Sri Lakshmi Narayana Institute of Medical Sciences

Date 02/01/2020

From
Dr.R.Venkataramanan,
Professor and Head,
otorhinolaryngology,
SLIMS
Bharath Institute of Higher Education and Research,
Puducherry.

To
The Dean,
SLIMS
Bharath Institute of Higher Education and Research,
Puducherry.

Sub: Permission to conduct value-added course: Diagnosis of OSA using polysomnography reg.

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: Simulation Based Training In Audiology on Jan 2020 to June 2020. We solicit your kind permission for the same.

Kind Regards

Dr.R.Venkataramanan

FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:
The Dean:
The HOD:
The Expert:

The committee has discussed about the course and is approved.

Dean

(Sign&Seal)

DEAN
Prof.K.BALAGURUNATHAN,M.S
(General surgeon)
SRI LAKSHMI NARAYANA
INSTITUTE OF MEDICAL SCIENCES
OSUDU PONDICHERRY

SUBJECT EXPERT
(Sign &Seal)

Dr. R. VENKATARAMANAN, MS.
Reg. No: 72549
Professor ENT
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Kudapakkam, Puducherry-605 502.

HOD(SIGN AND SEAL)

OFFICE OF THE DEAN

Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.
[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affliated to Bharath University, Chennai - TN]

Ref. No. SLIMS/Dean Off/VAC/024 **Date:03/01/20**

From
The Dean
Sri Lakshmi Narayana Institute of Medical
sciences, Pondicherry – 605502

To
The Registrar,
Bharath Institute of Higher Education and
Research, Chennai - 600073.

Respected Sir

Sub: Request for permission and approval of Syllabus for certificate course (Value Added course) for the academic year 2019-20 - Reg

Ref: Requesting letter received from Departments

*****

With reference to the above, herewith forwarding the proposed list of Value-added courses for necessary permission and approval of syllabus to conduct the same.

This is for your kind information and needful action.

Thankingyou

Yours faithfully

[DEAN]

DEAN
Prof.K.BALAGURUNATHAN,M.S
(General surgeon)
SRI LAKSHMI NARAYANA
INSTITUTE OF MEDICAL SCIENCES
OSUDU PONDICHERRY

Encl's:

1. Requesting letter received from department
2. Syllabus of thecourse
3. Details of faculty handlingcourse

Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry

VALUE ADDED COURSE : Diagnosis of OSA using polysomnography

COURSE CO-ORDINATOR DETAILS

Faculty Name: Dr.S.Ganesh

Email ID:e n t s l i m s @ g m a i l . c o m

Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)

Ref. No. BHIER/ VAC/B-02 **Date:05.01.2020**

From

The Registrar,
Bharath Institute of Higher Education and
Research, Chennai - 600073.

To

The Dean
Sri Lakshmi Narayana Institute of Medical
sciences, Pondicherry – 605502

Sir / Madam,

Sub: Approval of Syllabus to conduct certificate course (Value Added course) for the academic year 2019-2020 – Reg.

Ref: Ref. No. SLIMS/Dean Off/VAC /024 Dated: 03.01.2020

*****

With reference to the above, it is to inform that the proposal submitted to conduct Value Added Course has been accepted and approved by BIHER, council meeting. List of the VAC are mentioned below for the academic year 2019– 2020. The abstract of the VAC course completion detail should be submitted to the Registrar office.

Thanking you

Yours faithfully

REGISTRAR

OFFICE OF THE DEAN

Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.
[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affliated to Bharath University, Chennai - TN]

Circular

.

07/01/2020

Sub: Organising Value-added Course: Diagnosis of OSA using polysomnography **reg.**

With reference to the above mentioned subject, it is to bring to your notice that SLIMS,**Bharath Institute of Higher Education and Research**, is organising **"Diagnosis of OSA using polysomnography"**. The course content and registration form is enclosed below.

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before 15/01/2020. Applications received after the mentioned date shall not be entertained under any circumstances.

DEAN

DEAN
Prof.K.BALAGURUNATHAN,M.S
(General surgeon)
SRI LAKSHMI NARAYANA
INSTITUTE OF MEDICAL SCIENCES
OSUDU PONDICHERRY

Encl: Copy of Course content

VALUE ADDED COURSE

1. Name of the programme &Code

Diagnosis of OSA using polysomnography – A value added course for the medical students.
& **ENT 12**

2. Duration &Period

30 hrs & Jan 2020-June 2020

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Pre test and post test which includes 10 mcqs - *Enclosed as Annexure- III*

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 time Jan 2020- June 2020

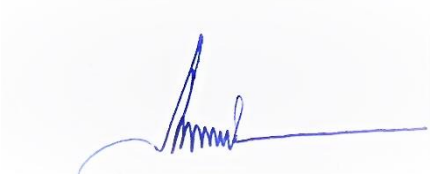
8. Year of discontinuation:2020

9. Summary report of each program year-wise

Value Added Course- Jan 2020- June 2020					
Sl. No	**Course Code**	**Course Name**	**Resource Persons**	**Target Students**	**Strength & Year**
1	ENT 12	Diagnosis of OSA using polysomnography	1.Dr.Venkataraman 2. Dr.R.Nithish Thimothy	3rd year MBBS students	11 students & 2020

10. Course FeedBack

Enclosed as Annexure- V



RESOURCE PERSON
1. **Dr.R.VENKATARAMANAN**
2. **Dr.R.NITHISH TIMOTHY**

COORDINATOR
Dr.S. GANESH

COURSE PROPOSAL

1. NAME OF THE PROGRAMME

Diagnosis of OSA using polysomnography– A value added course for the medical students.

2. AIM

Training the students to provide hands on experiance for diagnosing OSA using polysomnography.

3. OBJECTIVES

a) To teach the students how to connect polysomnogram leads and interpret the polysomnogram results.

4. METHODOLOGY

Students who are interested in participating in value added course are enrolled and the course is conducted for them during the non college hours for a period of 30 hours from Jan 2020 – June 2020 . This course is conducted every 6 months.

Course Audience: 3rd year MBBS students

Course Coordinator: Dr.S.Ganesh

Course Faculties with Qualification and Designation:

1.Dr. R. Venkataramanan

2.Dr. R.Nithish Thimothy

Schedule followed during the course

No	Topic	Title	Duration	Date and time
1	Diagnosis of OSA using polysomnography	Introduction and learning outcomes of polysomnography	6hrs	4pm-6pm(25/1/20),4pm-6pm(7/2/20),4pm-6pm(14/2/20)
		Indications , patient evaluation and instructions	6hrs	4pm-6pm(23/2/20),4pm-6pm(3/3/20),4pm-6pm(9/3/20)
		Components and types of polysomnography	6hrs	4pm-6pm(16/3/20),4pm-6pm(26/3/20),4pm-6pm(6/4/20)
		Demonstartion of connecting leads and interpretation of polysomnography	6hrs	4pm-6pm(18/4/20),4pm-6pm(28/4/20),4pm-6pm(6/5/20),
		Hands on training connecting polysomnography leads and interpretation of results and DOPS	6hrs	4pm-6pm(19/5/20),4pm-6pm(3/6/20),4pm-6pm(10/6/20)
		TOTAL	30HRS	

REFERENCE BOOKS: 1) SCOTT BROWN 8th edition

2) ANIRBAN BISWAS 5th edition

POLYSOMNOGRAPHY

POLYSOMNOGRAPHY

- Introduction
- Indications
- Patient evaluation and instructions
- Components
- Derived Information
- Types
- Limitation
- Summmary

