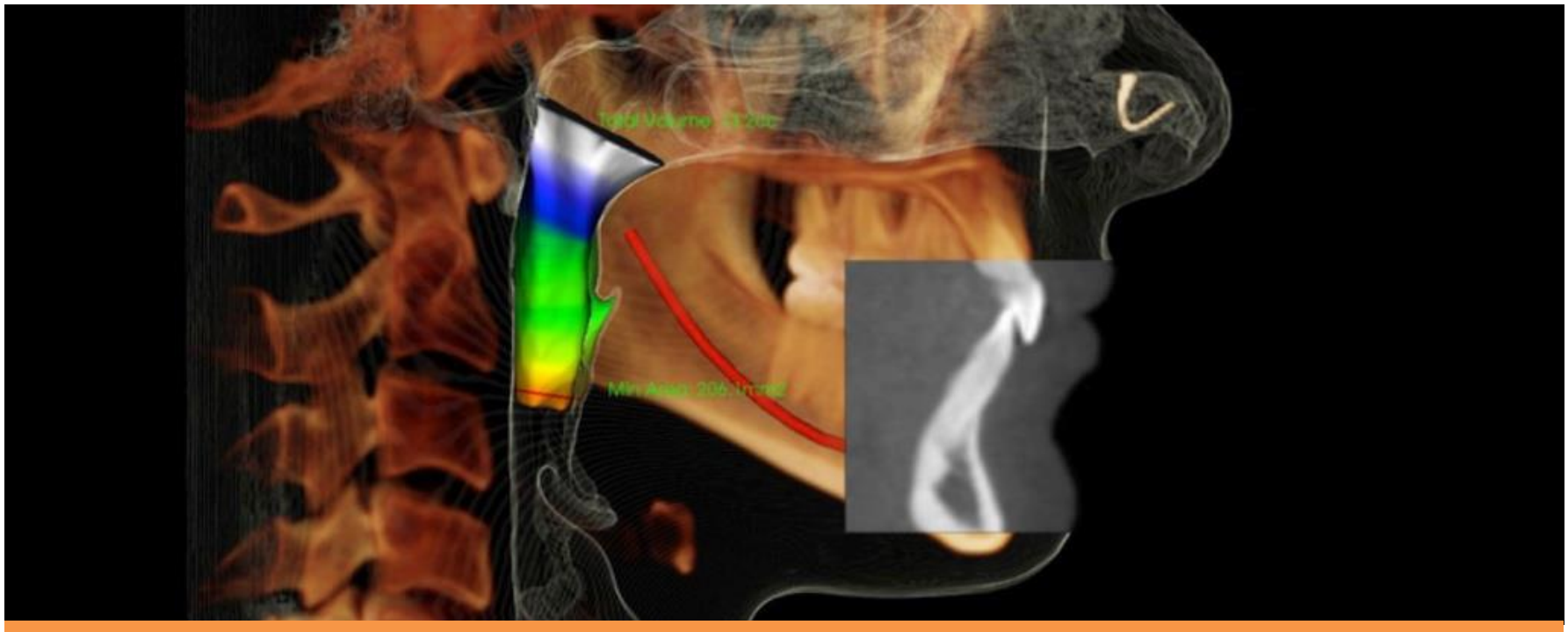

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Obstructive Sleep Apneas : Case Presentation and Workflow

