ARTP SLEEP

S-News

Volume 2 Issue 1 Dreaming of a better night's sleep Spring 2011

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www.artp.org.uk

Inside this issue:

Welcome to ARTP SLEEP

Welcome to the second issue of S-News, one year on from the inaugural meeting of ARTP Sleep. As I sit, writing this on a train to Glasgow for the annual conference, my thoughts of the need for sleep and the consequences of sleep deprivation could not be more evident than the man sat opposite snoring into his copy of The Sun. As mum to a young baby and a 3 year old who has recently started waking in the night I am very much aware of how little sleep one can survive on, but surviving and functioning to full capacity are very different. For me, this time will pass and hopefully my children will start sleeping so that so can I. However, for many patients with untreated sleep disorders, sleep deprivation can be a long term issue and can have serious consequences. In this issue M Nolan gives us a guide to a good night's sleep, giving guidelines for diagnosis of sleep disorders as well as advice on good sleep hygiene. The effects of sleepiness on driving is also a major issue for many of our patients. You can read about the Sleepy Driver on page 7. Also in this issue, we have Mandy Cooper's story, CPAP and humidification and improving CPAP compliance audits, and a brief summary of the recent sleep survey.

Sleep People - Clinical Support Worker, Mandy Cooper's story

My day starts at 7.45am with a handover from the night CSW's on the ward who have looked after the new overnight sleep study patients. I then return to the sleep nurses office to retrieve all the messages left on the answer phone overnight, and deal with them accordingly. Throughout the day I can receive anything up to 40 telephone calls, which consist of patients requesting replacement parts for their masks (to be sent out in the post), a replacement machine if required (to be set up with the correct pressure and demonstrate the machine to the patient if a different model), medical advice (if unable to answer I would forward to a Sleep Nurse), appointment rebooking/enquiries. Most calls received also have to be logged onto the CPAP / NIV patient database (6,500 patients in total to date) and the hospitals central patient administration system (PAS).

Throughout the day nurses, doctorss or clerks will come into the office making various requests, which could consist of any of the above or 'other'!

The notes for the forthcoming nights overnight sleep studies need preparing as a priority, and the Sleep Nurses highlight any medical information that the night CSW should be aware of. I also arrange work for the overnight CSW's to do that night, for example, setting up the paperwork and preparing the machines for the following days new CPAP patient set-ups, which helps out the nurses enormously.

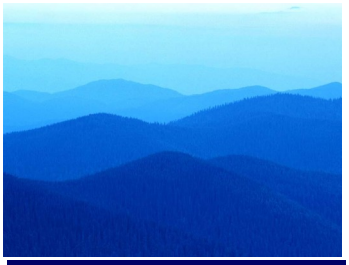
All patient notes need to be 'tracked' on the hospital system and filed in various locations throughout the day i.e. forthcoming clinics, patients returning equipment for various reasons, appointment office etc.

ARTP SLEEP NEEDS YOU!

If you would like to contribute to the next issue of SNEWs please forward your article / news to s-news@artp.org.uk

Dates for your Diary

- BSS Spring 2001 Meeting Nottingham Uni 21-22 June 2011
- Sleep 2011 Minenea-polis 11-15 June 2011
- WASM & CSS, Quebec, 10-15 Sept 2011



"Focusing on the patient and how their needs are met will reflect the success or failure of diagnosis and treatment"

Depending on which day it is, I can be based in clinic to book new patients for a CPAP set up date and I also assist in setting-up new patients onto CPAP treatment.

The following is on an 'as & when needed basis', but could be each day or three or four times a week:

- Arranging couriers to deliver/collect equipment to & from patients, which is very time consuming.
- Checking levels and ordering of all the stock for our department, then unpacking it all when it arrives.

The day never runs as smoothly or as organised as it is written down due to the nature and volume of patients we care for, and I could fill four or five A4 sheets if I included all the 'one off' things I have to do throughout a day, every day.