PSG - INTRODUCTION

- Term “Polysomnography” was proposed by Holland ,Dement and Raynal (1974)

- The most commonly used test in the diagnosis of obstructive sleep apnea syndrome (OSAS)

- Consists of a simultaneous recording of multiple physiologic parameters related to sleep and wakefulness

Indications for PSG

- Sleep related breathing disorders
- CPAP titration in OSA
- Assessment of treatment results- OSA
- Sleep related behavioral disorders
- Atypical or unusual parasomnias
- Narcolepsy
- Neuromuscular disorder & sleep related symptoms
- Paroxysmal arousal or seizure phenomenon
- Periodic Leg Movements of Sleep
- Parasomnias not responding to conventional therapy

Ref : American Academy of Sleep Medicine

Initial Assessment

- Detailed medical & psychiatric history
- Medication, smoking, alcohol, activities on that day

Assessment of sleep:

- Sleep history for the last 24 hrs.
- Sleep scoring systems

Stanford Sleepiness scale

Epworth Sleepiness scale

Pittsburgh Sleep Quality Index (PSQI)

Recording Room

- The study patient and the monitoring apparatus and technologist are housed in adjacent rooms.
- Recording room should be as homely and comfortable.

- It should be sound-proofed and air-conditioned.
- Intercom system to interact with the patient.

- Rheostatically controlled lighting
- Toilet and restroom

Recording room with study subject

Recording video camera

Monitoring room for the technician

Patient instructions

- Reporting time: 1 hour prior to the usual time of sleep.
- A prior visit to familiarize with the lab is useful.
- Patient should have had a relaxed day, without daytime sleep.

- Headwash, adequate food.
- Abstain from caffeine in the afternoon and evening of the day on which PSG is planned

- Avoid alcohol on the day of PSG
- Avoid strenuous exercise on the day of the PSG.

Patient instructions

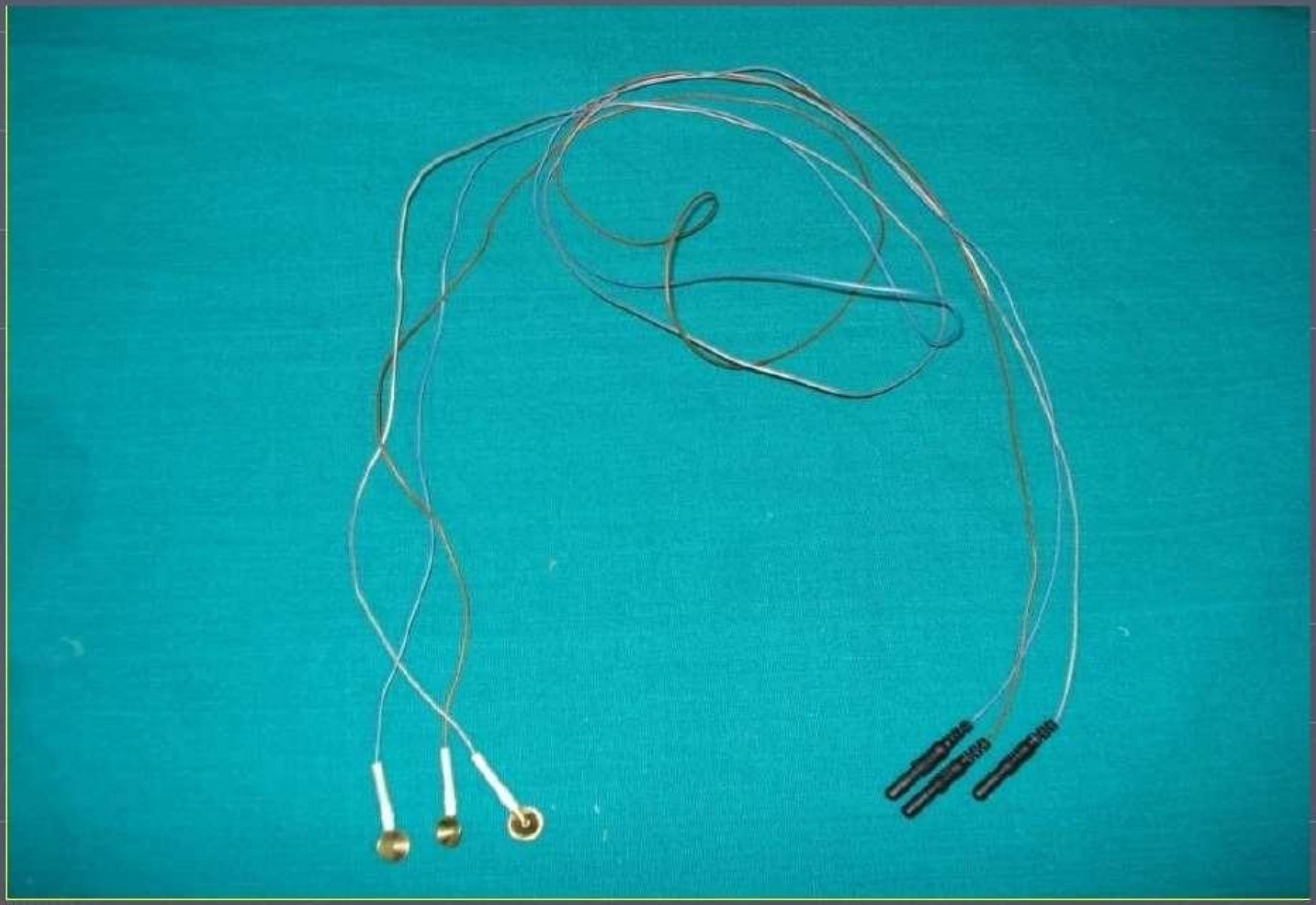
- Continue their usual medications on the night of the PSG, including sleep aids
- The medications should be recorded by the technician so that the results can be optimally interpreted
- For patients who have a history of insomnia, especially when sleeping in a new environment, zolpidem may be prescribed
- Avoid stimulants, including medications for narcolepsy
- Avoid naps on the day of the sleep study