Dr. Jack DeGruchy

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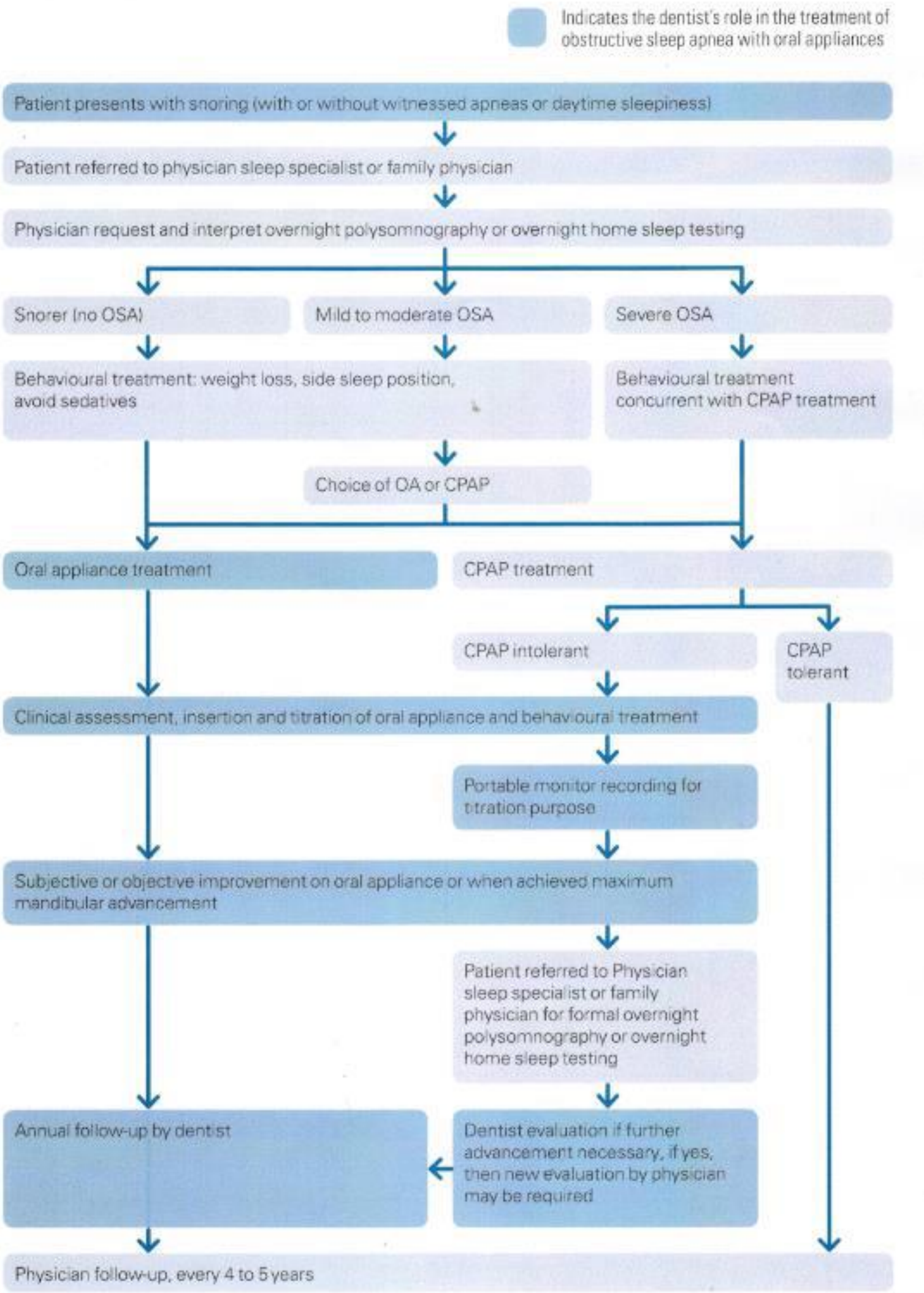
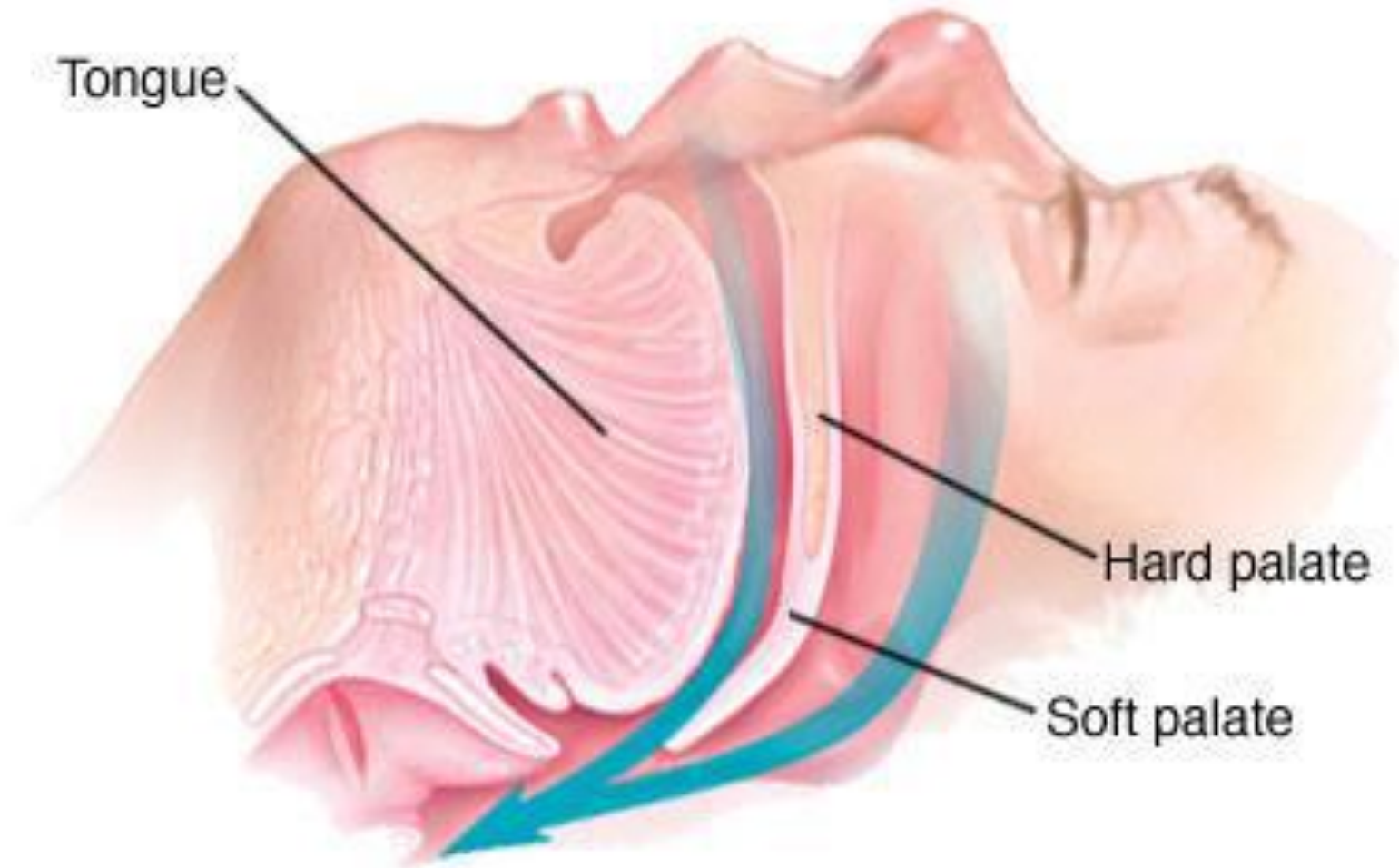
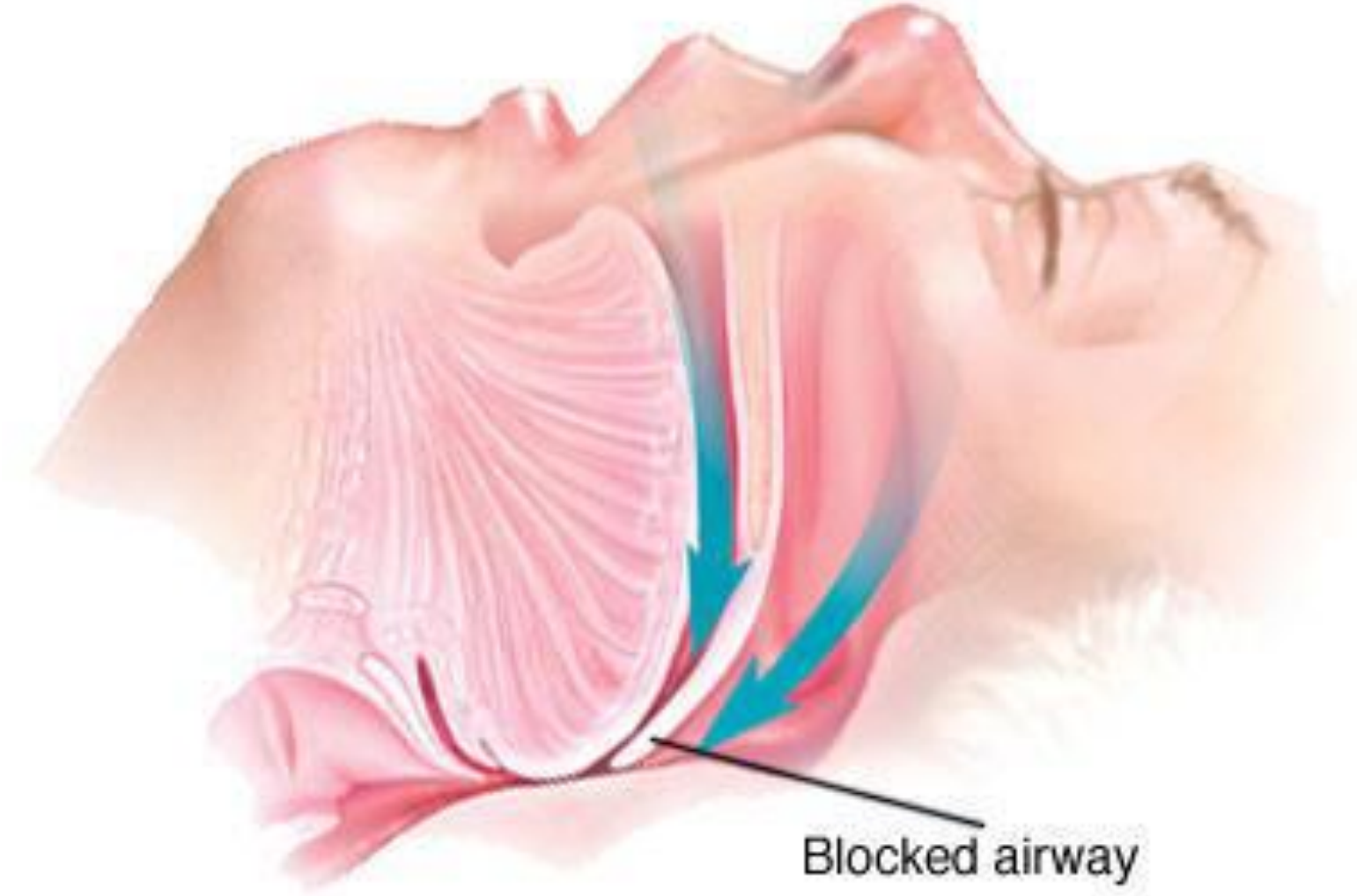
Figure 1: Sequence of treatment for obstructive sleep apnea

