

# Home sleep telemetry with respiratory monitoring



**Information for patients**  
Clinical Neurophysiology



**PROUD TO MAKE A DIFFERENCE**

SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST



## **Why have I been given this leaflet?**

You have been referred to the Clinical Neurophysiology Department for a home sleep telemetry with respiratory monitoring test. You may need any or all of the following tests:

1. Actigraphy
2. Home sleep telemetry with respiratory monitoring
3. Multiple sleep latency test (MSLT)

This leaflet describes each of these tests and what is involved.

## **Consent**

As with any test or procedure, we must obtain your consent beforehand. Staff will explain all the risks, benefits and alternatives before they ask you to give your consent. If you are unsure about any part of the test, please ask for more information.

The test / tests are performed by a physiologist but as we are a teaching hospital, sometimes we may ask your consent for other professionals or students to observe the test. This would be done before you enter the room and you are free to say if you would prefer not to have them.

## 1. What is Actigraphy?

This test is done as an out-patient and records your movements, usually over a period of 1-2 weeks, by wearing a type of watch called an actiwatch. The watch **can be posted or you can collect it from the department** (which would take about 20 minutes), this will be discussed with you when you ring to make the appointment. If you are having one of the other studies mentioned above, the watch is usually fitted one week before the other investigations and returned to us when you attend. The actiwatch is usually worn around the ankle and you will be given a diary to complete whilst you are wearing it. You may wish to wear long trousers and socks so that the actiwatch is not visible around your ankle. The actiwatch remains in place and is showerproof so can still be worn when you shower. However, if you take a bath or go swimming, please remove the watch and replace it as soon as possible afterwards. The information collected by the device monitors your movement activity and this can be used to give a measure of both your active and sleep periods. When the watch is returned the data is downloaded onto a computer and printed out as a graph, which acts like a sleep diary. The graph helps your neurologist to be able to look at your sleep patterns and the information can be used to help with the diagnosis of specific sleep disorders.



## **2. What is a home sleep telemetry with respiratory monitoring?**

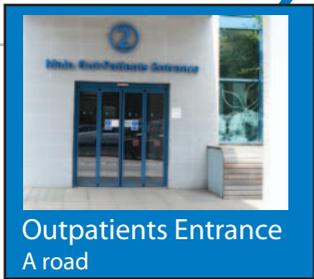
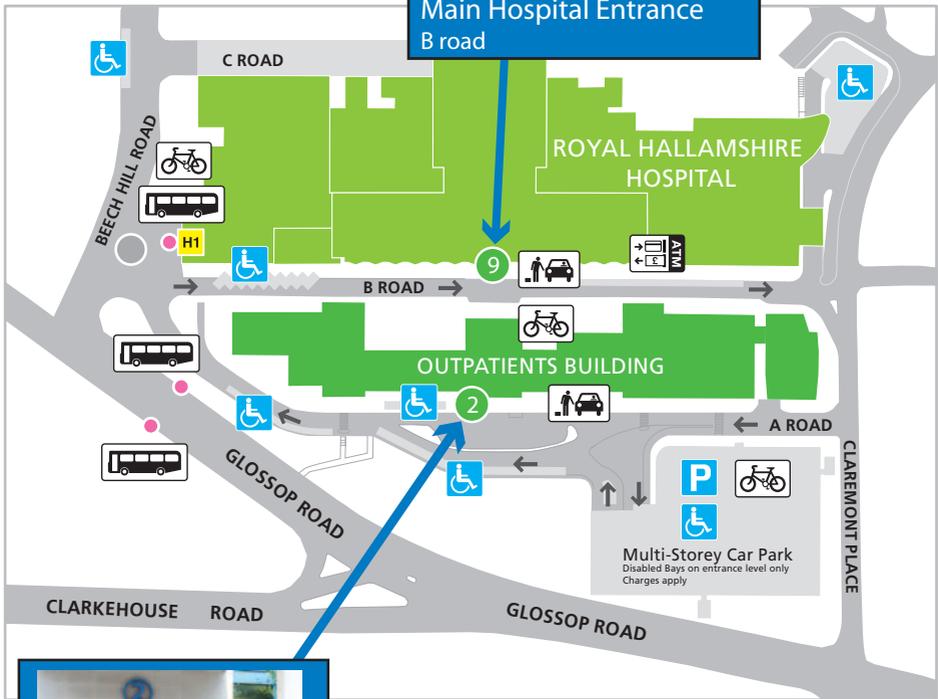
This is a test which gives a comprehensive assessment of your sleep. It monitors the natural changes taking place whilst you are asleep. This includes recording your brain waves (EEG or electroencephalography). Polysomnography means recording other signals eg eye movements (EOG), snore noises, breathing, heart beat (ECG), oxygen levels (oximetry) and body movements (EMG). You will also be recorded on video so that we can examine any symptoms or movements in more detail. You will be asked to give your consent to this.