PSG Components

Electroencephalography - EEG

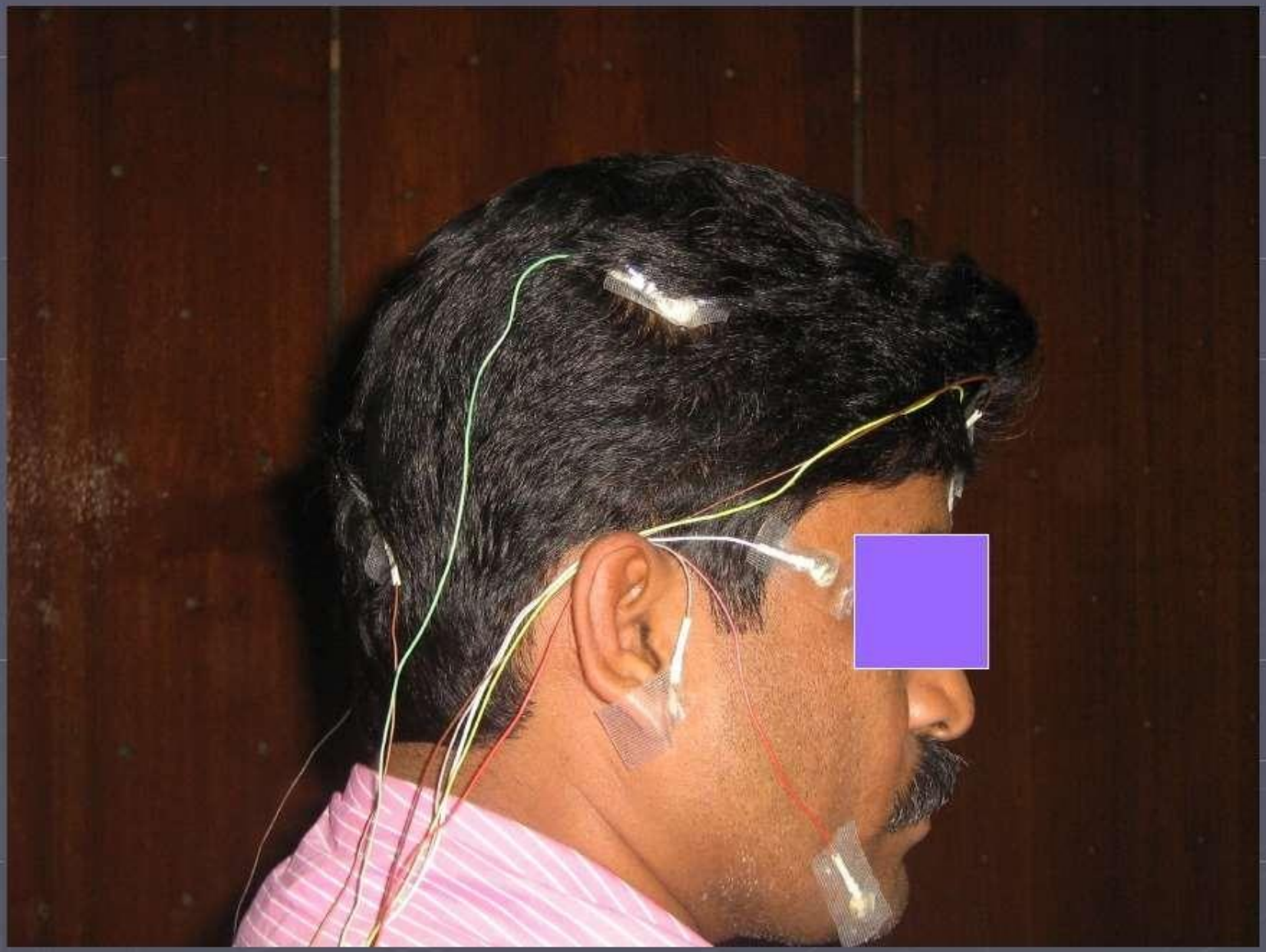
- To distinguish between wakefulness and the various stages of sleep

- A minimum of three channels representing the right frontal, central, and occipital electrodes referenced to the contralateral mastoid electrode is recommended *(2007 AASM Manual for the Scoring of Sleep and Associated Events)*



EEG Electrodes

EEG electrodes: occipital electrodes



EEG central electrodes, EOG electrodes

Electro-oculography - EOG

- Two recommended electrodes are labeled E1 (1 cm below the left outer canthus) and E2 (placed 1 cm above the right outer canthus), both referenced to the right mastoid.

- This allows simultaneous recording of both vertical eye movements (such as blinking) and horizontal eye movements (both slow and rapid).

- Documents the onset of rapid eye movement (REM) sleep, and note the presence of slow-rolling eye movements that usually accompany the onset of sleep.

Electromyography - EMG

- Help to determine sleep stage
- Help to diagnos and classify a variety of parasomnias

- Minimum components are chin EMG channels recording activity from the mentalis and submental muscles (the mylohyoid and anterior belly of the digastric) and bilateral leg EMG channels recording activity from the tibialis anterior muscles

- Tonic EMG level in axial muscles usually decreases from wakefulness through stages 1, 2, 3, and 4 of NREM sleep, and is normally absent in REM sleep

EMG Monitoring

Utility of limb EMG:

- Periodic limb movements in sleep.
- Restless leg syndrome.
- Other movement disorders.
- To document the hand and arm gestures of REM sleep behavior disorder.
- Record convulsive movements during nocturnal epileptic seizures.

Limb EMG electrode placement

Respiratory Monitoring

- Upper airway airflow
- Thoracoabdominal movement.
- Endoesophageal (intrathoracic) pressure recording.
- Snoring Monitors.
- Indirect Arterial Blood Gas Monitoring.

Upper airway airflow

- Oronasal thermal devices (thermistors or thermocouples) or nasal cannula–pressure transducers

- **Thermistor/ thermocouple:** placed between the nose and mouth is commonly used to monitor airflow by detecting changes in temperature

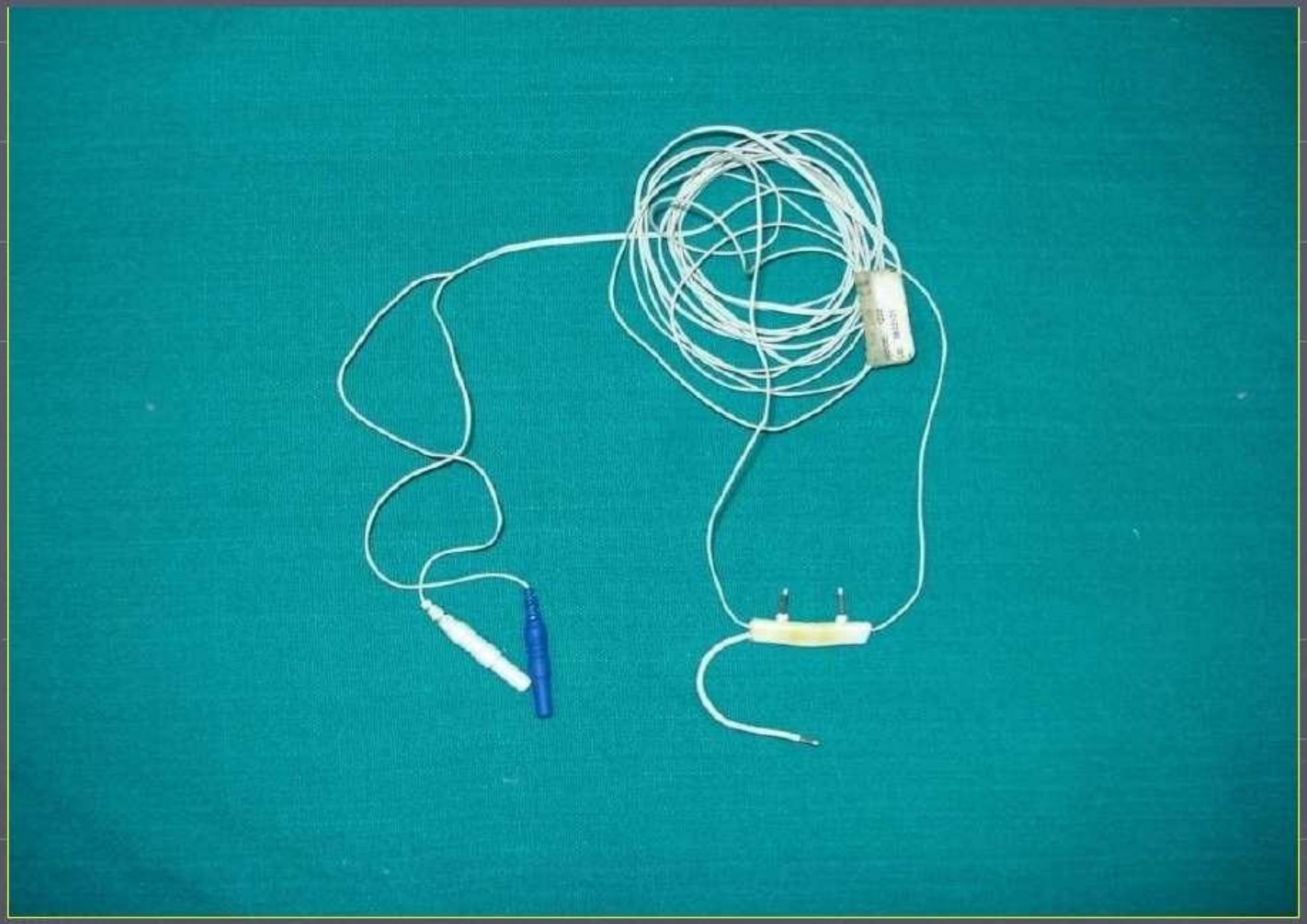
- Thermistor consisting of wires records changes in electrical resistance
- Thermocouples consisting of dissimilar metals (e.G., Copper and constantan) register changes in voltage that result from temperature variation

Upper airway airflow

- Nasal prongs connected to a pressure transducer detect inspiratory flow and may be the most accurate method to identify subtle inspiratory flow limitation - hypopneas

- An important limitation of nasal pressure transducers is that they cannot detect mouth breathing. To overcome this limitation, a thermistor is usually added.

- Nasal pressure transducers are necessary for the diagnosis of hypopneas and thermistors are necessary for the diagnosis of apneas



Thermistor

Thoracoabdominal Movement

Respiratory Inductive Plethysmography:

- Measures changes in thoracoabdominal cross-sectional areas, and the sum of these two compartments is proportional to airflow

- Sensors are two wire coils, one placed around the chest and the other around the abdomen.

- A change in mean cross-sectional coil area produces a proportional variation in coil inductance, which is converted into a voltage change by a variable frequency oscillator.

Sensors for respiratory effort

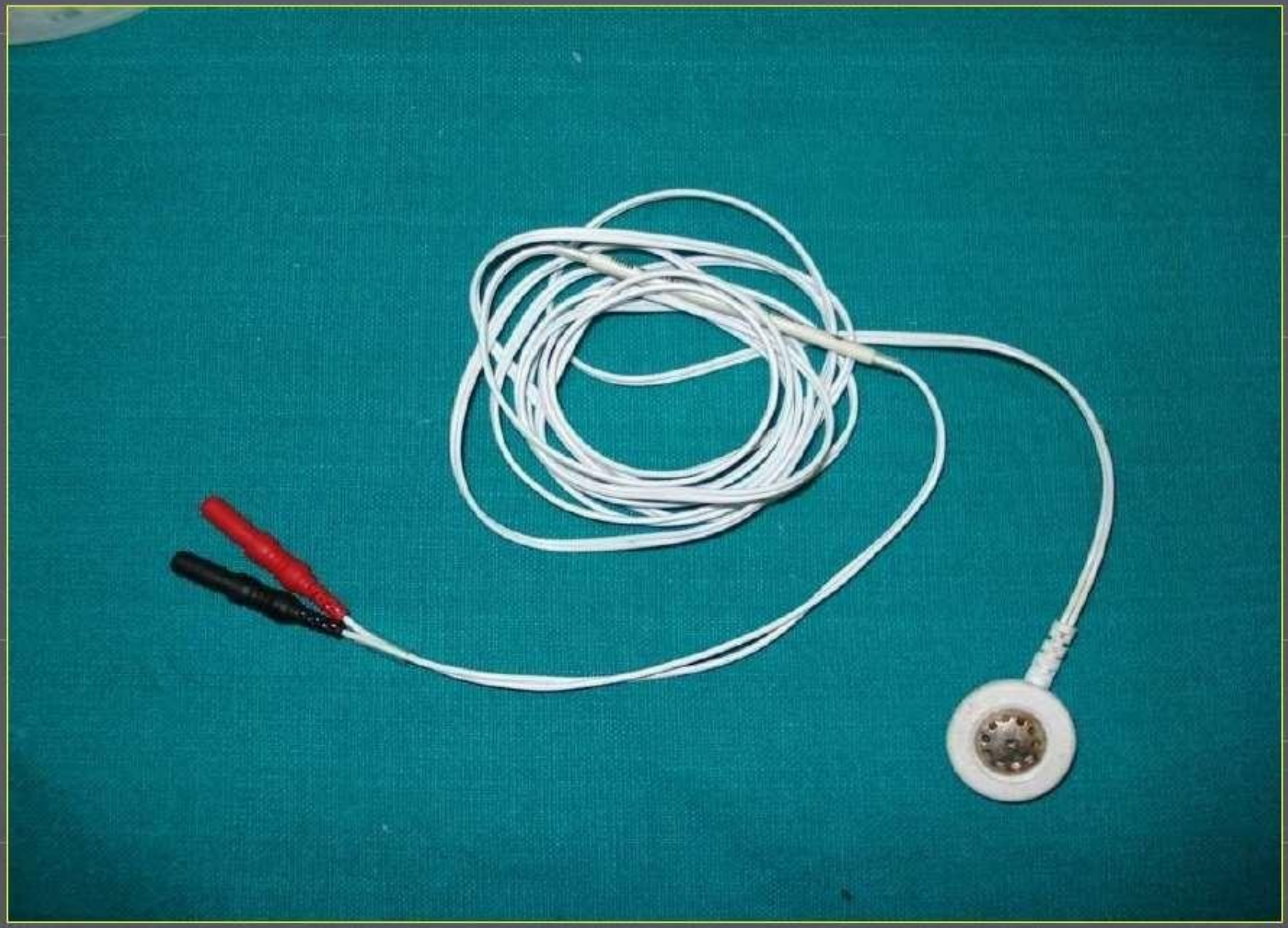
Transducer for thoracoabdominal movement

Transducer for thoracoabdominal movement

Snoring Monitors

- Although snoring can be monitored by placing a miniature microphone on the patient's neck, there is no accepted grading system to quantify the intensity of this parameter.

- In practice the technologist's notations as the study is being recorded, as well as the polysomnographer's review of the audio as the study is being read, provide a better estimation of the degree of snoring



Snoring monitors

Snoring monitor

Intrathoracic Pressure Monitoring

Endoesophageal pressure probe:

- Most sensitive detection of heightened respiratory effort.
- An endoesophageal tube is passed nasally till the probe is about 5 cm above the esophageal-gastric junction.

- Measures increases in intrathoracic negative pressure to overcome increased upper airway resistance.

- Gold standard for measuring respiratory effort
- Not a routine practice , because of patient discomfort and the technical skill required

Expired Carbon Dioxide

- Capnography, or end-tidal CO2 (ETCO2), monitoring detects the expired carbon dioxide (CO2) level, which closely approximates intra-alveolar CO2.

- An infrared analyzer over the nose and mouth detects CO2 in the expired air, which qualitatively measures the airflow

- Costly and therefore not used in most laboratories

ABG

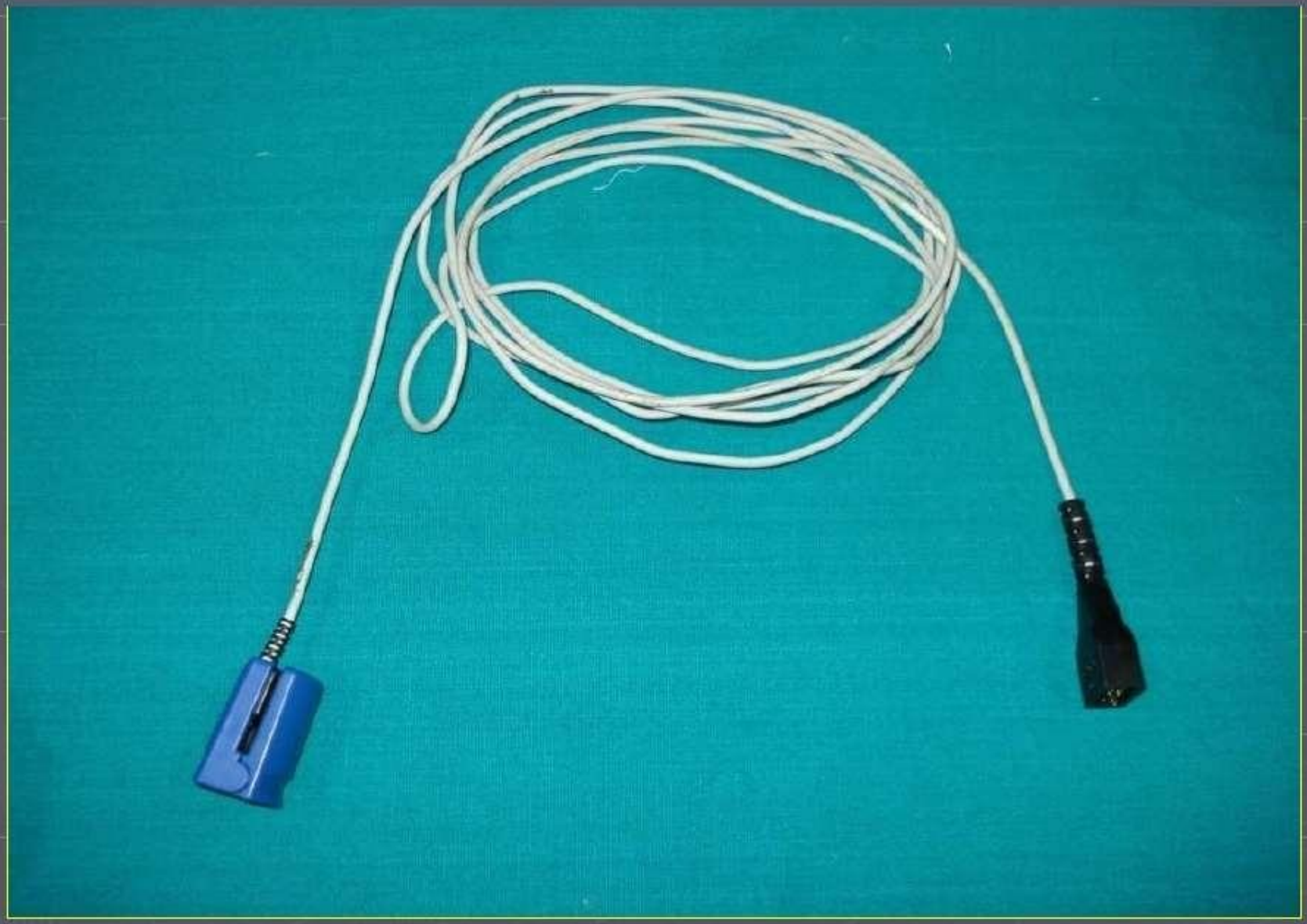
- An alternative to capnography is measurement of the (Paco2) in the morning after their sleep study to be compared to their waking Paco2

- Adults who have an increase in their paco2 in sleep by 10 mm hg or more compared to an awake supine paco2 have sleeprelated hypoventilation

Oxygen Saturation

- Continuous oxygen saturation monitoring by finger pulse oximetry is routine .

- PSG reports mention the time the patient spent with an Sao2 below 90%.



Oxymetry sensor

Electrocardiogram

- ECG abnormalities in sleep apnea patients:

  Marked sinus arrhythmia.
  Extra systoles.
  Prolonged asystolic episodes.
  Atrial or ventricular fibrillation.
  Nocturnal angina may show ST segment deviation.

Body position

- Some patients only have abnormalities when sleeping in certain positions. Therefore, body position (eg, supine, left lateral, right lateral, prone) is monitored throughout the test using a position sensor and/or video monitor.

Optional parameters that can be monitored

1) Esophageal pH

- Gastro-esophageal reflux of acidic stomach contents into the lower esophagus may cause insomnia.
- pH probe is introduced nasally and swallowed to about 5 cm above the esophageal sphincter.

2) Penile Tumescence

- Psychogenic Vs organic causes of impotence.
- In normal adult men, penile tumescence occurs during REM sleep
- Psychogenic cases: Normal REM sleep-related erections.

3) Core Body Temperature

DERIVED INFORMATION

- Total sleep time – The total sleep time (TST) is the total duration of light sleep (stages N1 and N2), deep sleep (stage N3), and rapid eye movement (REM) sleep
- Sleep efficiency – Sleep efficiency (SE) is the TST divided by the total recording time (ie, the time in bed).

- Sleep stage percentage – The sleep stage percentage (SSP) for a particular sleep stage is the duration of that sleep stage divided by the TST.
- Sleep stage latency – The latency to any sleep stage is the duration from sleep onset to the initiation of that sleep stage.

DERIVED INFORMATION

- Arousals – Arousals range from full awakenings to three-second transient electroencephalography (EEG) shifts to a lighter stage of sleep (alpha, theta, and/or frequencies greater than 16 Hz, but not sleep spindles, with at least 10 seconds of stable sleep preceding the change).
- Arousals are generally counted and then divided by the TST to give the number of arousals per hour of sleep (ie, arousal index).

DERIVED INFORMATION

- Apnea is defined by the American Academy of Sleep Medicine (AASM) as the cessation of airflow for at least 10 seconds.
- Hypopnea is defined as decrease in airflow of ≥30 % (by a valid measure of airflow) lasting ≥10 s, associated with either ≥3 % desaturation from the pre-event baseline or an arousal

- Respiratory effort–related arousal (RERA)

  is an event characterized by increasing respiratory effort for 10 seconds or longer leading to an arousal from sleep but one that does not fulfill the criteria for a hypopnea or apnea.

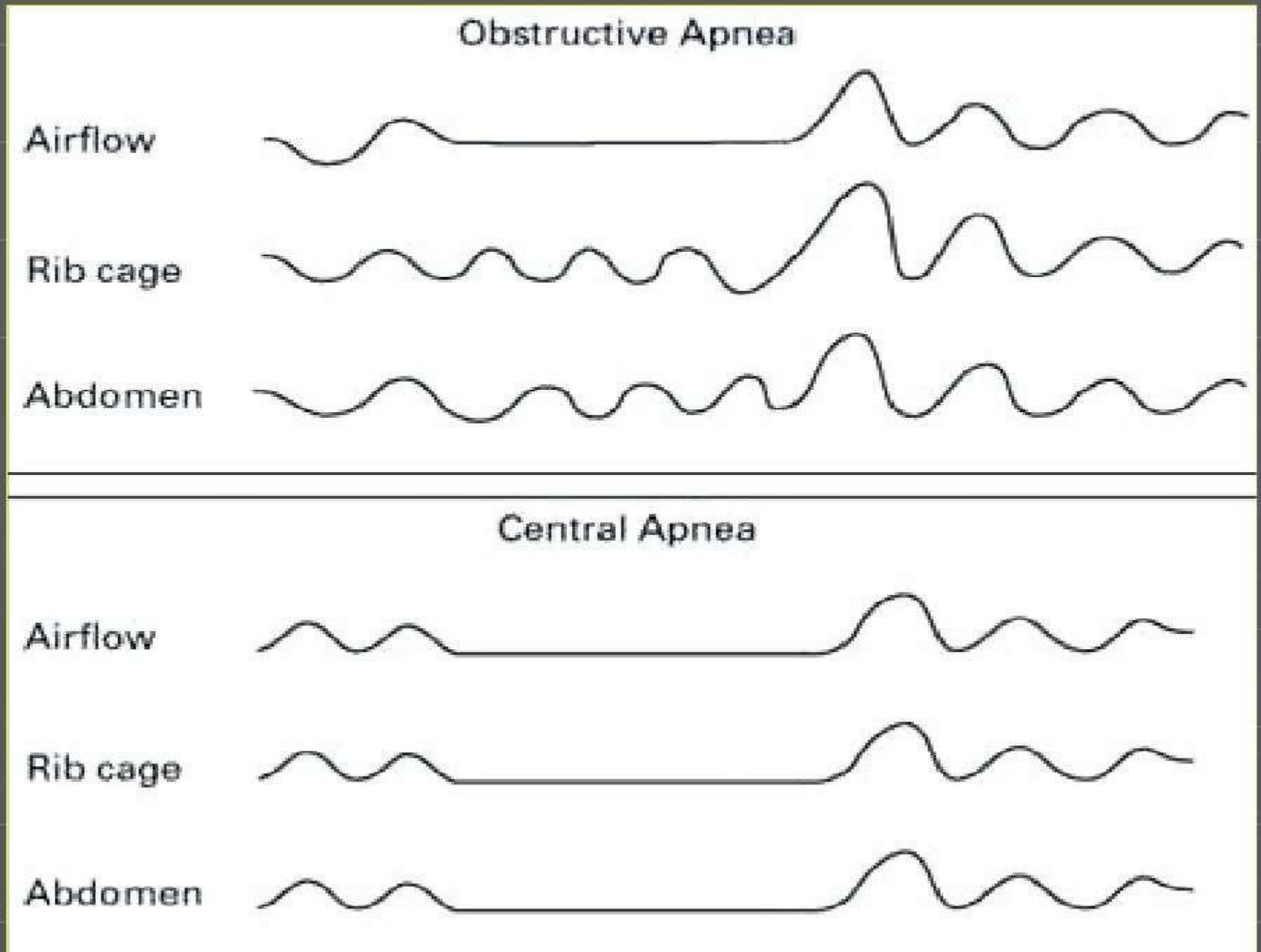
Indices for sleep-disordered breathing

- Apnea-hypopnea index (AHI)

  The AHI is defined as the average number of episodes of apnea and hypopnea per hour.

  Respiratory disturbance index (RDI)

  Defined as the average number of respiratory disturbances (obstructive apneas, hypopneas, and respiratory event–related arousals [RERAs]) per hour.


Obstructive Apnea
Airflow
Rib cage
Abdomen
Central Apnea
Airflow
Rib cage
Abdomen

AASM CRITERIA FOR DIAGNOSIS OF OSA

SEVERITY	*AHI*
Normal	< 5
Mild	5 -15
Moderate	15 - 30
Severe	> 30

Sleep related Breathing disorders based on PSG

SRBD	AHI	Arousal Index	Snoring	Daytime alertness
Simple Snoring	<5	<10	+	Normal
UARS	<10	Often >15	+/-	Impaired
OSAS-Mild	5-15	5-20	+	Mild impairment
OSAS-Moderate	15-30	10-30	+	Moderate impairment
OSAS-Severe	>30	>20	++	Severe impairment
CSAS	>5 Central Apnoea	>10	+/-	Variable

PSG Types

- Four types based on the number of parameters they measure and the degree of attendance required.

- Level 1 devices - Traditional attended in-laboratory PSGs

- Level 2 through 4 refer to home studies recorded by portable devices with progressively fewer channels measuring progressively fewer parameters

Types

- Level II devices require a minimum of seven channels, including EEG,EOG, chin EMG, ECG, oximetry, airflow, and respiratory effort channels. Thus they permit sleep scoring.

- Level III device: This device has a minimum of 4 channels, including ventilation or airflow (at least 2 channels of respiratory movement or airflow), heart rate or ECG, and oxygen saturation.

- Level IV device: This type of device does not meet requirements for other types, and many measure only 1-2 parameters (eg, oxygen saturation or airflow).

Split night studies

- Diagnosis of OSA is established during the first portion of the study and the amount of positive airway pressure that is necessary to prevent upper airway collapse during sleep is determined during the remaining portion.

Limitations of PSG

First Night Effect:

- Reduced sleep efficiency.
- Increased awakenings and arousals.
- Prolonged sleep and REM latency.
- Decreased percentage of REM and slow-wave sleep.
- Increased percentage of light sleep.

Technology, technician, technique dependant.

Episodic disorders may be missed: eg seizures, parasomnias.

Night- to- night variability: eg in case of apnea.

VARIABILITY

- Night to night variability makes it possible for a single study to underestimate the severity of OSA
- Nasal patency, body position, or disruptive environmental factors may all be important factors in producing such variability.
- Therefore, it is reasonable to repeat the baseline PSG if there is a strong clinical suspicion for OSA

SUMMARY

- Attended, in-laboratory polysomnography (PSG) is considered the gold standard diagnostic test for obstructive sleep apnea (OSA)

- Diagnostic evaluation of suspected OSA, titration of positive airway pressure therapy, and assessment of the effectiveness of therapy are the most common indications for PSG.

Courtesy

Pictures in this presentation are taken from another presentation in slideshare Polysomnography: recording and sleep staging by pramod krishnan

Annexure 2

Bharath Institute of Higher Education and Research

SLIMS

1	U17MB251	AANNIE SHERLINE RAJAM.L
2	U17MB252	AARTHISEKAR . D
3	U17MB253	AARYA R BABU
4	U17MB254	ABHIJITH.K
5	U17MB255	ABHISHEIK.J
6	U17MB256	ABHISHEK KUMAR VISHWAKARMA
7	U17MB257	ADITYA RAI
8	U17MB258	ADWIZA RAI
9	U17MB259	AFZAN.M
10	U17MB260	AGARWAL RIDHAM RAJESHBHAI
11	U17MB261	AISWARYA.S.NAIR

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES PUDUCHERRY

TOPIC: Polysomnography **(ENT12)**
STUDENT NAME:
UNIVERSITY NO:

1. Sleep apnea is:
   a. A chronic disorder that affects your sleep b. Talking in your sleep
   c. Tossing and turning in your sleep

2. Sleep apnea can be treated by:
   a. An oncologist b. A dentist
   c. A chiropractor

3. Symptoms of sleep apnea include:
   a. Snoring b. Breathing lapses while sleeping
   c. Snorting or gasping d. All of the above

4. Sleep apnea symptoms only affect:
   a. The snorer b. The snorer's family members
   c. The snorer's significant other d. All of the above

5. Sleep apnea can:
   a. Be potentially dangerous b. Prevent you from obtaining a deep, restful sleep
   c. Cause sleepwalking d. B.oth A and B

6. The three types of sleep apnea are:
   a. Daytime and nighttime sleep apnea b. Obstructive, central, and complex sleep apnea
   c. Disruptive and non-disruptive sleep apnea d. None of the above

7. Obstructive sleep apnea is:
   a. The least common form b. The least dangerous form
   c. The most common form d. None of the above.

8 . False Regarding obstructive sleep apnoea (OSA):

a. Up to 25% of cases with moderate to severe cases of OSA may remain undiagnosed

b. It is mainly a neurological disorder associated with poor quality of sleep.

c. Obesity is associated with a 2- to 3-fold increased risk of OSA relative to normal weight individuals.
d. It is linked to cardiovascular disease, psychiatric disorders and gastro-oesophageal reflux.

9. Polysomnography during an episode of OSA typically demonstrates:

a. Complete cessation of airflow and cessation of breathing efforts for more than 10 s.

b. Partial reduction in airflow despite continuing breathing efforts.

c. Oxygen desaturation followed by arousal and re-establishment of airflow.

d. Preserved balance between rapid eye movement (REM) and non-REM sleep.

e. REM-related OSA, which is more common in women and young patients.

10.Regarding common treatment options for OSA syndrome (OSAS):

a. All patients with OSA should start preoperative continuous positive airway pressure (CPAP).

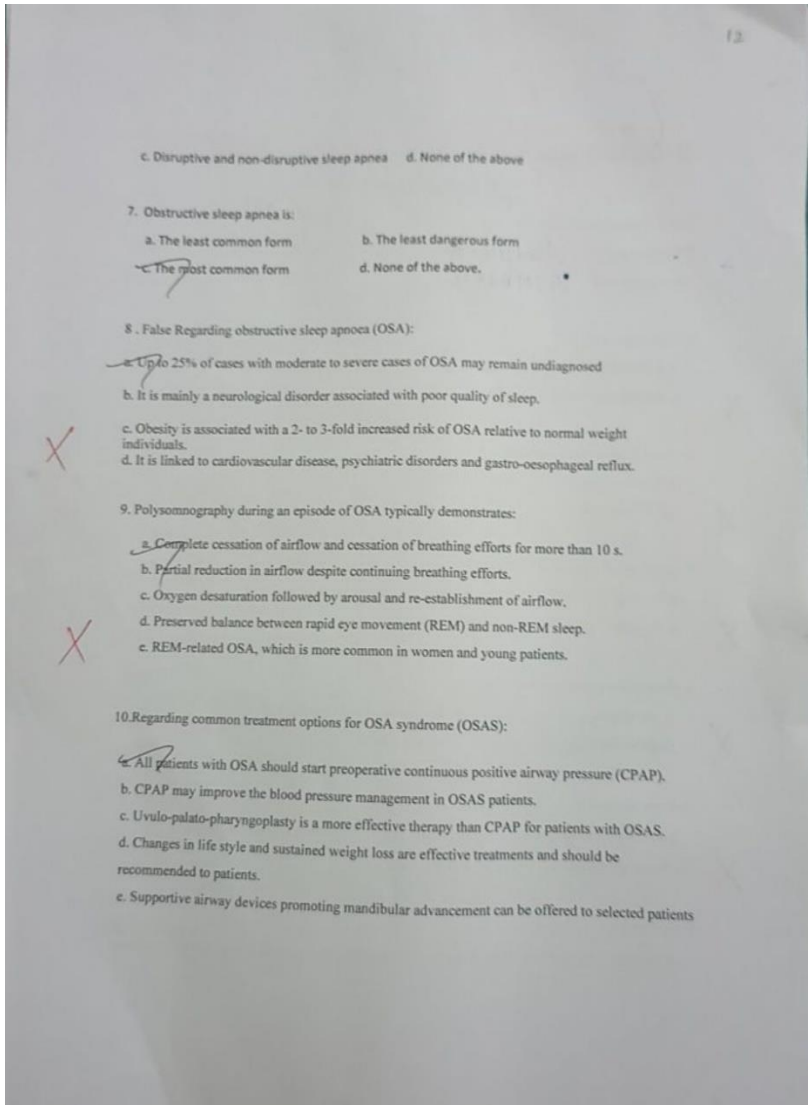
b. CPAP may improve the blood pressure management in OSAS patients.

c. Uvulo-palato-pharyngoplasty is a more effective therapy than CPAP for patients with OSAS.

d. Changes in life style and sustained weight loss are effective treatments and should be recommended to patients.

e. Supportive airway devices promoting mandibular advancement can be offered to selected patients

PRE TEST



c. Disruptive and non-disruptive sleep apnea d. None of the above

7. Obstructive sleep apnea is:

a. The least common form b. The least dangerous form

c. The most common form d. None of the above.

8 . False Regarding obstructive sleep apnoea (OSA):

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ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

3

TOPIC: Polysomnography **(ENT12)**

STUDENT NAME: Abhijith. K

UNIVERSITY NO: VITMB254.

1. Sleep apnea is:

a. A chronic disorder that affects your sleep b. Talking in your sleep

X c. Tossing and turning in your sleep

2. Sleep apnea can be treated by:

a. An oncologist b. A dentist

X c. A chiropractor

3. Symptoms of sleep apnea include:

a. Snoring b. Breathing lapses while sleeping

X c. Snorting or gasping d. All of the above

4. Sleep apnea symptoms only affect:

a. The snorer b. The snorer's family members

X c. The snorer's significant other d. All of the above

5. Sleep apnea can:

a. Be potentially dangerous b. Prevent you from obtaining a deep, restful sleep

X c. Cause sleepwalking d. B.oth A and B

6. The three types of sleep apnea are:

a. Daytime and nighttime sleep apnea b. Obstructive, central, and complex sleep apnea

c. Disruptive and non-disruptive sleep apnea d. None of the above

7. Obstructive sleep apnea is:

a. The least common form b. The least dangerous form

X

c. The most common form d. None of the above.

8 . False Regarding obstructive sleep apnoea (OSA):

a. Up to 25% of cases with moderate to severe cases of OSA may remain undiagnosed

b. It is mainly a neurological disorder associated with poor quality of sleep.

X

c. Obesity is associated with a 2- to 3-fold increased risk of OSA relative to normal weight individuals.

d. It is linked to cardiovascular disease, psychiatric disorders and gastro-oesophageal reflux.

9. Polysomnography during an episode of OSA typically demonstrates:

a. Complete cessation of airflow and cessation of breathing efforts for more than 10 s.

b. Partial reduction in airflow despite continuing breathing efforts.

c. Oxygen desaturation followed by arousal and re-establishment of airflow.

X

d. Preserved balance between rapid eye movement (REM) and non-REM sleep.

e. REM-related OSA, which is more common in women and young patients.

10.Regarding common treatment options for OSA syndrome (OSAS):

a. All patients with OSA should start preoperative continuous positive airway pressure (CPAP).

b. CPAP may improve the blood pressure management in OSAS patients.

c. Uvulo-palato-pharyngoplasty is a more effective therapy than CPAP for patients with OSAS.

d. Changes in life style and sustained weight loss are effective treatments and should be recommended to patients.

e. Supportive airway devices promoting mandibular advancement can be offered to selected patients

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

2

TOPIC: Polysomnography **(ENT12)**

STUDENT NAME: Afgan . M

UNIVERSITY NO: U17MB259.

1. Sleep apnea is:

   a. A chronic disorder that affects your sleep b. Talking in your sleep

   c. Tossing and turning in your sleep

X

2. Sleep apnea can be treated by:

   a. An oncologist b. A dentist

X c. A chiropractor

3. Symptoms of sleep apnea include:

   a. Snoring b. Breathing lapses while sleeping

X c. Snorting or gasping d. All of the above

4. Sleep apnea symptoms only affect:

   a. The snorer b. The snorer's family members

X c. The snorer's significant other d. All of the above

5. Sleep apnea can:

   a. Be potentially dangerous b. Prevent you from obtaining a deep, restful sleep

X c. Cause sleepwalking d. Both A and B

6. The three types of sleep apnea are:

   a. Daytime and nighttime sleep apnea b. Obstructive, central, and complex sleep apnea

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c. Disruptive and non-disruptive sleep apnea d. None of the above

7. Obstructive sleep apnea is:

a. The least common form b. The least dangerous form

c. The most common form d. None of the above.

8 . False Regarding obstructive sleep apnoea (OSA):

a. Up to 25% of cases with moderate to severe cases of OSA may remain undiagnosed

b. It is mainly a neurological disorder associated with poor quality of sleep.

c. Obesity is associated with a 2- to 3-fold increased risk of OSA relative to normal weight individuals.

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b. CPAP may improve the blood pressure management in OSAS patients.

c. Uvulo-palato-pharyngoplasty is a more effective therapy than CPAP for patients with OSAS.

d. Changes in life style and sustained weight loss are effective treatments and should be recommended to patients.

e. Supportive airway devices promoting mandibular advancement can be offered to selected patients

8

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Polysomnography **(ENT12)**

STUDENT NAME: Abhijith. K

UNIVERSITY NO: U17MB255.

1. Sleep apnea is:

~~a. A~~ chronic disorder that affects your sleep b. Talking in your sleep

c. Tossing and turning in your sleep

2. Sleep apnea can be treated by:

a. An oncologist ~~b. A~~ dentist

c. A chiropractor

3. Symptoms of sleep apnea include:

a. Snoring b. Breathing lapses while sleeping

c. Snorting or gasping d. ~~All of~~ the above

4. Sleep apnea symptoms only affect:

a. The snorer b. The snorer's family members

c. The snorer's significant other ~~d. All of~~ the above

5. Sleep apnea can:

~~a. Be~~ potentially dangerous b. Prevent you from obtaining a deep, restful sleep

c. Cause sleepwalking d. B.oth A and B

6. The three types of sleep apnea are:

X ~~a.~~ Daytime and nighttime sleep apnea b. Obstructive, central, and complex sleep apnea

c. Disruptive and non-disruptive sleep apnea d. None of the above

7. Obstructive sleep apnea is:

a. The least common form b. The least dangerous form

c. The most common form d. None of the above.

8 . False Regarding obstructive sleep apnoea (OSA):

a. Up to 25% of cases with moderate to severe cases of OSA may remain undiagnosed

b. It is mainly a neurological disorder associated with poor quality of sleep.

c. Obesity is associated with a 2- to 3-fold increased risk of OSA relative to normal weight individuals.

d. It is linked to cardiovascular disease, psychiatric disorders and gastro-oesophageal reflux.

9. Polysomnography during an episode of OSA typically demonstrates:

a. Complete cessation of airflow and cessation of breathing efforts for more than 10 s.

b. Partial reduction in airflow despite continuing breathing efforts.

c. Oxygen desaturation followed by arousal and re-establishment of airflow.

d. Preserved balance between rapid eye movement (REM) and non-REM sleep.

e. REM-related OSA, which is more common in women and young patients.

10.Regarding common treatment options for OSA syndrome (OSAS):

a. All patients with OSA should start preoperative continuous positive airway pressure (CPAP).

b. CPAP may improve the blood pressure management in OSAS patients.

c. Uvulo-palato-pharyngoplasty is a more effective therapy than CPAP for patients with OSAS.

d. Changes in life style and sustained weight loss are effective treatments and should be recommended to patients.

e. Supportive airway devices promoting mandibular advancement can be offered to selected patients

9

ANNEXURE 3

SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

PUDUCHERRY

TOPIC: Polysomnography **(ENT12)**

STUDENT NAME: Afsan . M

UNIVERSITY NO: U17MB259.

1. Sleep apnea is:

a. A chronic disorder that affects your sleep b. Talking in your sleep

c. Tossing and turning in your sleep

2. Sleep apnea can be treated by:

a. An oncologist b. A dentist

c. A chiropractor

3. Symptoms of sleep apnea include:

a. Snoring b. Breathing lapses while sleeping

c. Snorting or gasping d. All of the above

X

4. Sleep apnea symptoms only affect:

a. The snorer b. The snorer's family members

c. The snorer's significant other d. All of the above

5. Sleep apnea can:

a. Be potentially dangerous b. Prevent you from obtaining a deep, restful sleep

c. Cause sleepwalking d. Both A and B

6. The three types of sleep apnea are:

a. Daytime and nighttime sleep apnea b. Obstructive, central, and complex sleep apnea

ANNEXURE 4

Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research

(Deemed to be University under section 3 of the UGC Act 1956)

CERTIFICATE OF MERIT

This is to certify that _____ has actively participated in the Value Added Course on Diagnosis of OSA using polysomnography held during Jan 2020 – June 2020 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.R.Venkataramanan
RESOURCE PERSON

Dr.S.Ganesh
COORDINATOR

Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research

(Deemed to be University under section 3 of the UGC Act 1956)

CERTIFICATE OF MERIT

This is to certify that Dr.Afzan.M (U17MB259) has actively participated in the Value Added Course on Diagnosis of OSA using polysomnography held during Jan 2020 – June 2020 Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Dr.R.Venkataramanan

RESOURCE PERSON

Dr.S.Ganesh

COORDINATOR

Annexure 5

Course/Training Feedback Form

Student Feedback Form

Course Name: Preventing Medical Errors in Audiology

Subject Code: **ENT12**

Name of Student: _____ Roll No.: _____

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear					
2	Course contents met with your expectations					
3	Lecturer sequence was well planned					
4	Lectures were clear and easy to understand					
5	Teaching aids were effective					
6	Instructors encourage interaction and were helpful					
7	The level of the course					
8	Overall rating of the course	1	2	3	4	5

**** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory***

Suggestions if any:

Annexure 5

Course/Training Feedback Form

Student Feedback Form

Course Name: Preventing Medical Errors in Audiology

Subject Code: ENT12

Name of Student: ABHIJITH . K Roll No.: U17MB254

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations			✓		
3	Lecturer sequence was well planned		✓			
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful			✓		
7	The level of the course		✓			
8	Overall rating of the course	1	2	3	✓	5

** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory*

Suggestions if any:

Satisfactory

Annexure 5

Course/Training Feedback Form

Student Feedback Form

Course Name: Preventing Medical Errors in Audiology

Subject Code: ENT12

Name of Student: Aishwarya S.Nair Roll No.: U17MB261

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			✓		
2	Course contents met with your expectations			✓		
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand		✓			
5	Teaching aids were effective			✓		
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course			✓		
8	Overall rating of the course	1	2	✓	4	5

** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory*

Suggestions if any:

ANNEXURE 6

Date : 15/6/2020

From
Dr.Venkataramanan.K,
Dept of Otorhinolaryngology,
SLIMS
Bharath Institute of Higher Education and Research,
Puducherry.

Through Proper Channel

To
The Dean,
SLIMS,
Bharath Institute of Higher Education and Research,
Puducherry.

Sub: Completion of value-added course: Diagnosis of OSA using polysomnography reg.

Dear Sir,

With reference to the subject mentioned above, the department has conducted thevalue-added course titled:**Diagnosis of OSA using polysomnography**on Jan 2020 to June 2020. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards
Dr.Venkataramanan.K


SERWELL
EAR NOSE THROAT