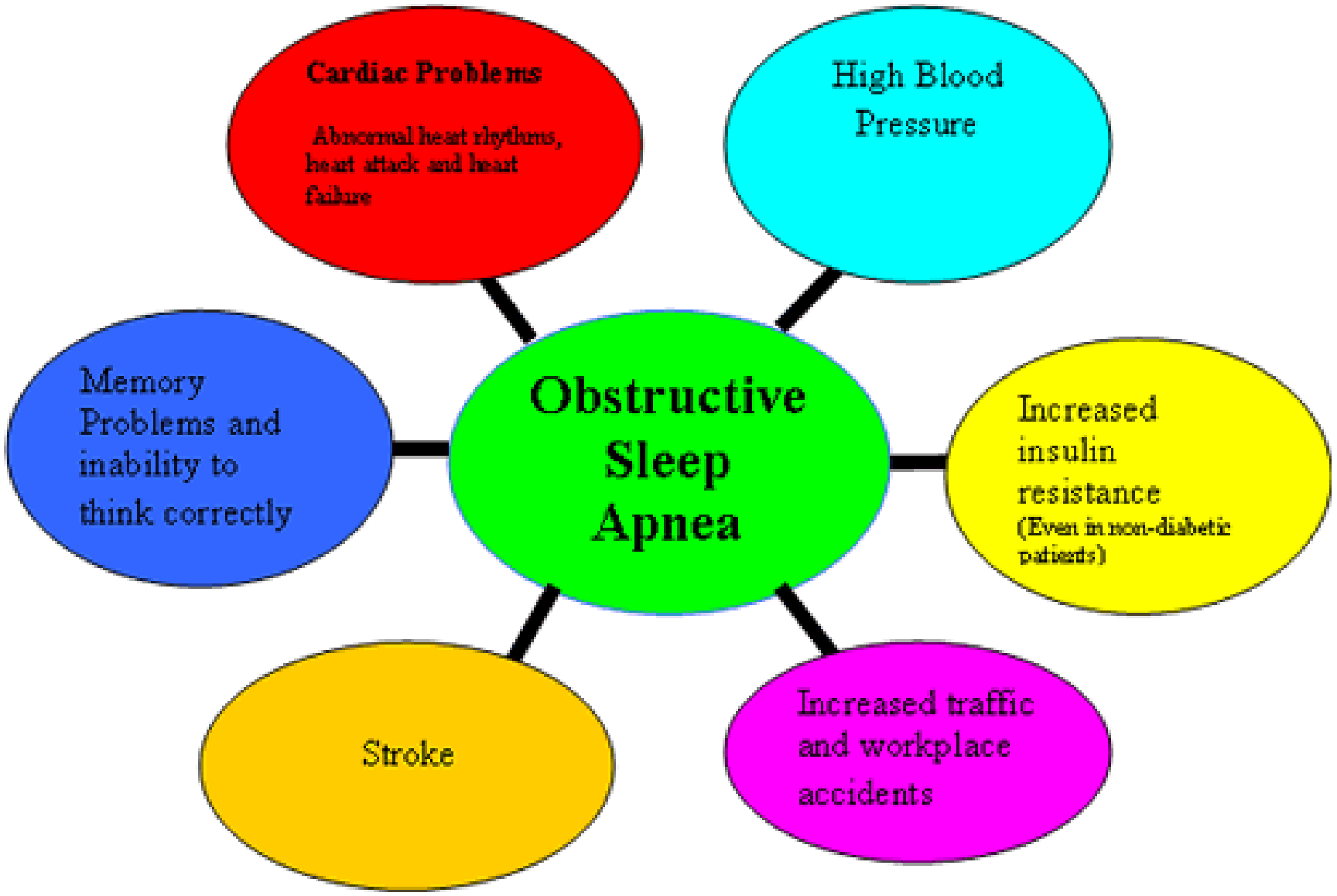




Normal breathing during sleep



Obstructive sleep apnea



The dentist's role in the management of snoring and OSA is to:

•screen for potential OSA, by recognizing symptoms of OSA (snoring with other symptoms, e.g. sleepiness, choking, witnessed apneas);

•refer patients with either primary snoring or snoring with other symptoms to their family physician for a review of the overall medical history and to rule out the presence of OSA (the physician may refer the patient to a physician who is proficient in sleep medicine and

•provide therapy with oral appliances and behavioural therapy after receiving a written request or prescription from a physician***. Dentists should never start treatment for snoring without a physician's assessment of the patient.*** Because this is a disease with increased mortality risk, oral appliances should be fitted by a qualified dentist who has training and experience in dental sleep medicine

Kelowna Sleep Clinic

Dr. Ronald Cridland Inc

February 3, 2015

Dr. Paul J. Hart
204-3140 Lakeshore Rd,
Kelowna, BC
V1W3T1

Fax #: 250-763-3455

Dear Dr. Hart:

Re: Jack Degruchy
DOB: 07-Feb-1947
PHN: 9024345311

Jack was seen in follow-up for evaluation for Obstructive Sleep Apnea.

He underwent a Nocturnal Polysomnogram on January 22, 2015 at the Kelowna Sleep Clinic. The study was conducted on Zopiclone 7.5 mg. The study showed moderate snoring. There were mild oxygen desaturations to 86.3% associated with moderate Obstructive Sleep Apnea and an overall Respiratory Disturbance Index (RDI) of 20.3 events/hour, primarily in the supine position. The non-supine RDI was very mildly elevated at 6.5 events per hour. A trial of CPAP was not initiated.

There were no significant periodic limb movements.

The EKG showed occasional PVC's.

Impression: Obstructive Sleep Apnea - moderate, mostly while supine

RECOMMENDATIONS:

* Treatment options were reviewed including CPAP, Provent or positional therapy.

* He will work on avoiding sleeping in the supine position to control snoring and Obstructive Sleep Apnea. I have recommended an "Anti-Snore" belt from www.antisnoreshirt.com to help avoid sleeping supine.

* At present, he will follow-up as required.

Thank you for the opportunity to assist in the care of this pleasant patient.

1856 Ambrosi Rd., Suite 120, Kelowna, BC V1Y 4R9 Phone: (250) 862-3050, Fax: (250) 862-3052

Kelowna Sleep Clinic
Dr. Ronald Cridland Inc

DIAGNOSTIC POLYSOMNOGRAM REPORT

PATIENT: Jack Degruchy
DOB (m/d/y): 2/7/1947
MSP #: 9024345311

DATE (m/d/y): 1/22/2015
REFERRING MD: Dr. Paul J. Hart
STUDY #: 15XL-0117

INDICATIONS FOR POLYSOMNOGRAPHY: A diagnostic polysomnogram was conducted to evaluate for Obstructive Sleep Apnea. The patient was a 67 year old Male with a BMI of 25.4 (height 6' 2", weight 198.0 lbs) who scored 8/24 on the Epworth Sleepiness Scale, consistent with mild daytime sleepiness. The patient was studied on the following medication: Zopiclone

POLYSOMNOGRAM DATA: Standard physiologic parameters were recorded including EEG, EOG, EMG, EKG, nasal and oral airflow. Respiratory parameters of chest and abdominal movements were recorded with Peizo-Crystal or RIP motion transducers. Oxygen saturation was recorded by pulse oximetry.

SLEEP ARCHITECTURE: The polysomnogram demonstrated a normal sleep efficiency of 91.4% with a total recording time of 432.5 minutes, a normal sleep latency of 4.5 minutes, 33.5 minutes spent awake during the night, and a total sleep time of 395.5 minutes. He had no deep, slow wave (Stage N3) sleep. He had a normal percentage of REM sleep of 20.6% with a normal REM latency of 101.5 minutes. There were a small number of spontaneous arousals at a rate of 6.2 per hour.

RESPIRATORY EVENTS: The polysomnogram revealed moderate snoring. There were mild oxygen desaturations to 86.3% associated with a moderate number of obstructive apneas and hypopneas, and an overall Respiratory Disturbance Index (RDI) of 20.3 events/hour. It was primarily in the supine position with a supine RDI of 41.7 events/hour. Overall, this was consistent with moderate Obstructive Sleep Apnea.

LIMB ACTIVITY: There were a small number of limb movements at a rate of 4.4 per hour, of which 0.9 per hour were associated with arousals. This was not clinically significant.

CARDIAC SUMMARY: There were a few PVC's.

