Treatment Options Chart
The following chart lists options that involve treatment and follow-up by a medical or dental professional. The information presented here describes general differences between available treatments for snoring and sleep apnea.

<table>
<thead>
<tr>
<th>Treatment Options</th>
<th>Description</th>
<th>Typical process for treatment</th>
<th>Benefits</th>
<th>Drawbacks</th>
<th>AASM Recommendation</th>
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</table>
| Thornton Adjustable Positioner® (TAP®) Oral Appliance | • Non-invasive therapy  
• Patient wears a device in the mouth at night  
• The device snaps on the upper and lower teeth and holds the lower jaw in a forward position with an adjustable hook mechanism  
• The more the lower jaw is pulled forward, the more open the airway will be  
• The design is based on the principles of the jaw-thrust maneuver used in CPR | • At-home sleep study for diagnosis and baseline or overnight sleep study in a lab for diagnosis, patient choice  
• Impressions and custom fitting by dentist  
• At-home sleep study for follow-up  
• Annual at-home sleep study to monitor treatment, optional | • Most patients wear all night, 7 nights a week  
• Reduction of symptoms  
• Patient in control of treatment and can adjust appliance at home  
• Appropriate treatment for both snoring and sleep apnea  
• Easy to travel with | • Not appropriate for patients with unhealthy or missing teeth  
• May be some jaw pain in the morning until patient gets used to the device  
• Rarely, device has moved teeth | • Indicated for primary snoring  
• Indicated for mild to moderate sleep apnea  
• Recommended for severe sleep apnea, if patient has tried and failed treatment with CPAP |
| Constant Positive Airway Pressure (CPAP) | • Non-invasive therapy  
• Patient wears a mask that is connected to a machine that blows air into via mouth, nose or both to keep the airway open at night  
• The amount of air pressure is determined by the severity of the disease and number of apneic events per minute  
• The air pressure inflates the airway like a balloon to keep it open enough for air to pass through into the lungs | • Overnight sleep study in a lab for diagnosis  
• Overnight sleep study in a lab for CPAP-titration  
• CPAP provided by durable medical equipment company | • Reduction of symptoms  
• Appropriate treatment for sleep apnea, not used to treat snoring | • Average use is 4-5 hours/night  
• Residual sleepiness in some patients  
• Patient must return to sleep lab for adjustment to pressure levels  
• Straps around the head can feel claustrophobic  
• Pressure sores around the nose and mouth  
• Skin irritation from mask  
• Leakage of air if mask shifts position  
• Bulky machine may be difficult to travel with | • Indicated for moderate to severe OSA  
• May be used as treatment for mild OSA, but there is inconclusive or conflicting evidence or conflicting expert opinion |
| Bi-level Positive Airway Pressure (BiPAP) | • See CPAP  
• See CPAP | • Overnight sleep study in a lab for diagnosis  
• Overnight sleep study in a lab for BiPAP-titration  
• BiPAP provided by durable medical equipment company | • May improve patient adherence to use of device  
• May improve mask comfort | • See above | • May be used as an alternative therapy to CPAP in OSA |
| Surgery | • Invasive therapy | • Overnight sleep study in a lab for diagnosis | • Irreversible | • None available | |
| Genioglossus tongue advancement | • Designed to improve the airway behind the base of the tongue  
• Inpatient procedure  
• Local, intravenous sedation or general anesthesia | | • Usually successful for patients with base of tongue | • Risks of surgery apply | |