And all this has to be finished by 5pm! Having said that, I do enjoy my work….most of the time anyway.

The Common Sense Approach to a Good Sleep - M Nolan

Sleep Medicine is one of the fastest growing fields today. Many National Health Service (NHS) Trusts initiating a Sleep Service have ongoing issues to consider including: staffing requirements, equipment choice / set up, and general space for the facilities. Many of these issues are complex and must take into account the multidisciplinary team's wishes and background training. The lab may be used primarily for diagnostics or it may also be commandeered for valuable research projects. Experienced staff with adequate training in the area of sleep medicine will contribute to the best service available for the patient.

Good sleep hygiene is key to good sleep

Focusing on the patient and how their needs are met will reflect the success or failure of diagnosis and treatment. Some sleep units will offer an over night pulse oximetry, recording changes in oxygen saturation level (SpO_2) and heart rate (HR). This system allows the results to be obtained at home, and analysed quite quickly back in the lab. It is, however, limited in aiding a diagnosis of complex sleep disorders but it is recommended for detecting "barn door" sleep apnoea. Multi-channel Systems (MCS) offer limited polysomnography, recording changes in SpO_2 and HR, and also respiratory rate (RR), nasal/oral flow, chest and abdominal movements, patient position and often simple sleep staging. Again the advantage of portability allows the study to be done at home and results analysed in the lab.

Overnight sleep studies may be carried out with both respiratory and cardiac events being monitored. Full polysomnography (PSG) which monitors not only respiratory and cardiac events but also EEG (Electroencephalogram the recording of electrical potentials from the brain), EOG (Electro-occulogaphy the recording of eye movements) and EMG (Electromyogram the recordings of muscle activity and tone) provides the most information available for the physician interested in global sleep disorders to interpret. There is currently debate among professionals as to which method of sleep study should be used as the Gold Standard (AASM refs). However, more and more it is being realised that all that glitters is not "gold" especially when it is considered that PSG was never really designed to detect the common problem of sleep apnoea. The advantage of requesting a full PSG is that the data can be used in the differential diagnosis of narcolepsy, insomnia and parasomnias. The method is relatively labour intensive and expensive which will limit most NHS Trusts from adopting this service routinely. Whatever study method and equipment is used, the ultimate goal is to diagnose and treat the patient's sleep disturbances whist improving their quality of life by a useful intervention. PSG also has the advantage of being able to detect early-onset REM (a feature of many sleep disorders) and can be used for MSLT to aid a diagnosis of narcolepsy, etc.

SLEEP QUOTES

"To achieve the impossible dream try going to sleep."

"Some people talk in their sleep. Lecturers talk whilst others sleep"

"Laugh and the world laughs with you. Snore and you sleep alone"

Sleep Physiologists usually see the patients after a long history of sleep disturbance, complaints to their General Practitioner, and their initial appointment with the Sleep Consultant. Some patient's appear to have suffered for years with their sleep problems. For others it is the family members that have suffered due to their snoring or late night antics such as sleep walking or night terrors. There are even other individuals that are unaware that they may have a problem and have been referred by an attentive physician.

Polysomnography patients are set up and monitored closely through out the night in PSG units. Sleep Physiologists not only monitor many physiological measurements during the night but the patient's behaviour is also recorded on digital video. Patient's claiming they are suffering from excessive daytime somnolence (EDS) are sometimes seen to be sleep deprived by virtue of their lifestyle of going to sleep late and getting up early. It is not unusual to find people taking their laptops and their work and into the bedroom with them.