IMPRESSION:

1. Moderate Obstructive Sleep Apnea primarily while supine.

Interpretation by:

Ronald Cridland, MD, CCFP
Diplomate, American Board of Sleep Medicine

1856 Ambrosi Rd., Suite 120, Kelowna, BC V1Y 4R9 Phone: (250) 862-3050, Fax: (250) 862-3052

Kelowna Sleep Clinic
#120 – 1856 Ambrosi Rd., Kelowna, BC V1Y 4R9
Phone: (250) 862 – 3050 Fax: (250) 862 – 3052

Diagnostic Polysomnogram Report

Patient:	Jack Degruchy	**Date (m/d/y):**	1/22/2015
DOB (m/d/y):	2/7/1947	**PSG Study #:**	15XL-0117
MSP:	9024345311	**Recording Tech:**	DA
Age:	67 y	**Scoring Tech:**	MSA
Sex:	Male	**Height (in):**	6' 2"
Referring Physician:	Dr. Paul J. Hart	**Weight (lbs):**	198.0 lbs
Ordering Physician:	Dr. R. McFayden	**BMI:**	25.4
		Epworth Score:	8

Sleep Architecture

Lights Out:	10:56:17 PM	**TST Supine:**	155.5		
Lights On:	06:14:47 AM	**TST Non-Supine:**	240.0		
Time in Bed (Min):	432.5				
Sleep Latency:	4.5		**Stages**	**Time**	**% Sleep Time**
# of Awakenings:	15		**Wake**	38.5	
WASO:	33.5		**NREM 1**	28.5	7.2%
Latency to REM:	101.5		**NREM 2**	285.5	72.2%
Total Sleep Time:	395.5		**NREM 3**	0.0	0.0%
Sleep Efficiency:	91.4%		**REM**	81.5	20.6%

Respiratory Data

Oxygen Saturation Summary

	Wake	**REM**	**NREM**
Minimum	86.2%	91.0%	86.3%
Maximum	99.5%	99.5%	99.7%
Average	96.1%	96.1%	96.0%

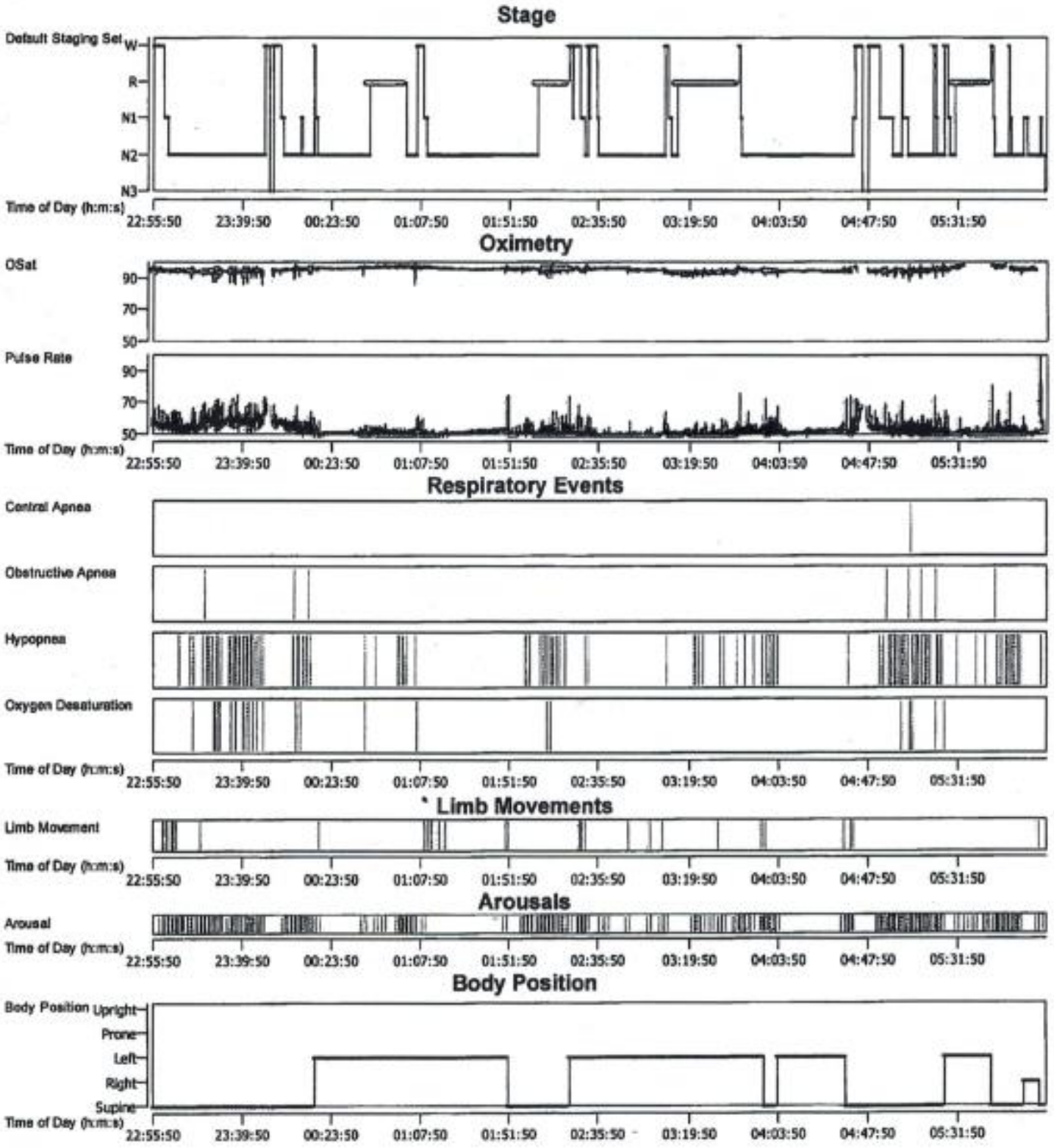
Range(%)	**Time in range (min)**	**Time in range (%)**
95.0 - 100.0	332.2	80.9%
90.0 - 95.0	76.3	18.6%
85.0 - 90.0	2.0	0.5%
80.0 - 85.0	-	-
75.0 - 80.0	-	-
70.0 - 75.0	-	-
65.0 - 70.0	-	-
0.0 - 65.0	-	-

Respiratory Events by Sleep Stage and Position

	NREM	**REM**	**Supine**	**Non-Supine**	**TOTAL**
Obstructive Apnea	8	-	8	-	8
Central Apnea	1	-	1	-	1
All Hypopneas	101	24	99	26	125
Total Apneas + Hypopneas	110	24	108	26	134
A/H Index	21.0	17.7	41.7	6.5	20.3

Arousals

	Count	**Index**
Limb Movements	29	4.4
Limb Movements with Arousals	6	0.9
Apnea & Hypopnea Arousals	134	20.3
Snore Arousals	-	-
Spontaneous Arousals	41	6.2
Total Arousals	181	27.5



Recording Technician Comments

Average Pulse Rate : 52.7 bpm. Sleep architecture: Sleep was induced 1 tab zopiclone 7.5mg. All sleep stages is seen. Increased WASO was observed. Respiratory events: Moderate breathing disordered was observed worse on supine position. Mild to moderate snoring sound and snorting heard.
Others: Occasional leg twitching was noted. EKG showed occasional PVCs.

Jack Degruchy

Kelowna Sleep Clinic
Dr. Ronald Cridland Inc

January 8, 2015

Dr. Paul J. Hart
204-3140 Lakeshore Rd,
Kelowna, BC
V1W3T1

Fax #: 250-763-3455

Dear Dr. Hart:

Re: Jack Degruchy
DOB: 07-Feb-1947
PHN: 9024345311

Thank you for referring this 67 year old Dentist. He was seen for evaluation of sleep Apnea.

HISTORY OF PRESENT ILLNESS:

Jack has a many year history of mild snoring as reported by his wife. The snoring occurs in all sleeping positions. It is not associated with significant pauses in breathing, gasping and snorting.

He retires to bed at 10 pm taking 5 minutes to fall asleep. He rarely has an active mind. He wakes up 4 times taking 10 minutes to return to sleep. He wakes up finally around 6 am arising at 6 am after 8 hours of sleep and feeling incompletely rested. He scores 8/24 on the Epworth Sleepiness Scale, consistent with mild daytime sleepiness. There is no history of problems with sleepiness while driving.

There is no history of significant restless legs, periodic limb movements, bruxism or parasomnias. There is no history of hypnagogic hallucinations, sleep paralysis or cataplexy.

He drinks 1 cup of coffee per day. He does not smoke. He drinks alcohol only occasionally. He does not use any recreational drugs.

Active Problems: Hemochromatosis

Psychiatric History: None

Inactive Problems: Mumps, Pyloric Stenosis

Noted Surgeries: Tonsillectomy, Broken Nose, Appendectomy

Medications and Treatments: None.

Noted Allergies: None.

PHYSICAL EXAM / MENTAL STATUS:

On exam, he was a pleasant, alert, normal weight gentleman with a normal affect. Height 6 foot 2 inches, weight 198 pounds. Head and neck exam reveals a mildly low lying (Mallampati Class II) soft palate, a normal uvula, non-inflamed pharyngeal mucosa, no visible tonsils, and a mildly narrow (Class II Pharyngeal Grade) oropharyngeal airway. The patient was euthymic, had an organized thought process, with intact insight and judgement.

Impression: Obstructive Sleep Apnea - possible
Psychophysiological Insomnia - mild

RECOMMENDATIONS:

* I have given him some non-pharmacological recommendations for improving sleep quality and quantity.

* He will undergo a Nocturnal Polysomnogram at the Kelowna Sleep Clinic to objectively evaluate his sleep.

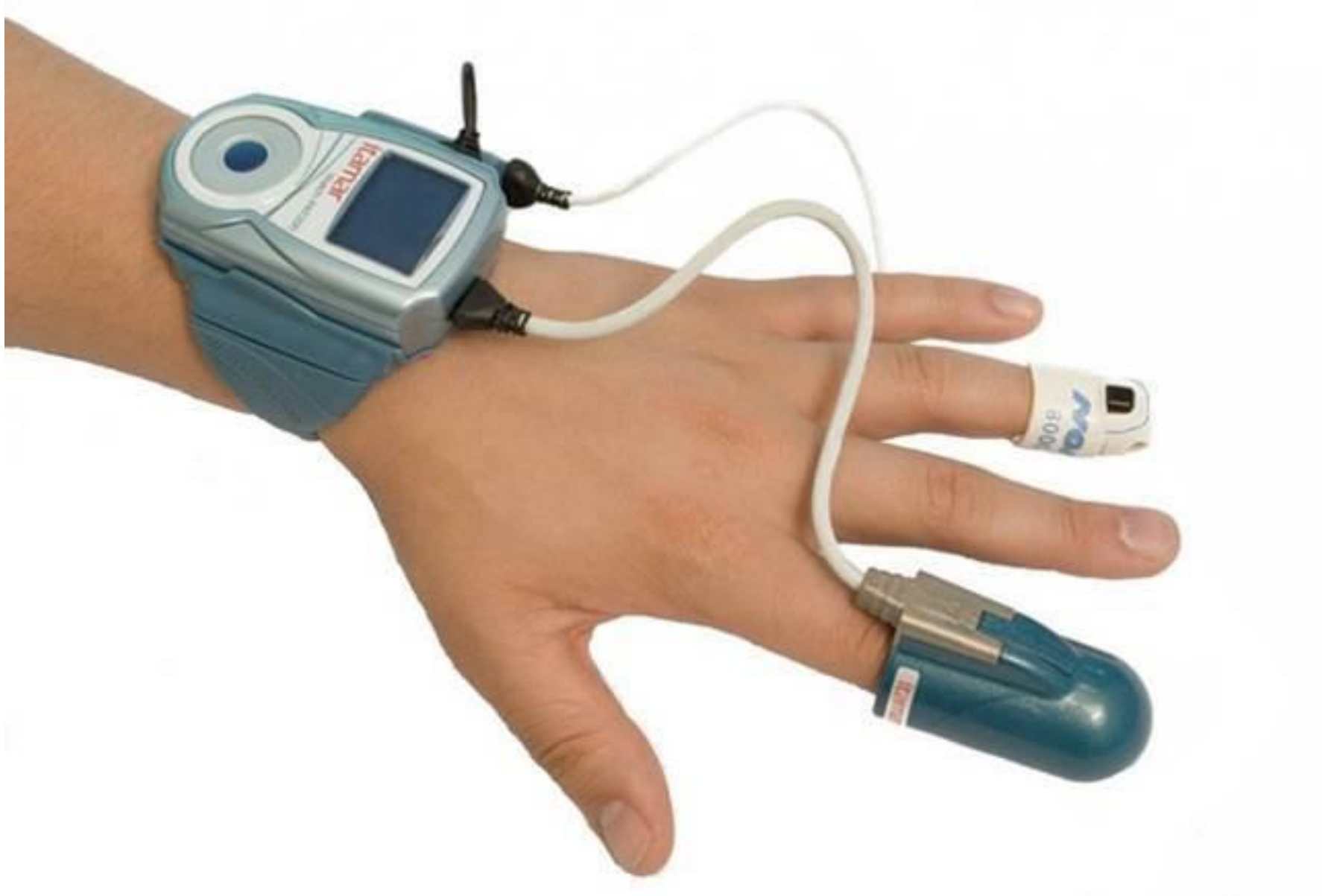
* I will see him in follow-up afterwards to review the results and make further recommendations.

Thank you for the opportunity to assist in the care of this pleasant patient.

Sincerely,

Ryan WC McFayden, MD, FRCP(C)