### **How will having home sleep telemetry with respiratory monitoring help me?**

The test will give us detailed information on the quality of your sleep. We can monitor how much time is spent getting to sleep and once asleep, the time spent in different stages of sleep. We can observe any changes in oxygen levels, ECG or breathing rates. We can look at any regular disturbances during sleep and we may be able to record some of these typical events. This information helps when investigating excessive daytime sleepiness narcolepsy (a disturbance in the sleep / waking system), sleep apnoea (breathing irregularity), periodic limb movements or any other behaviours and experiences that you have whilst asleep (parasomnias). These are just some examples of the conditions which a Sleep HVT will help your doctor to diagnose.

### **Will I need to stay in hospital for the test?**

No, you will come to the Department of Clinical Neurophysiology on N floor (tower block). You can enter at the main entrance to outpatients (A floor) or the main hospital entrance (B floor).



-   
 Pay & display parking
-   
 Disabled parking
-   
 Hospital shuttle bus
-   
 Bus stop
-   
 Bicycle parking
-   
 Drop-off zone
-   
 Cash machine

Please note (parents and guardians): We have no provision for accompanying children to be supervised whilst you are having your home video telemetry. If you have any problems arranging childcare, please ring the department to discuss this.

## **Can I get public transport to the hospital?**

Park and ride sites are available across the city to link with bus and tram routes. To check which bus routes serve the hospital you can contact Traveline:

- 01709 51 51 51
- [www.travelsouthyorkshire.com](http://www.travelsouthyorkshire.com)

## **Is there a car park?**

Car parking is limited; please use public transport when possible. If travelling by car, please allow extra time before your appointment as parking is limited in the pay-on-exit car park. If you are a blue badge holder, limited spaces are available on-site and also in the car park. In the car park you can take a ticket on arrival and present it with your blue badge at the kiosk when leaving for the charge to be waived. The postcode if you are using a SatNav is **S10 2JF**.

## **Is it safe?**

The test records various activities which your body is producing naturally. It is painless and there are no after effects. Occasionally patients may experience mild skin irritations due to the products we use.

## Are there any preparations before my test?

Yes, please make sure that you:

- Have clean, dry hair which is free of gel and hairspray
- **It is better to wear a vest top or T-shirt which will not be able to be removed as the respiratory bands are placed over this. You will need to sleep in this top but may wear clothes that button through over the top.**
- Please wear **loose fitting trousers** when you come for the recording as sensors will be placed on your legs.
- There are certain medications which may affect the recording. Your consultant will discuss whether any of these need to be stopped.
- Please remove nail polish and false nails before admission as they prevent the oxygen saturation monitor detecting the light.

## What happens when I come to the appointment?

When you come to have the equipment fitted, a physiologist will explain the test to you. They will then connect the equipment which will take between 1 and 1½ hours. The equipment we use includes some small discs (called electrodes) with wires attached to them. These wires are linked to a recorder box that is worn in a bag with a shoulder strap. To set up the test, your head will be measured and then rubbed with some abrasive paste. Each place is then rubbed with a gritty paste to get a good contact and then the discs are glued into position. These discs record your EEG (brain activity) and allow us to study your sleep patterns. Other signals from the body during sleep are also measured. Two discs are also placed above one eye and below the other to monitor eye movements. A further two stickers are placed under the chin to monitor muscle tone. A sticker is placed on each shoulder to monitor your heart beat and two stickers are placed on each arm or leg to monitor movements. Two velcro belts are worn around your chest

which record your breathing. Finally a sensor is taped to a finger to monitor oxygen levels and a fine tube is placed at the entrance to your nose to monitor airflow.



**Sleep HVT face**



**HVT bag**

All of the wires are pulled together into a gauze tube and fed down the back of your clothing to be connected to the recorder box. We make some checks to ensure that everything is working properly.

The physiologist will then explain how to use and set up a camcorder which you will take home in a large carry case.

Before you go home, we will give you a diary sheet (with contact numbers) for you to fill in whilst you are at home.

You will go home after the equipment is put on and sleep in your own bed. You will need to return to the hospital the following day to have an MSLT test (see section 3 below).

## **What happens when I get home?**

When you get home you may need to set the camcorder up in the living room, plug it in and start the recording. It is important that you stay in that room until you go to bed (with the exception of going to the

bathroom). This is to make sure that if any symptoms occur they are recorded by the camcorder. If you do not have any episodes in the daytime and it is only your sleep which is being investigated, you may not need to record video of yourself until you go to bed. Please check this with the physiologist when you have the equipment applied. It is your responsibility to inform anyone entering your house that they may also be recorded. The equipment is designed to be slept in and few patients report any problems sleeping with it on.

**When you go to bed, the camcorder will need to be plugged in and the infra-red and night shot settings must be switched on. The camcorder should be positioned in the bedroom as high as possible (for example on top of a wardrobe) to get a good view of the area in which you will be sleeping.** If possible, please try to avoid having shiny bedding as the reflection can reduce the quality of the video recording. **It is important for you and your partner, if you have one, to keep to your usual sleeping arrangements. Any change to your routine sleeping arrangements could affect your results. The video can be adjusted just to focus on yourself if necessary.**

The recorder box will store the EEG recording. We will ask you or any witness to press a button or make a note of any attacks you have on your diary sheet. If you have pets can you please ensure that they stay away from the equipment. Whilst the recorder is attached you will not be able to have a bath or shower, however, you will be able to have a standing wash.

## **What happens after the test?**

If you are having a multiple sleep latency test (MSLT) this will be performed when you return to the department the following morning whilst you still have electrodes on (see 'What is a multiple sleep latency test' below).

### **3. What is a multiple sleep latency test (MSLT)?**

MSLT is a test during which you will be given four or five opportunities to sleep in a quiet darkened room whilst having your EEG continuously monitored. The test measures the average time it takes for you to fall asleep.

#### **How will having a multiple sleep latency test help me?**

The average time taken to fall asleep can be used as a measure of daytime sleepiness. Knowing this may help to distinguish tiredness from excessive daytime sleepiness and can also be used to investigate narcolepsy. Narcolepsy is a disturbance in the sleep / wake regulating system, one of the common symptoms is excessive daytime sleepiness.

#### **Is there anything I need to do before having the test?**

Some medications will be discontinued before this test, your doctor will advise you if this is necessary. From midnight before the MSLT test, you should not have the following or anything that contains caffeine:

- Tea
- Coffee
- Coca-cola
- Chocolate

It is necessary for you to stay awake in between naps. Please remember that any food or drinks you consume throughout the day should still not contain caffeine.

#### **How long will the test take?**

The procedure is time consuming. On the day of the test you will need to arrive in the department **no later than 8.30am** and stay until approximately 6.00pm. Depending on the recordings it may

occasionally end earlier at approximately 4.00pm. **You should bring any food, drinks and snacks you need for the day.**

## **What happens on the day of the test?**

You will be collected from reception and taken to the recording room. You will already have electrodes on your head and these will be reconnected to a different machine. You will be settled and left undisturbed to sleep for half an hour with the lights turned out. You will then be woken and the procedure will be repeated at 2 hourly intervals, 9.00am, 11.00am, 1.00pm, 3.00pm and 5.00pm. In between these times we will continue to record the EEG (not video) and it is important for you to try to stay awake.

**We routinely video the test in case you have any symptoms that we might need to re-examine. We will ask your permission to do this.**

You can leave the department in between each nap or you can stay in the room. You may wish to bring food and drinks for the duration of the test.

You can bring a portable DVD, laptop or tablet and guest wi-fi is available.

## **What happens after the test?**

Once the test is finished we will remove the discs from your head, using a solution to dissolve the glue. It is unavoidable that some of the glue is left in your hair. This will come out after you comb through your hair with conditioner applied once you get home. You may wish to bring an old hat to wear on the way home that you do not mind getting damaged by the oily solution.

## When will I get the results?

You will not be able to get your results on the day of the test due to the large amount of complex information that needs to be analysed by one of our doctors. Once this has been done, a report will be sent to your hospital consultant within 15 working days and they will arrange to discuss them with you. However, sometimes your results need to be discussed at a monthly multidisciplinary team meeting. This may delay your results by 6-8 weeks.

## What if I want more information about the test?

If, after reading this booklet, you have any further questions please contact the Department of Clinical Neurophysiology:

- **0114 271 2526**  
Monday - Friday 8.30am - 4.30pm



www.neurocare.org.uk  
0114 267 6464  
appeals@neurocare.org.uk



Alternative formats can be available on request.  
Please email: [sth.alternativeformats@nhs.net](mailto:sth.alternativeformats@nhs.net)

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