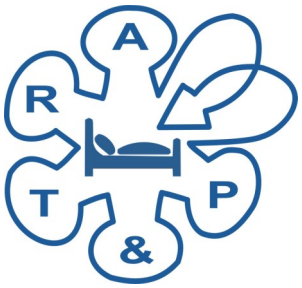
It appears that as we age as adults we forget what a good night sleep entails (Spriggs, 2010). The student life with late night studies, and for some late night socializing, leads straight into the busy adult life of long hours of work and family responsibilities. Other modern day impacts such as shift work and air travel over extended time zones can have adverse effects on sleep health. Shift workers may experience difficulty getting off to sleep and excessive sleepiness when they should be awake. Thus leading to poor performance, impaired judgement and maybe even falling asleep on the job. Employers and employees need to appreciate a work schedule that mirrors the natural circadian rhythm of the body. This in turn will assist workers to cope better with the symptoms of sleepiness and fatigue related to shift work. (Kryger, Roth & Dement 1989, and Spriggs, 2010).

Most would agree that for the normal adult person 6 to 8 hours of sleep is considered not only optimal but required (HELPGUIDE.org and Spriggs, 2010). Practicing good sleep habits ensures a more restful, effective sleep which allows one to wake feeling refreshed and alert. Poor sleep hygiene is often directly linked to excessive daytime sleepiness (EDS). All of us can benefit from a basic common sense approach to sleep.

Physicians may utilize a sleep questionnaire such as the Epworth Sleepiness Scale (ESS), to determine a patient's subjective level of daytime sleepiness. It is short and simple to fill out and enables a physician to screen for the likelihood of a sleep disorder. The Berlin Questionnaire is a useful alternative that aids in identifying patients with Obstructive Sleep Apnoea. (Spriggs, 2010). A questionnaire may be used along with screening tools such as Blood Pressure, Arterial Blood Gases, neck circumference and aid the physician in establishing the need for a sleep study. As with any subjective information a questionnaire is only a tool in that may aid in a final diagnosis.

As healthcare professionals it is often our role to counsel patients in the importance of good sleep hygiene. Keeping a sleep diary can aid the individual in recognizing behaviours that interfere with a good night's sleep. It also allows the identification of the patient's misconception of sleep. A sleep diary aids the consultant in tackling inconsistencies or poor sleep habits. Once a patient has time to reflect on their recorded behaviours the consultant can then point out where changes may be made. Highlighting items such as excessive caffeine consumption, lack of a regular schedule, and bedtime rituals can often have only a positive step towards improving the quantity and quality of sleep.

Many resources are available that offer tips on sleep hygiene. Many hospitals offer their own specialized sites and sleep- promoting techniques and tips (Table.1).



For the normal adult 6 to 8 hours of sleep is considered not only optimal but required.

SLEEP FACTS:

A new baby typically results in 40-750 hours lost sleep for parents in the first year.

Elephants sleep standing up during non-REM sleep, but lie down for REM sleep.

Seventeen hours of sustained wakefulness leads to a decrease in performance equivalent to a blood alcohol level of 0.05%.

A night of drinking will help you get to sleep but it will be a light sleep and you won't dream much.

Sleep Hygiene Basics
1. Keep a regular schedule. Go to bed and get up at the same time every day. This includes weekends and holidays
2. Begin rituals that help you relax each night before bed. Taking a warm bath, light reading or even listening to soft music will tell your body it is time to wind down and sleep.
3. Don't go to bed unless you are sleepy. If you are not sleepy then move to a different room. The bedroom should be associated only with sleep and sex.
4. Your bed is a place to rest, not a place to worry. Try not to get stressed before sleep.
5. Avoid taking naps when possible.
6. Don't read, write, eat, watch TV, talk on the phone, or play cards in bed. Reserve your bed for sleeping.
7. Avoid excess caffeine particularly in the evening (tea, coffee, cola etc…) Caffeine is a stimulant which disrupts sleep.
8. Avoid excess alcohol and smoking before bed. Alcohol reduces your sleep quality. Nicotine is a stimulant which disrupts sleep.
9. You should exercise on a regular basis, but do it earlier in the day and rest at least **6** hours before bed.
10. Avoid sleeping pills, or use them cautiously if medically approved.
11. Make your bedroom quiet, dark, and a little bit cool. A cooler body temperature promotes sleep.
12. If you are not asleep after 20 minutes, then get out of the bed. Find something else to do that will make you feel relaxed, preferably in another room. Your bedroom should be where you go to sleep. This practice retrains your brain to realise that your bedroom is for sleeping and not for getting anxious by the fact you can not fall asleep. Once you feel sleepy again, go back to bed. This known as Control Stimulus Therapy.
13. Get a full night's sleep on a regular basis (at least 6-8 hours). Get enough sleep so that you feel well-rested nearly every day. Chronic sleep deprivation is the commonest cause of feeling tired during the day which may lead to extra daytime naps.