/tlo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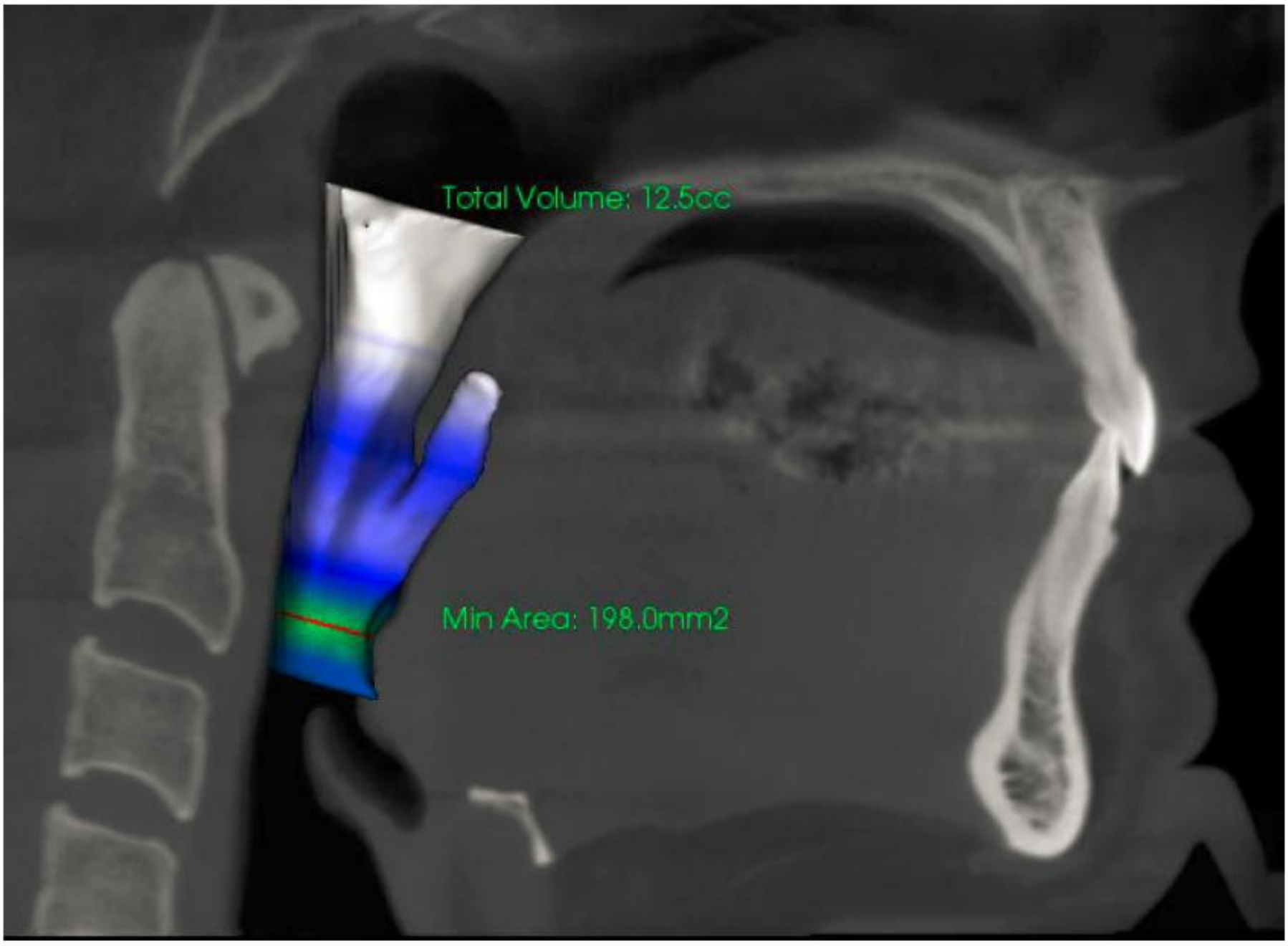
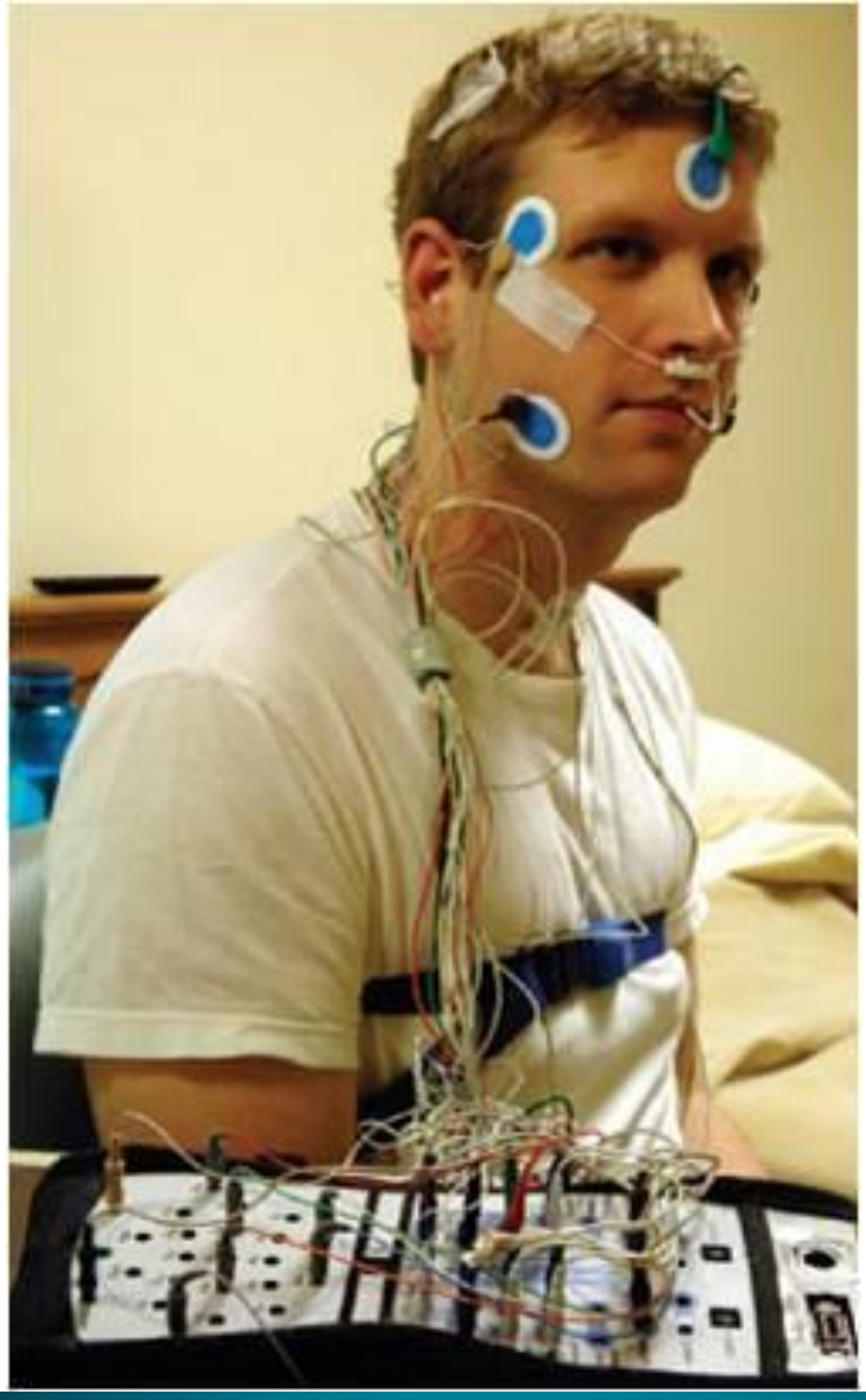
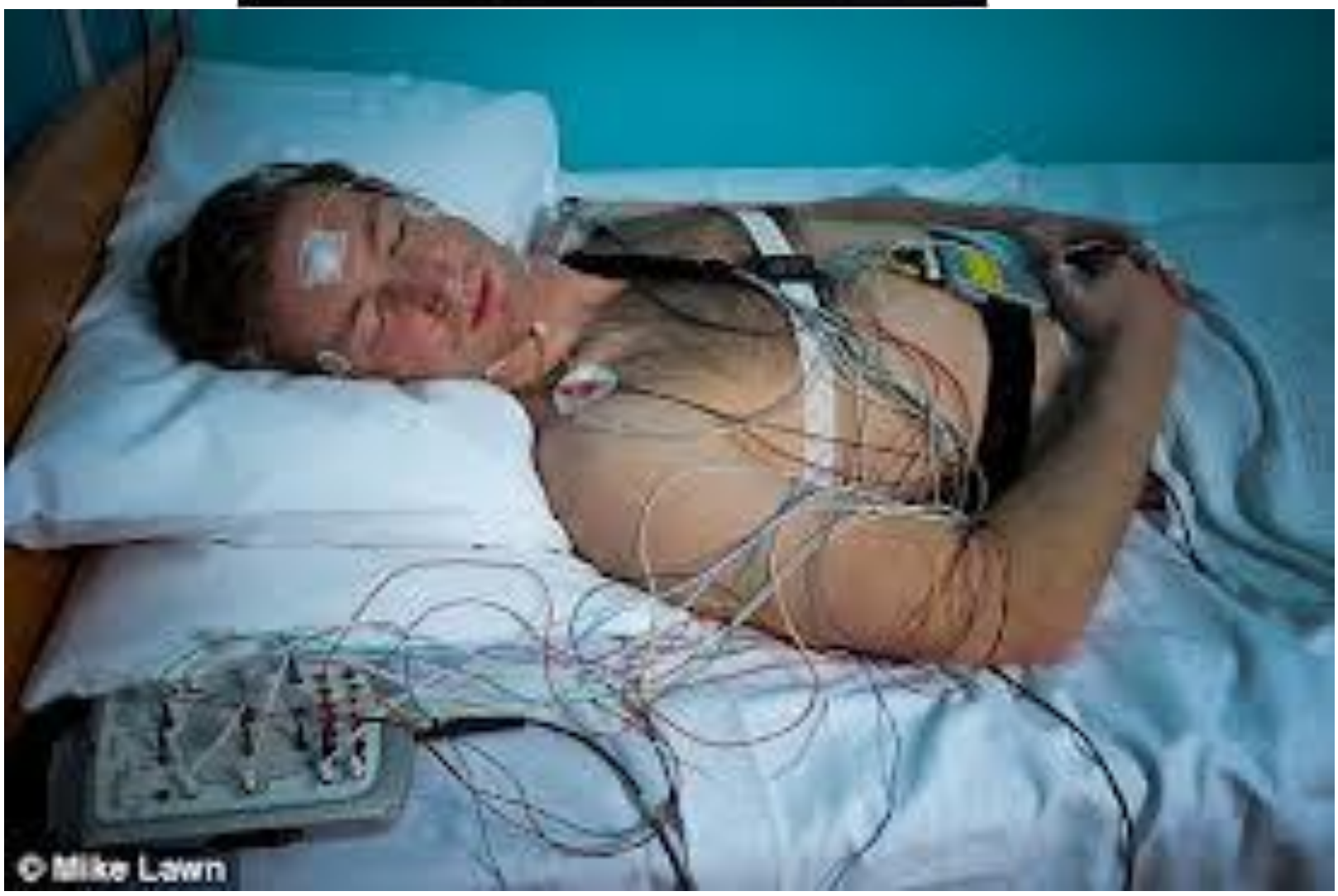


