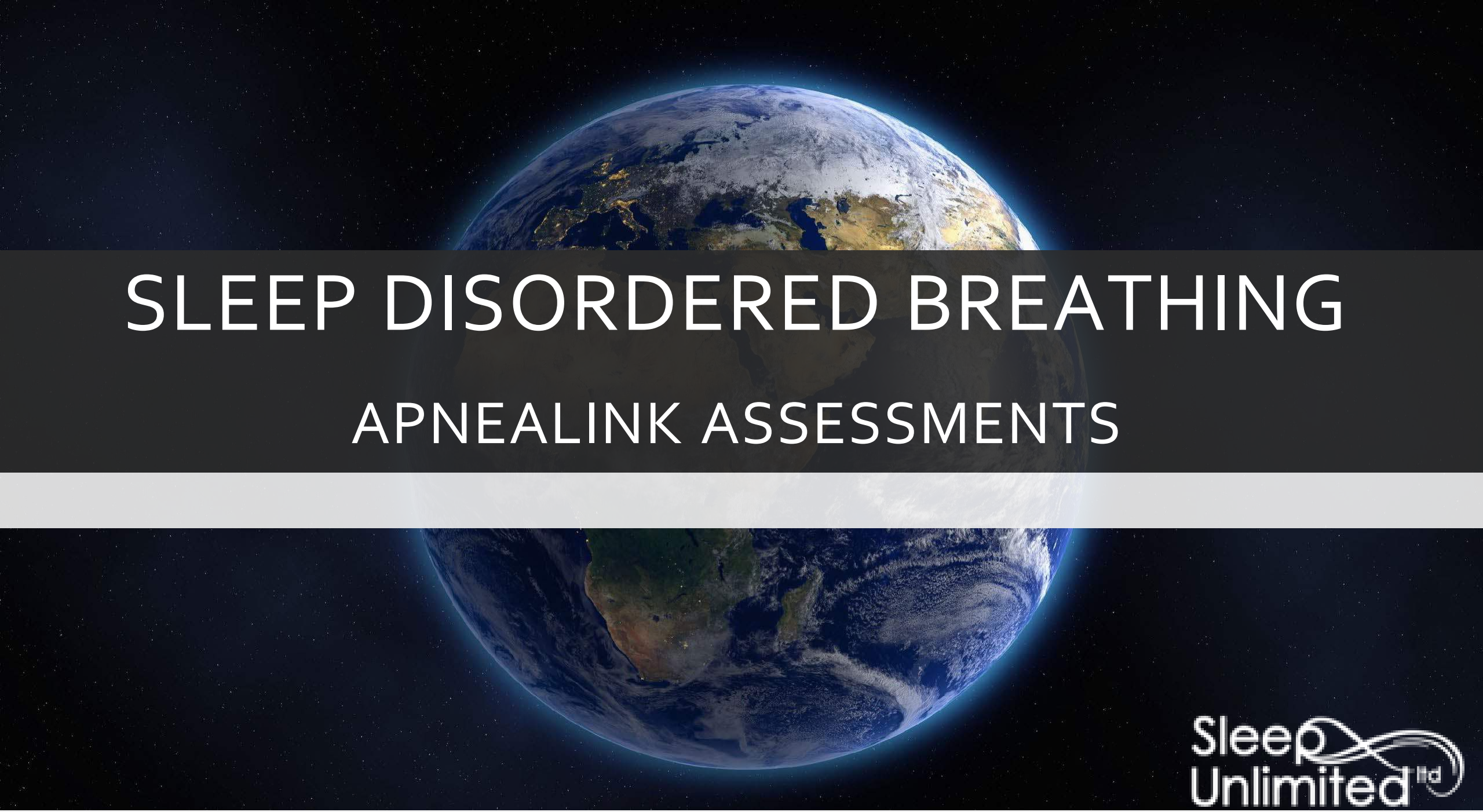


SLEEP DISORDERED BREATHING

APNEALINK ASSESSMENTS

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WHAT IS SLEEP DISORDERED BREATHING?

Sleep disordered breathing occurs when an individual's breathing is interrupted during the night, often resulting in blood oxygen saturation falling and the pulse rising. In extreme cases the individual can stop breathing for up to a minute, meaning they are not receiving enough oxygen to their brain.

