I have provided him/her with a Sleepwell Mandibular Advancement Appliance to address their snoring complaint.

Your patient has collective signs and symptoms of Obstructive Sleep Apnoea (see summary below) and I feel that he/she requires further medical assessment.

Daytime sleepiness (Epworth Sleepiness Score ...........)  
- Reports sleepiness whilst driving
- Stops breathing during sleep

Flemons Adjusted Neck Circumference Score ............  
- a) Snorts or gasps during sleep
- b) Habitual snoring

Other comments: ....................................................................................................................

On the reverse of this letter is information on how to arrange a private home sleep study and a summary of the Epworth Sleepiness Scale and Flemons Adjusted Neck Circumference. Further information regarding snoring and Obstructive Sleep Apnoea can be found on the S4S website: www.s4sdental.com.

I would appreciate any feedback regarding the outcomes of further investigation. If I can be of any further assistance please do not hesitate to contact me.

Yours sincerely,
Snoring and Obstructive Sleep Apnoea is a serious medical issue as it leads to broken sleep for snorers and their partners. It can have a profound impact on their quality of life as well as be embarrassing and disrupt relationships.

**Day Time Sleepiness** – Less effectiveness at work and increased risk of accidents at work.

**Reduced Energy** – Leading to poor motivation to exercise hence weight gain.

**Relationships** – Sleeping in different bedrooms, reduced sex life and higher stress levels.

**Hypertension** – Patients who snore and have obstructive sleep apnoea have an elevated risk of high blood pressure.

Obstructive Sleep Apnoea is the term used when a person stops breathing while asleep and then breathes again accompanied by a gasp, snort or a choke sound. Breathing interruptions, known as 'sleep apnoea', reduce oxygen levels in the blood. During sleep the brain reacts quickly and releases adrenalin which causes a partial wakening. This cycle can occur many times per hour thereby interrupting sleep, leading to daytime tiredness.

**SCREENING & DIAGNOSIS**

The NHS will not treat simple snorers due to financial constraints and only 50% of sleep centres provide a comprehensive treatment service for obstructive sleep apnoea.

**HOME SLEEP STUDY**

Obstructive Sleep Apnoea is a more serious and often undiagnosed condition, which contributes to day time sleepiness, hypertension, diabetes and ultimately heart disease. The only way to determine if your patient has obstructive sleep apnoea is to have a sleep study. The S4S home sleep study process is simple:

- Can be booked on-line: www.s4sdental.com, or by calling 01142 500 176.
- The Home Sleep Study recorder is dispatched by S4S to the patient’s home.
- The Home Sleep Study is undertaken by a recorder, which is small, lightweight and easy to wear. It enables the patient to have a sleep study from the comfort of their own home and at their own convenience.
- The Home Sleep Study recorder will be collected and the data assessed by a sleep physician.
- Diagnosis and recommended treatment will be provided within 15 working days from the receipt of the equipment and completed questionnaire.

**SNORING TREATMENT**

Mandibular Advancement Splint therapy (MASTherapy) offers effective treatment for simple snoring and mild/moderate obstructive sleep apnoea. Continuous Positive Air Pressure (CPAP) should be offered to sufferers of severe obstructive sleep apnoea.

**What is a Mandibular Advancement Splint (MAS therapy)?** This is a collective name for mouthpieces which are designed to prevent the lower jaw from dropping back during sleep which in turn reduce the risk of the airway narrowing. The narrowing of the airway causes the soft tissue to vibrate which in turn causes the sound of snoring. The role of mandibular advancement splints in the management of snoring is widely recognised (SIGN guidelines, 2003). The most clinically proven and effective mandibular advancement splint is Sleepwell available from S4S trained dentists. Lower cost self diagnosis treatments are called Snoresolve and Snorschield.

**EPWORTH SCALE M.JOHNS Sleep, 1991 Dec; 14(6):540-5**


Johns MW. Sleep Disorders Unit, Epworth Hospital, Melbourne, Victoria, Australia.

The Epworth sleepiness scale (ESS) is a simple, self-administered questionnaire which is shown to provide a measurement of the subject’s general level of daytime sleepiness.

One hundred and eighty adults answered the ESS, including 30 normal men and women as controls and 150 patients with a range of sleep disorders. They rated the chances that they would doze off or fall asleep when in eight different situations commonly encountered in daily life. Total ESS scores significantly distinguished normal subjects from patients in various diagnostic groups including obstructive sleep apnoea syndrome, narcolepsy and idiopathic hypersomnia.

ESS scores were significantly correlated with sleep latency measured during the multiple sleep latency test and during overnight polysomnography. In patients with obstructive sleep apnoea syndrome ESS scores were significantly correlated with the respiratory disturbance index and the minimum SaO2 recorded overnight. ESS scores patients who simply snored did not differ from controls.

**ADJUSTED NECK CIRCUMFERENCE (ANC)**


An adaptation of prediction rule 12 based on neck circumference can be used to estimate a patient’s probability of having a sleep-test result that is diagnostic of sleep apnoea. Neck circumference (measured in centimetres) is adjusted if the patient has hypertension (4cm in added), is a habitual snorer (3cm is added), or is reported to choke or gasp most nights (3cm is added).

A low clinical probability corresponds to an adjusted neck circumference of less than 43cm, an intermediate probability (3cm is added) or is reported to choke or gasp most nights (3cm is added).

I have given complete and accurate replies to the questions within this document and I have read the information given to me and understand how Sleepwell made by S4S (UK) Ltd may help my snoring. **I understand that I would need to undergo an overnight sleep study in order to diagnose Obstructive Sleep Apnoea.**

**PATIENT CONSENT - LOW/MODERATE RISK OF OBSTRUCTIVE SLEEP APNOEA**

Patient name: .............................................................
Patient signature: .............................................................
Date: .............................................................

Clinicians name: .............................................................
Clinicians signature: .............................................................
Date: .............................................................

**DISCLAIMER** – The questionnaires being described in this handout have been obtained from published scientific literature. However, we do not endorse their sole use to establish a diagnosis of Obstructive Sleep Apnoea. It is important to emphasise that the subjective responses upon which these questionnaires rely have the potential to be underestimated by some people. Particular care should be taken in interpreting the results for people whose occupations require high alertness and vigilance levels, such as transport drivers. An overnight sleep study would be required to diagnose Obstructive Sleep Apnoea.

**PATIENT CONSENT - HIGH RISK OF OBSTRUCTIVE SLEEP APNOEA**

I have given complete and accurate replies to the questions within this document and I have read the information given to me and understand how Sleepwell made by S4S (UK) Ltd may help my snoring. **I understand that I would need to undergo an overnight sleep study in order to diagnose obstructive sleep apnoea. I have also been made aware of the risk of having obstructive sleep apnoea and have been advised as follows:**

- To visit by GP with a letter provided by the Dentist  [ ]
- Given details on how to book a home sleep study  [ ]

Patient name: .............................................................
Patient signature: .............................................................
Date: .............................................................

Clinicians name: .............................................................
Clinicians signature: .............................................................
Date: .............................................................