Airway analysis

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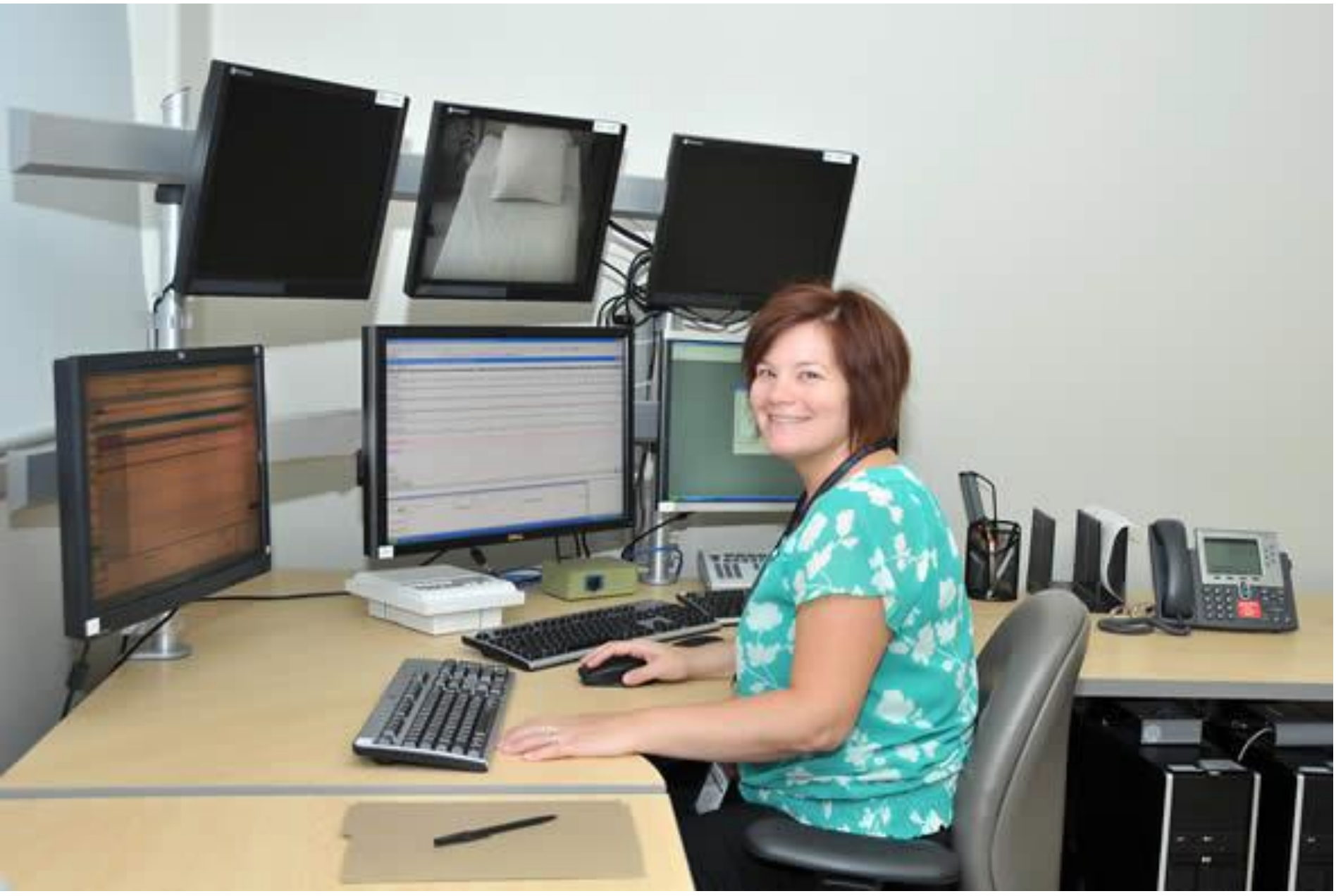


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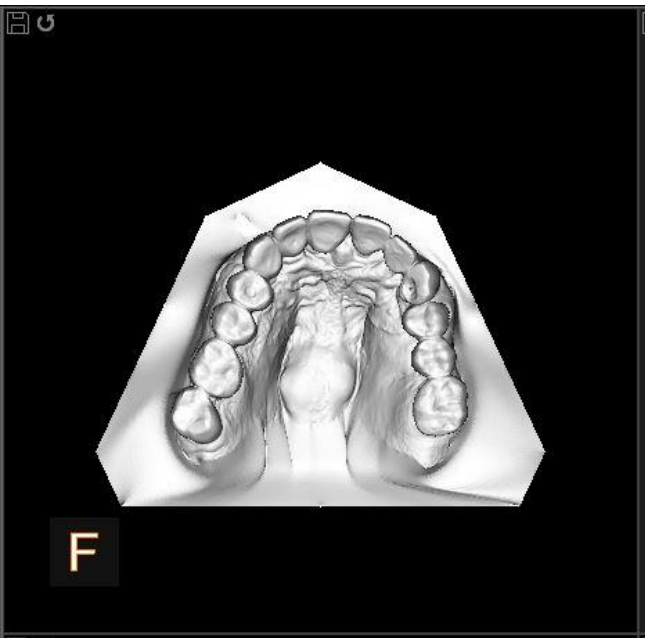
Carestream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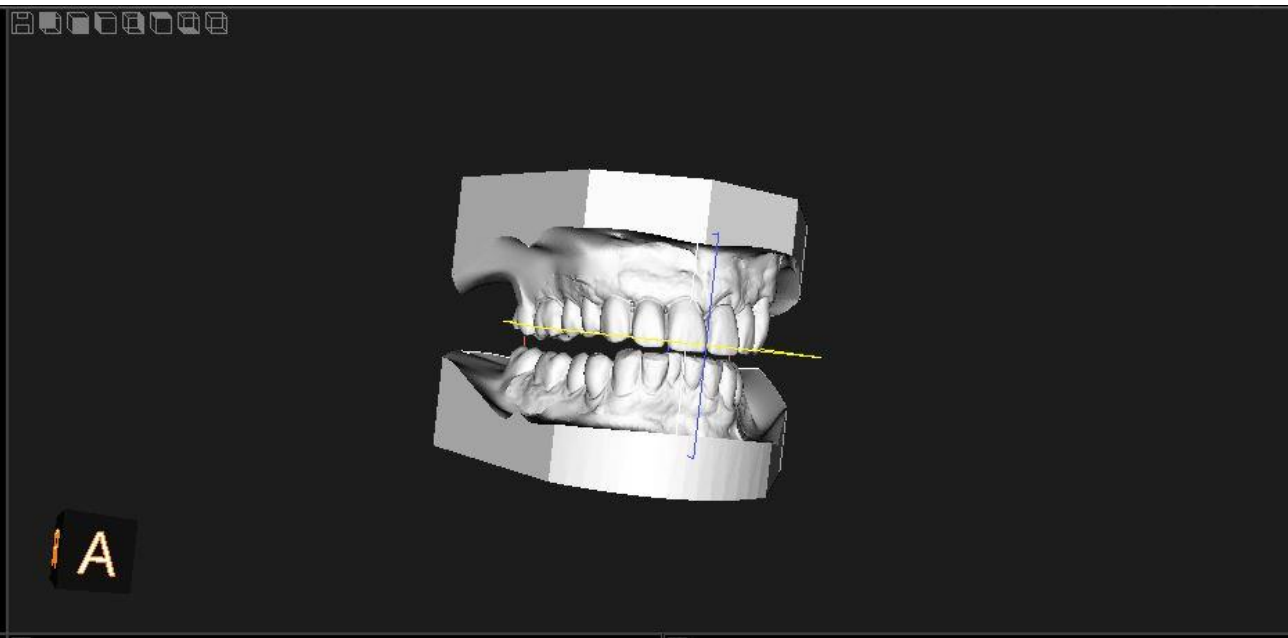
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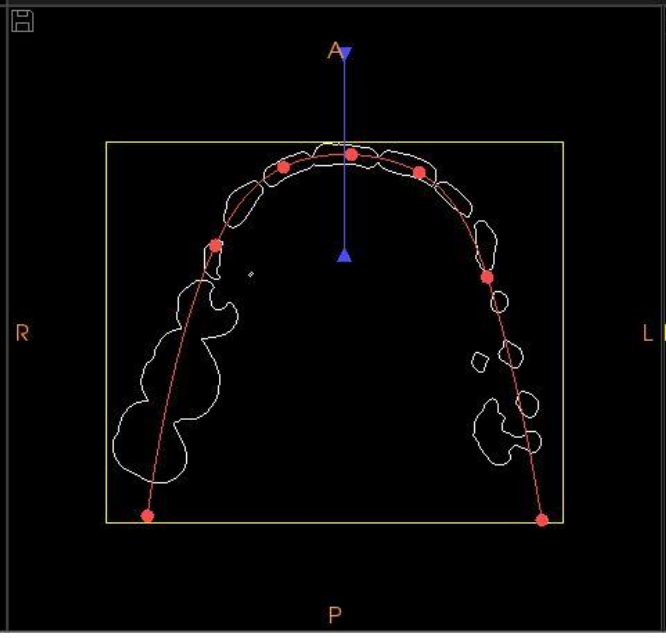
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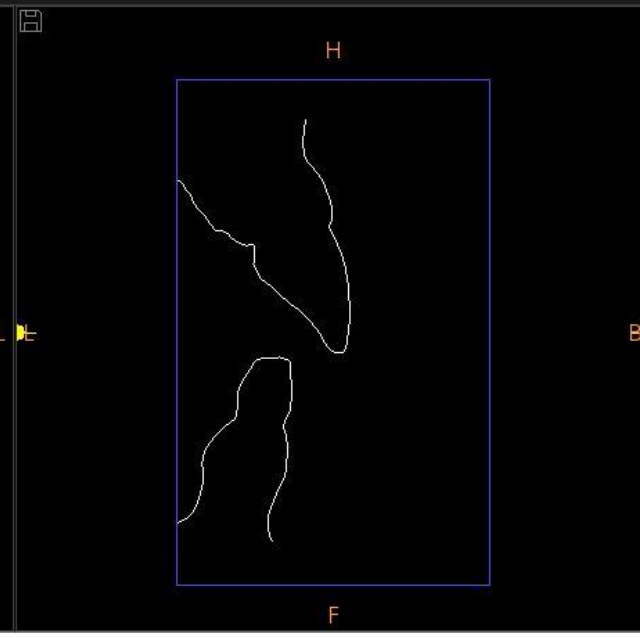
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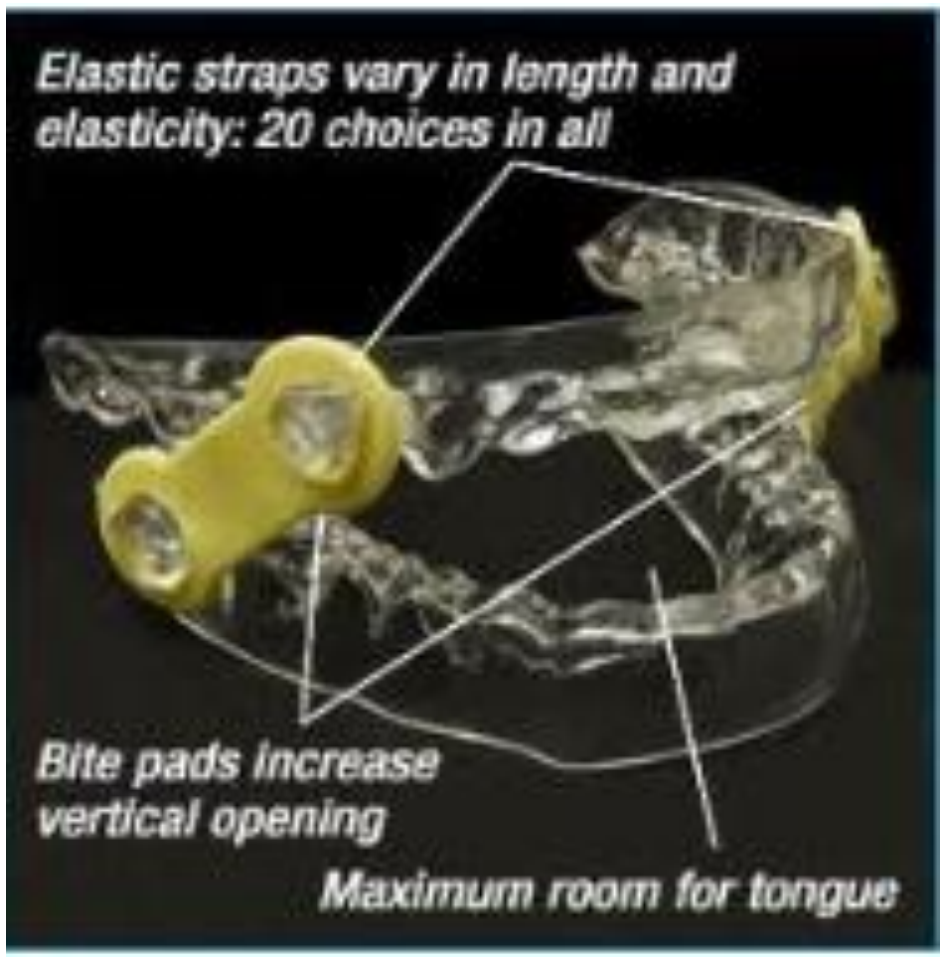
Sleep Appliance


Elastic straps vary in length and elasticity: 20 choices in all
Bite pads increase vertical opening
Maximum room for tongue

Types of Oral Appliances for Obstructive Sleep Apnea

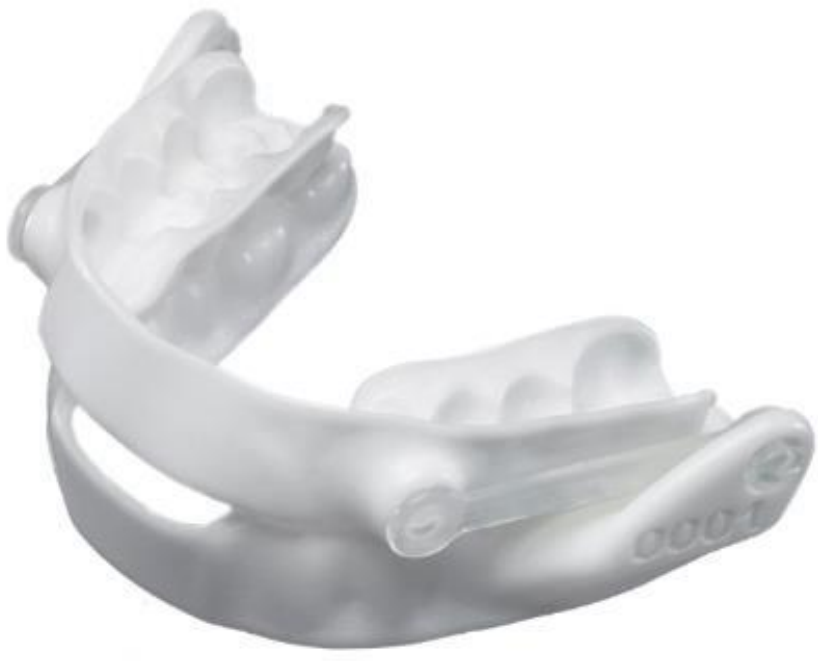
Klearway

Somnomed

Herbst

Tap

Suad



Narval

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