This causes them to gasp for air during their sleep. This can occur up to thirty to forty times an hour and cause multiple 'microarousals.' These microarousal are usually unnoticed by the individual.

There are three types of sleep disordered breathing:

- Obstructive Sleep Apnoea
- Central Sleep Apnoea
- Mixed Apnoea

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OBSTRUCTIVE SLEEP APNOEA

Obstructive Sleep Apnoea occurs when there is a collapse of the airway during sleep which prevents the intake of oxygen, but the chest and abdominal movements are still ongoing.

The effort to breathe causes the chest and abdominal wall movements to become out of phase with each other. In other words, the chest moves inwards while the abdomen moves outwards and vice versa.

The increased effort to breathe and the fall in oxygen saturation causes an arousal and this can happen many times throughout the night.

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CENTRAL & MIXED SLEEP APNOEA

With Central Sleep Apnoea no collapse of the airway occurs here but breathing and the effort to breathe ceases. No chest and abdominal movements occur and no airflow through the nose or mouth is seen.

A Mixed Apnoea occurs when breathing effort ceases and the chest and abdomen movements return with out of phase movements prior to airflow returning.

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IMPACTS OF SLEEP APNOEA

As there may be many microarousals during the night the individual experiences a reduction in the amount of their restorative deep sleep, making them feel tired upon waking.

This can lead to reduced motivation, impaired functioning and confusion as they may be unaware of their sleep disturbance, believing that they have slept throughout the night so should feel refreshed.

The individual may also experience Excessive Daytime Sleepiness to the point where they are unable to function properly during the day, potentially leading to accidents at work and on the road.

Chronic, untreated sleep apnoea can cause significant increases in morbidity and mortality, often leading to hypertension and a number of cardiovascular and respiratory diseases.

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SYMPTOMS OF SLEEP DISORDERED BREATHING

- Excessive Daytime Sleepiness
- Loud characteristic snoring
- Obstructive periods of breathing
- Nocturia
- Morning headaches
- Dry mouth on awakening
- Other medical disorders

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RISK FACTORS OF SLEEP APNOEA

Score 1 point for each yes answer

Snore (do you?)
Tired (are you?)
Observed to stop Breathing (have you?)
Pressure (high blood pressure)

BMI (a body mass index over 30)
Age (over 50)
Neck size (over 16" or 42cm)
Gender (male)

Score > 5 = High Risk
Score 3 – 5 = Medium Risk
Score < 3 = Low Risk
For sleep disordered breathing

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APNEALINK ASSESSMENTS



Sleep Unlimited offer ApneaLink assessments for adults (18+) with suspected sleep disordered breathing.

Overnight ApneaLink assessments of individuals offer an opportunity to examine patient respiratory nasal airflow, snoring, blood oxygen saturation, pulse and respiratory effort during sleep to determine whether an individual has sleep disordered breathing or requires further clinical investigation.

The ApneaLink has the benefit of collecting data unobtrusively over one night in the client's home, this can reveal important information to further inform any recommended treatment programme.

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APNEALINK ASSESSMENTS



The device is worn around an individual's chest to record breathing patterns. There is an effort sensor on the belt to record how much their chest expands with each breath, along with the body position. A nasal canula is worn to measure the air flow and snoring. A finger probe is used to measure the individuals pulse rate and oxygen levels

From the above measurements we are able to detect:

1) Upper airway resistance syndrome (snoring)

2) Apnoeas (stopping breathing)

3) Hypopnoeas (reduced breathing effort)

4) Position of the body when these events occur (supine,prone, left side, right side)

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APNEALINK REPORTS

The ApneaLink will show:

a) Central Apnoeas, as we lose both airflow and respiratory effort, a fall in oxygen saturation and a rise in pulse rate.

b) Obstructive Apnoeas, as we lose airflow but maintain respiratory effort on one band, a fall in oxygen saturation and a rise in pulse rate.

c) Upper Airway Resistance Syndrome, snoring picked up on the airflow signal, pulse rises due to awakenings.

d) Hypopneas, as airflow is still present but the amplitude of the signal is reduced. Further testing may be required to determine the different type of hypopnoea.

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DATA ANALYSIS



The data from the ApneaLink Assessments is analysed by Jackie Bennett, our Clinical Physiologist.

Jackie is one of a few registered polysomnographic technologists (RPSGT) in the country and has served on the executive committee of the British Sleep Society. Within this role she was the Spring Meeting Coordinator and represented the society developing the MSC programme with the Department of Health along with colleagues from other specialties. She was also involved in the selecting and interviewing process for candidates applying for the MSC in respiratory and sleep medicine.

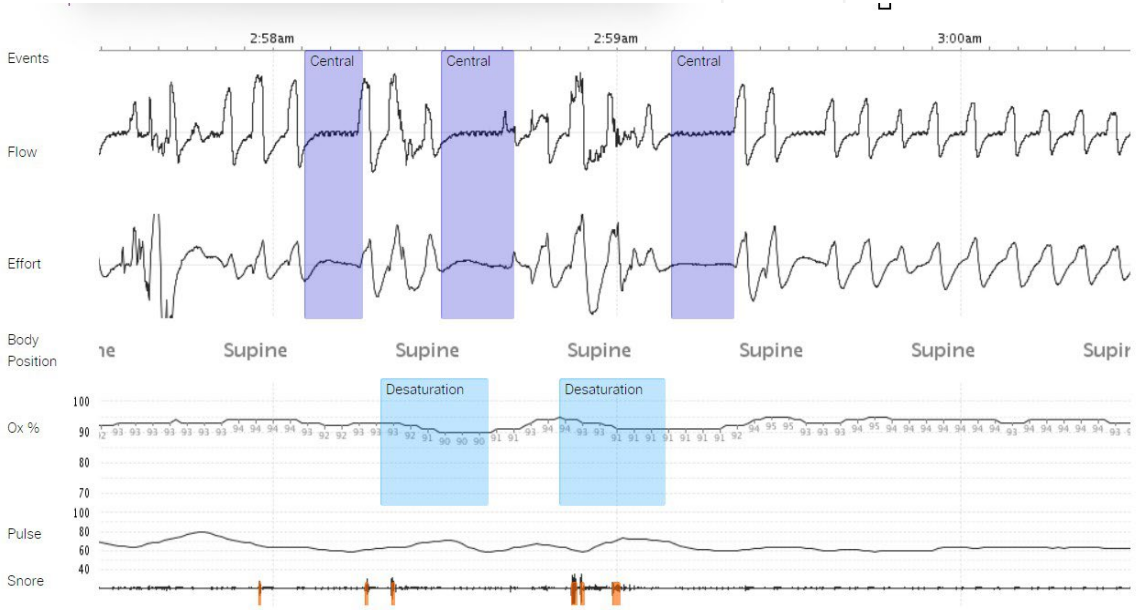
Jackie edited a column for the BSS Newsletter during which she discussed the RPSGT credential and gave advice and views on the reregistration process.

In 2012 she became a member of the RCCP (Registration Council for Clinical Physiologists) council, became the first sleep physiologist to gain the M Level registration and took on the role of scrutineer of applications to the register under the sleep modality for both the basic and M level register.

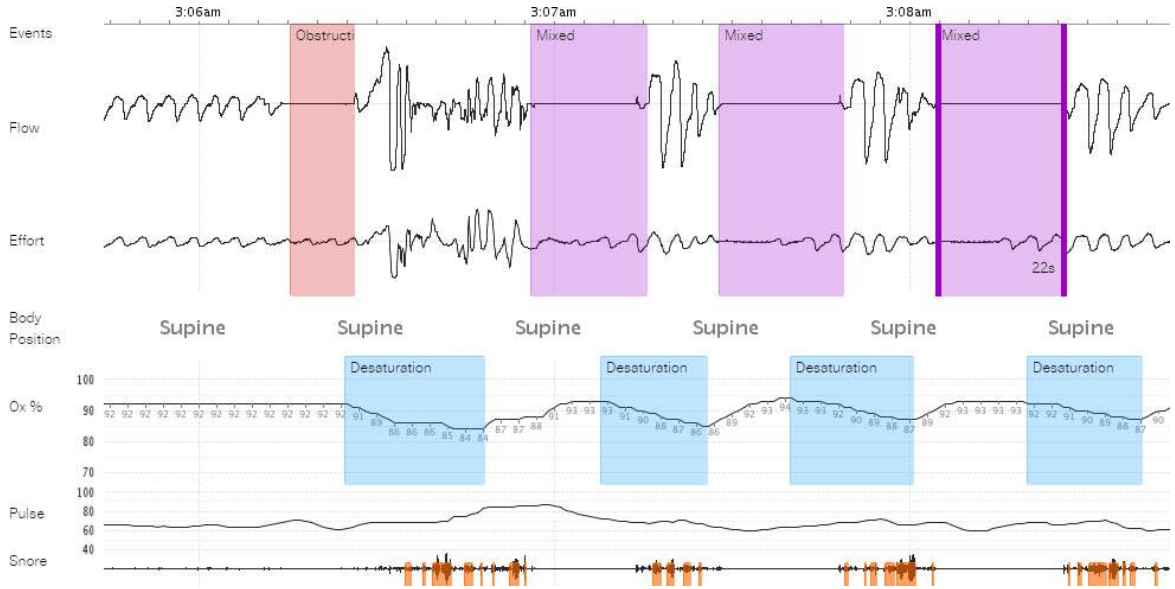
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APNEALINK DATA

Below are typical graphs that will be displayed in the ApneaLink Reports along with detailed explanations of the results.



Graph showing Central Apnoea as there is a stop in airflow and effort.



Graph showing Obstructive Apnoea as there is a stop in air flow but still effort and Mixed Apnoea as there is a stop in air flow and a reduce in effort.

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ASSESSMENT PROCESS

We require our referral form, terms and conditions and consent/assent form to be completed and returned to us before sending out any equipment.

We post the ApneaLink out via special next day delivery, either directly to the client, the case manager or treating Healthcare Professional.

The client wears the ApneaLink overnight and completes an assessment form in the morning.

The ApneaLink and the assessment form are returned to us via special next day delivery and insured for £2,000. This will require someone going to the post office to post the ApneaLink back to us (please note return postage is not included in the price of the assessment).

Once we have received the ApneaLink and the assessment form, we will analyse the data and write the ApneaLink Report within 3 weeks.

You will then be made aware that your report is ready, and to contact us to book in your consultation with one of our Sleep Doctors. Once your consultation appointment is scheduled, you will be able to access your report.

After you have received the report, you will attend the scheduled follow up consultation with one of the Sleep Doctors via telephone/virtual meeting to discuss the findings and address any questions you may have regarding the report.

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DIAGNOSIS AND NEXT STEPS

The ApneaLink assessment is a diagnostic tool and a potential positive diagnosis may mean that you may need further assessment to ascertain the type of Apnoea you have and what treatment may be necessary.

This will be discussed in your consultation, and we can refer into the NHS should this be necessary.

Please note, if the Apnealink is negative for sleep disordered breathing, further assessments, such as actigraphy, may be recommended and this will be discussed in your consultation.

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CONSULTATION

Depending on the outcome of your report, your consultation will be with either Dr David Lee or Dr Ramamurthy Sathyamurthy.



Dr David Lee BSc PhD CertEd CPsychol AFBPsS CSci is a Chartered Psychologist and Chartered Scientist who has been teaching, researching and disseminating findings from his own research into sleep and the psychobehavioural treatment of insomnia for the last fifteen years. He holds memberships with the World Association of Sleep Medicine, the British Sleep Society, The Association of Personal Injury Lawyers, The British Association of Behavioural and Cognitive Psychotherapists and The British Psychological Society, where he also holds an Associate Fellowship. David is the Clinical Director for Sleep Unlimited Ltd.



Dr Ramamurthy Sathyamurthy is a senior respiratory consultant at South Tees NHS Trust. Dr Ramamurthy Sathyamurthy takes a holistic approach to symptoms like breathlessness, coughs, chest pains, sleep problems and arrive at a faster diagnosis and management of the symptoms.

He leads the Advanced Emphysema service which caters to the whole of North East and Cumbria. He also leads the severe asthma services and treat asthma which is severe and uncontrolled.

He leads the Non-Invasive Ventilation service and treat people with breathing problems during their sleep by supporting them with CPAP mask.

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Our data have been used by a range of healthcare providers and case managers to inform levels of function and the appropriate types and timings of intervention delivery.

Many legal practitioners have used our data and reports in successful litigation claims for their clients, whereby our objective, empirical data have augmented other expert witness testimony.

Please contact us for further information or to book in an assessment:

email info@sleepunlimited.co.uk or telephone (0191) 580 0008.

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