*NOTE: AASM Recommendations are based on evidence and expert consensus.*
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| **Hyoid suspension surgery**                                                      | • Designed to improve the airway behind the base of the tongue  
• Hyoid bone (bone in the neck where some tongue muscles attach) is pulled forward in front of the voice box to open the airway space behind the tongue | • Local, intravenous sedation or general anesthesia  
• Hospital stay (1-2 days) | • May relieve subjective snoring  
• Invasive procedure  
• No controlled studies evaluating this procedure for the treatment of OSA | • No controlled studies evaluating this procedure for the treatment of OSA  
• Risks of surgery apply  
• None available | |
| **Mandibular and Maxillary Repositioning Surgery or Maxillomandibular Advancement Surgery (Upper and Lower Jaw Surgery)** | • Designed to open the airway behind the palate  
• Bone of the upper and lower jaw is cut; these structures are then pulled forward for a permanent repositioning of the jaws  
• Usually performed only when other treatments or procedures have failed | • Inpatient procedure  
• Hospital stay (2 days)  
• General anesthesia | • Usually successful for patients with base of tongue obstruction, severe OSA, morbid obesity and failure of other treatment | • Risks of surgery apply  
• None available | |
| **Laser-assisted uvuloplasty (LAUP)**                                              | • Designed to open the airway behind the palate  
• For patients with simple snoring or mild sleep apnea  
• Requires multiple procedures where the laser cuts the palate and the area heals by scarring | • Outpatient procedure  
• Local anesthesia | • May relieve subjective snoring  
• Local anesthesia  
• No controlled studies evaluating this procedure for the treatment of OSA | • Invasive procedure  
• No controlled studies evaluating this procedure for the treatment of OSA  
• Risks of surgery apply  
• Not recommended for the treatment of sleep-related breathing disorders including OSA  
• Not recommended as a substitute for UPPP in the treatment of sleep-related breathing disorders including OSA | |
| **Nasal surgery**                                                                 | • Designed to improve nasal obstruction of any kind  
• Nasal polypectomy – removes nasal polyps from nasal cavity.  
• Nasal valve surgery - prevents the collapse of the nostril area called the nasal valve  
• Septoplasty - fixes a deviated septum  
• Turbinoplasty - reduces the size of large nasal bones called turbinates | • May be inpatient or outpatient surgery  
• Local or general anesthesia  
• Oral examination  
• Outpatient procedure  
• Local anesthesia | • Can reduce obstruction in nasal airway and improve airflow  
• Septoplasty – no controlled studies that evaluate long-term effect on OSA  
• Turbinoplasty – no studies showing beneficial effect on OSA  
• Risks of surgery apply | • None available | |
| **Palatal Implants (marketed as Pillar procedures)**                              | • Small plastic rods are injected into the soft palate at the back of the throat  
• Designed to stiffen the tissue and prevent collapse of | • Oral examination  
• Outpatient procedure  
• Local anesthesia | • May resolve some snoring  
• Only successful in selected patients  
• Long-term effectiveness | • None available | |

**Note:** AASM = American Academy of Sleep Medicine; OSA = obstructive sleep apnea; UPPP = uvulopalatopharyngoplasty.
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<td>Soft palate</td>
<td>A procedure for treating nasal obstruction, snoring and in some cases, sleep apnea. Radio wave energy is used to reduce the size of the soft palate.</td>
<td>• Out-patient procedure</td>
<td>mild OSA in selected patients²</td>
<td>• Symptoms can return as early as 12 months after surgery</td>
<td>None available</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>• Variable results treating mild sleep apnea</td>
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<td></td>
<td>• Not recommended for moderate or severe OSA</td>
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<td>• Not covered by insurance</td>
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<tr>
<td>Radiofrequency (RF)</td>
<td>Procedure (marketed as Somnoplasty)</td>
<td>• Local anesthesia</td>
<td>May reduce snoring</td>
<td>No controlled studies demonstrating efficacy in the treatment of OSA iii</td>
<td>None available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Out-patient procedure</td>
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<td>Tracheotomy</td>
<td>Designed to provide an airway by bypassing the areas of upper airway obstruction. AN incision is placed in the neck below the voice box and a plastic or metal tube is placed into the windpipe through the incision. Used as a last resort to treat severe obstructive sleep apnea when other treatments have failed.</td>
<td>• Local, intravenous sedation or general anesthesia Hospital stay (3 days)</td>
<td>Will prevent patient from developing respiratory distress and other serious medical complications</td>
<td>Extremely invasive social stigma due to tracheostomy tube and associated care</td>
<td>None available</td>
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<tr>
<td></td>
<td></td>
<td>• In-patient procedure</td>
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<tr>
<td></td>
<td></td>
<td>• General anesthesia</td>
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<td>Uvulopalatopharyngoplasty (UPPP)</td>
<td>Designed to open the airway behind the palate Lasers or a knife is used to remove excess tissue, including the uvula, from the soft palate and back of the throat; if tonsils are present they are also removed Incision is closed with sutures</td>
<td>• In-patient procedure Hospital stay (1-2 days)</td>
<td>May reduce snoring May treat sleep apnea</td>
<td>Complications during surgery – hemorrhage Dryness of the mouth Difficulty in swallowing Discrete speech disturbances Feeling of a lump in the throat Compulsive clearing of the throat Intensive post-surgery pain Approximately 50% of patients with mild to moderate OSA improve iv Does not help some patients at all or it helps only partially Patient may still need to use the C-PAP machine due to scar tissue</td>
<td>None available</td>
</tr>
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References: