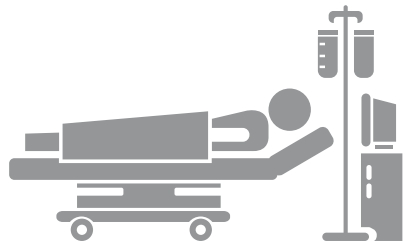


# Sleep Laboratory Services



The Sleep Laboratory conducts sleep studies to help patients determine the cause of their sleep problems. This brochure shares with you what to expect before, during and after a sleep study.



# Types of sleep studies

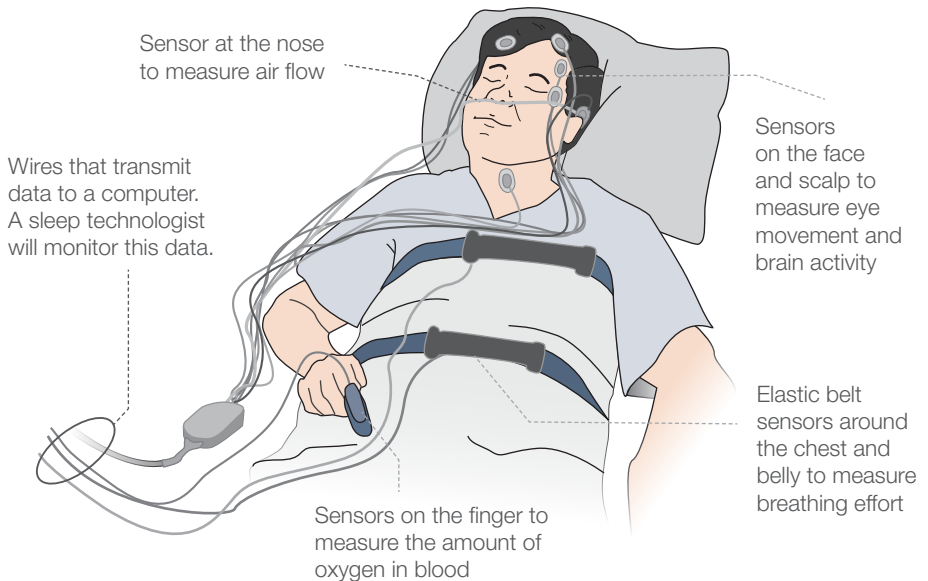
## Polysomnography (PSG)

PSG is a diagnostic study that measures the biological changes in the body when we sleep. PSG is useful in determining the cause of sleep problems such as sleep apnoea and can be done at a Sleep Laboratory in the Ng Teng Fong General Hospital, or in the comfort of your home.

PSG is able to collect information on:

- Brain wave activity (EEG) to differentiate patterns recorded when one is asleep or awake
- Heart activity (EKG)
- Eye movements (EOG)
- Leg movements
- Breathing muscle effort
- Snoring
- Air movement through the nose and mouth
- Oxygen and carbon dioxide levels during sleep
- Body position and behaviour during sleep

Additional EEG leads may be used on selected patients with suspected seizure during sleep. This study is known as PSG with full EEG montage.



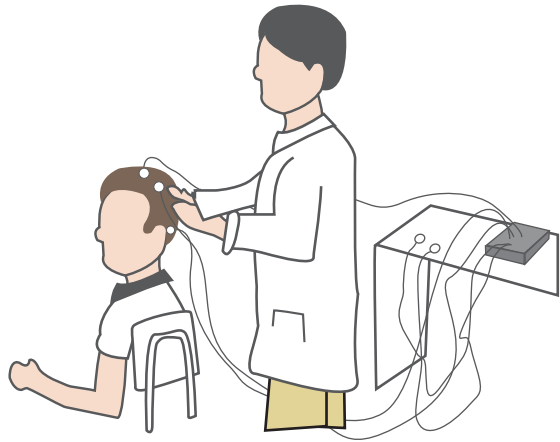
## Split Night/Continuous Positive Airway Pressure (CPAP) Titration

If PSG indicates there is severe sleep apnoea, a treatment known as the CPAP will commence after the diagnostic test on the same night. This is known as a Split Night study. If CPAP commences on a separate night, it is known as a CPAP Titration study. CPAP is a device that delivers gentle positive air pressure to open the airways by a mask applied to the face. CPAP is recommended to treat obstructive sleep apnoea.

During the CPAP study, our team will determine the correct mask fit for you and adequate level of positive air pressure to help you stop snoring and prevent your air passage from collapsing during sleep.

## Multiple Sleep Latency (MSLT) and Maintenance of Wakefulness Tests (MWT)

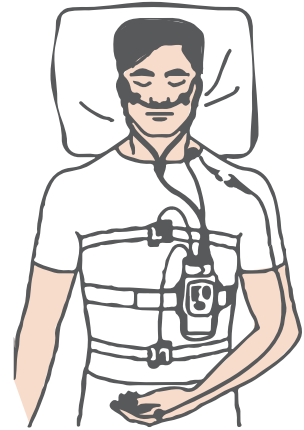
These are daytime studies conducted to evaluate daytime sleepiness. People with excessive daytime sleepiness and suspected narcolepsy\* will be administered a MSLT the day after an overnight PSG. During the MSLT, you will have four or five opportunities to nap for 20 minutes every two hours throughout the day. Electrical activity will be recorded from your brain, eyes, and chin muscles. The time it takes for you to fall asleep is also measured. This test is an objective measure of daytime sleepiness.



\*A neurological disorder affecting one's control of sleep or wakefulness

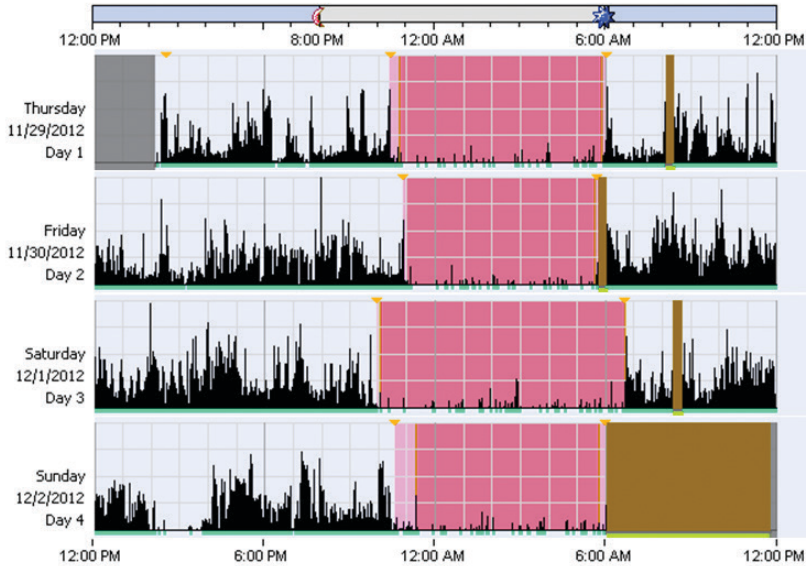
## Unattended PSG

If you have no existing lung, heart and muscle disorders, your sleep study can be done at home. Known as an Unattended PSG, you will collect your recording device from the Sleep Laboratory and be taught how to place the sensors on yourself. A guide that teaches you how to operate the device is included to assist you. Before going to bed, place all the sensors correctly and start recording. Please return the device to the Sleep Laboratory the next day for us to analyse the data collected.



Pros	Cons
<ul style="list-style-type: none"><li>• Study is done in the comfort of your home</li></ul>	<ul style="list-style-type: none"><li>• You cannot claim the cost of PSG under Medisave</li></ul>
<ul style="list-style-type: none"><li>• Lower cost</li></ul>	<ul style="list-style-type: none"><li>• Possibility of dislodged sensors and incomplete data collection</li><li>• Reduced accuracy that cannot rule out sleep apnoea completely</li><li>• You may need to return to the hospital for a full night of attended PSG if clinical suspicion is high</li></ul>

# Actigraphy



Actigraphy is a test that monitors your sleep or activity cycle (circadian rhythm). Your doctor may arrange for this test to assess your biological sleep pattern and determine what is causing your insomnia. You will be required to wear a watch-like device (actigraph) on your wrist for two weeks and keep a sleep diary.

# What can I expect before, during and after a PSG?

## Before

On arrival at the Sleep Laboratory, a sleep technologist will attend to you. You will complete a pre-sleep questionnaire and have wires and sensors attached to your scalp, face, chest and legs. Please inform the sleep technologist if you are sensitive or allergic to the medical tape or adhesive used on you. The wires are long and arranged to allow you to turn in bed when you sleep. The process will complete in 30 to 45 minutes.

## During

A sleep technologist will get you to make different body movements to ensure proper signal quality. This is known as biocalibrations and takes between five to 10 minutes. Once completed, the lights in the room will be switched off. You may adjust the room temperature with the air-conditioner remote controller or request for an additional pillow or blanket if you need one.

A sleep technologist monitors your sleep during the study. Please press the call bell if you need to use the bathroom or require assistance. An infra-red video camera in the room will allow the sleep technologist to observe you from the monitoring room. He/she may come in at intervals to adjust the leads or apply the CPAP mask if indicated. Otherwise, you will not be disturbed.

It is normal to sleep less comfortably during the test as you are in an unfamiliar environment with monitoring wires on you. This discomfort does not affect results and nearly everyone falls asleep eventually. Sleep aid drug is rarely necessary.



## After

At the end of the study, you will be awoken at 6am. Should you need to wake up earlier, please let us know. The monitoring wires attached to you will be removed and you will be asked to complete a morning questionnaire. You may shower and prepare for your discharge. Complimentary parking tickets and a certificate of attendance can be provided on request. The results of your sleep study will be discussed with you at the next visit.

## How should I prepare?

- Avoid taking naps on the day of your sleep test
- Avoid alcohol, caffeine, sedating or stimulating medications for 24 hours, unless otherwise directed by your doctor
- Eat a regular evening meal before arriving at the Sleep Laboratory
- Bring your regular medications and take them normally, unless otherwise directed by your doctor
- Do not use hairspray, gel, oils, or any products on your hair
- Remove any nail polish on your index finger if possible
- Do not use lotion, oil or cream on your skin until all wires have been applied
- Bathe and wash your hair before arriving at the Sleep Laboratory
- Notify us if you have a disability that requires special assistance. A caregiver may need to be present





## What do I need to bring?

- Appointment card/admission and financial counselling form (if any)
- Loose-fitting and comfortable clothes to sleep
- Mask and headgear if you are on CPAP treatment
- NRIC/any identifying document
- Personal toiletries and clothes for the next day
- Pillows and blankets if you need your own
- Receipt/invoice if payment has been made
- Regular medications
- Request form for the sleep study



## What time should I be there?

If you are not a shift worker, please arrive between 9 to 9.30pm.

## How long will I be there?

You can expect to stay in the Sleep Laboratory for the next 8 to 12 hours.

## What if I need to cancel?

If you cannot make it for the procedure or have a cold or flu, please inform us two working days before your appointment. Call 6716 2222 during our operating hours of 8.00am to 5.30pm (Monday to Friday) and 8.00am to 12.30pm (Saturday).

# What can I expect before, during and after a MSLT?

You may need to undergo an actigraphy (see section on Actigraphy) and keep a sleep diary for two weeks. Through it, your doctor can determine your sleep-wake patterns and identify the factors that cause your daytime sleepiness.

Before MSLT, you will undergo PSG. For MSLT to be accurate, aim to sleep at least six hours during the overnight sleep study. It can determine if obstructive sleep apnoea is causing your daytime sleepiness.



## How do I prepare?

- Eat normally the night before and on the morning of your study
  - Wear comfortable clothing
  - Do not apply oil, hair spray or other products to your hair
  - Bring all medications and take them normally, unless otherwise instructed
  - Bring reading materials or an activity to occupy your time
- 
- Avoid alcohol, caffeinated drinks (coffee, tea and cola), any sedating or stimulating medications 24 hours before the study
  - Check with your doctor if there are changes to your medications
  - Avoid naps, smoking and physical exertion on the day of the MSLT
  - Notify us if you have a disability that requires special assistance. A caregiver may need to be present

## During the MSLT

- After the overnight PSG, a sleep technologist will remove some of the wires/sensors attached to you. You can move freely in the room
- Change to your own clothes
- The first nap begins one-and-a-half to three hours after PSG ends. You will have four to five “opportunities” to fall asleep. Known as nap trials, they last 20 to 25 minutes over a two-hour interval. At each nap trial, please lie down quietly and sleep
- You will need to stay awake between nap trials
- A light breakfast will be served to you one hour before the first nap trial and a light lunch immediately after the second one
- A sample of your urine will be taken after the first nap trial
- Complete a questionnaire before and after each nap trial
- Stop smoking at least 30 minutes before each nap trial. Avoid vigorous physical activities in the day. Stop stimulating activities at least 15 minutes before each nap trial
- Turn off audio devices (music player or handphone) before a nap trial
- Do not drink alcohol or caffeinated drinks the night before and during the study
- Do not take medication that cause drowsiness or keep you awake the night before/during the study

After your last nap trial, the monitoring wires/sensors attached to you will be removed.

Complimentary parking tickets and a certificate of attendance will be provided on request. Your doctor will review the results at your next visit.



## For more information

### Ng Teng Fong General Hospital and Jurong Community Hospital

1 Jurong East St 21, Singapore 609606

[www.ntfgh.com.sg](http://www.ntfgh.com.sg) | [www.jch.com.sg](http://www.jch.com.sg)

### Clinic opening hours

Monday – Friday: 8.30am – 5.30pm

Saturday: 8.30am – 12.30pm (Selected clinics only\*)

Dental Clinic: Monday – Thursday: 8.00am – 5.30pm, Friday: 8.00am – 5.00pm

\*Please refer to our websites for more details.

### General enquiries & appointments

General enquiries line: 6908 2222 (24-hr)

Fax: 6716 5500 | Email: [contactus@nuhs.edu.sg](mailto:contactus@nuhs.edu.sg)

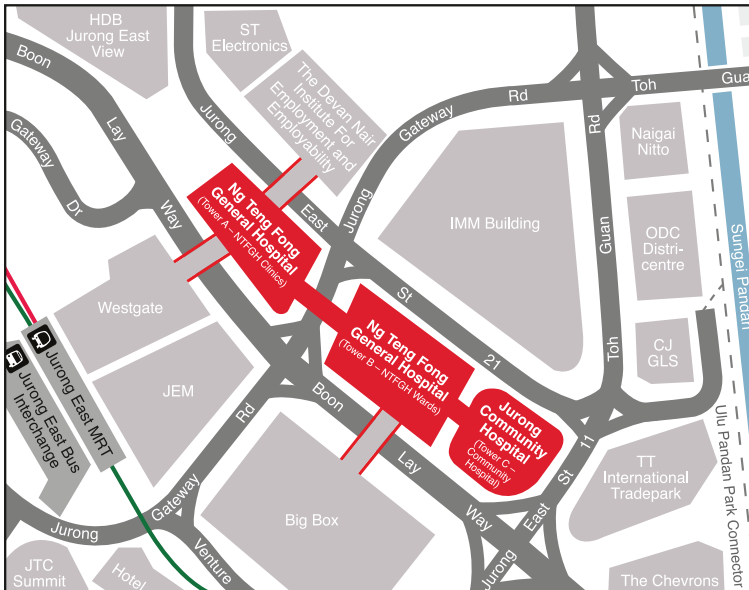
Appointment line: 6908 2222 (Monday – Friday: 8.00am – 5.30pm, Saturday: 8.00am – 12.30pm)

Fax: 6716 2200 | Email: [appointment@nuhs.edu.sg](mailto:appointment@nuhs.edu.sg)

Dental appointment line: 6716 2233 (Monday – Friday: 8.00am – 5.30pm)

Fax: 6716 2200 | Email: [JHCampus\\_Dental@nuhs.edu.sg](mailto:JHCampus_Dental@nuhs.edu.sg)

## Getting there



### By train

Alight at Jurong East MRT Station

### By bus

#### Jurong East Bus Interchange

41, 49, 51, 52, 66, 66B, 78, 78A, 79, 79A, 97, 97E, 98, 98M, 105, 143, 143M, 160, 160A, 160M, 183, 183B, 197, 333, 334, 335, 506

#### Along Boon Lay Way

49, 99, 333, Private bus service 625, 990

### Disclaimer:

The information in this brochure is meant for educational purposes and should not be used as a substitute for medical diagnosis or treatment. Please seek your doctor's advice before starting any treatment or if you have any questions related to your health, physical fitness or medical condition. Information is accurate at the time of printing.