Table.1. 13 Tips of how to maintain good healthy sleep hygiene (adapted from Heart of England. NHS).

These tips appear to be just common sense, but patients often need a gentle reminder to point them in the right direction to getting a good night's sleep. A sleep diary and a review of sleep hygiene tips are valuable tools when looking at sleep disturbances (Dement, 1999). If a patient tries the above tips and is still struggling with disturbing symptoms as outlined below then it would be advisable to seek professional help (HELPGUIDE.org)

For more information on Sleep Hygiene and Sleep Disturbances please visit the Sleep and Ventilation Website at the Heart of England NHS Foundation Trust: http//www.heartlandssleep.co.uk

Persistent EDS or fatigue

Loud snoring with witnessed apnoeas or chocking sensation

Difficulties falling asleep or maintaining sleep

Complaining of morning headaches

Crawling sensation in legs or arms when falling asleep

Falling asleep at inappropriate times

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Pillow Talk manufacturers news, new equipment and a bit of gossip!

CareFusion is pleased to announce the release of the Nonin 3150® Oximeter together with a new NOXturnal™ Software. This NOXturnal™ software release enables the T3™ to communicate with the Nonin 3150® Bluetooth oximeter. For our existing customers that wish to upgrade, it replaces the Nonin 4100® oximeter, although this still remains compatible. The new Nonin 3150® oximeter will greatly improve the user experience with:

- Reduced size by 50%
- Improved comfort with a fabric wrist strap
- Large LCD display
- Enhanced pairing process

All of which add value to the NOX-T3™ system.

Resmed say goodbye to Ben Brosnan

Useful Websites

The ARTP Sleep section now has its own discussion forum to discuss any sleep-related issues. You will find it on the Sleep Members Area under the ARTP Sleep tab on the website.

It is a web-based system but you can elect to receive email copies of messages that are posted on the website and can then reply to those email messages which will get replicated onto the web pages (follow the instructions on screen to register for email access).

Full ARTP members can also access this forum but will need to be registered as an ARTP Sleep member via the ARTP Membership Database (contact admin@artp.org.uk).

Direct link - http://www.artp.org.uk/en/sleep/sleep-members-pages/sleep-forum.cfm

Sleep that knits up the ravelled sleave of care The death of each day's life, sore labor's bath Balm of hurt minds, great nature's second course, Chief nourisher in life's feast.
~William Shakespeare, Macbeth

There is more refreshment and stimulation in a nap, even the briefest, than in all the alcohol ever distilled—Edward Lucas

ARTP SLEEP

ARTP Sleep is proud to announce the launch of a brand new Sleep Bursary which is available to ARTP Sleep members only.

There are two bursaries that can be awarded, both for a maximum grant amount of up to **£1,000**. The bursaries are subject to the following terms:

- The applicant agrees to write an article of no more than 500 words for S-News about what they saw/attended and learned from the conference they attended.
- A provisional title of the proposed article is provided
- The application is submitted by the deadline provided on the form

The application is approved by the ARTP Sleep Committee

- Accommodation and travel is booked as early as possible to take advantage of competitive rates

A completed expense claim form is submitted following the event along with any corresponding receipts.

The Sleepy Driver - Vicky Cooper

Most people are aware of the "Think Tiredness Kills" campaign and have seen the messages on the motorway signs, but just how much impact does tiredness have on driving and what responsibilities do we have to our patients with sleep disorders? According to the government statistics driver sleepiness accounts for 20% of accidents on major roads and is responsible for approximately 300 deaths per year. Sleepiness reduces reaction time, vigilance, alertness and concentration. When drivers notice that they are feeling sleepy, they must make a conscious decision whether to continue driving or to stop for a rest. Some underestimate the risk of actually falling asleep while driving. Others simply choose to ignore the risk to themselves and to others, in the same way that drink-drivers do.

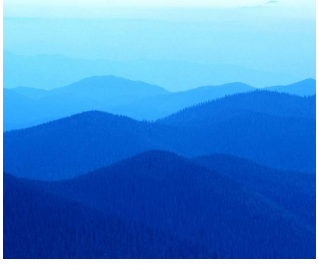
Driver sleepiness accounts for 20% of accidents and is responsible for approximately 300 deaths a year

For many people driving is an essential way of life and withholding a driver's licence may have serious social and economical implications. On the other hand, there is a moral obligation by physicians to try to discourage from driving or even report to the licensing authorities those patients who are at high risk of causing an accident. Therefore being able to distinguish between those patients who should and should not be driving is an important issue.

Research into the effects of hypersomnolence on driving ability has found that long distance drivers perform significantly worse on a driving simulator than control subjects with normal sleep-wake patterns and absence of long distance driving[1]. However, age and drive duration were also major factors in determining driving performance. Studies have tended to use impairment through alcohol as the standard from which to compare deviations from normal and have also studied subjects after acute sleep deprivation which may be different to chronic sleep fragmentation. However, a number of studies have suggested that patients with OSA are at increased risk of road traffic accidents (RTA) [2-6]. It is difficult to establish the exact incidence of RTAs in patients with OSA. They are reluctant to report accidents[7] and under report symptoms[8]. Even gathering data from police, licensing authorities and insurers may underestimate the problem since not all accidents are reported and in particular, near misses or episodes of falling asleep at the wheel which have not resulted in an accident will not be reported. A study examining driving and accident history in relation to performance on a driving simulator found that when age, gender and alcohol consumption had been controlled for they could identify 100% of patients who had had an accident, but only 10% of those who had not[9].

"Sleep is a symptom of caffeine deprivation"

Determining the risk of an RTA in an individual is therefore difficult. A number of factors must be considered. For example the subject who travels only a few miles to work and back per day may be thought to be at less risk than someone who travels many miles to work or is a professional driver, for example a HGV driver, because their time behind the wheel is less. However, the driving experience gained from making frequent longer journeys or being a professional driver may make that subject a better driver and therefore reduce the risk of an RTA. Other factors to consider are the road conditions and type of road. Driving ability may be particularly impaired in OSA patients when the view of the road ahead is limited[10].



Assessing sleepiness and whether a patient is fit to drive or not, is therefore difficult. To complicate matters, objective and subjective measures of sleepiness are not well correlated, particularly with measures of OSA severity. Studies have found that patients with OSA had an increased likelihood of being involved in an

accident but that this did not relate to their perceived sleepiness[11-12]. Use of basic driving simulators have almost unanimously shown that patients with OSA perform worse than control subjects[13-14] and that performance is normalised after successful treatment with nasal continuous positive airway pressure (nCPAP)[15-16]. There is also a reduction in the incidence of road traffic accidents following successful treatment with nCPAP [17-18]. These effects of CPAP may occur in as little as 7 days of treatment and may continue up to 7days after withdrawal [19].

The law states that it is not an offence to drive whilst tired, although a driver is more likely to commit a driving offence while tired. This could result in a serious conviction, such as causing death by dangerous driving. Patients with subjective sleepiness who admit to problems driving do not pose a problem to the clinician or licensing authority. However, patients who admit to significant sleepiness but deny a problem driving or deny any daytime sleepiness, are a much bigger problem. On the one hand they may be prevented from driving inappropriately, at considerable inconvenience to themselves, and on the other continue to drive, with potentially disastrous consequences for themselves and others. Unfortunately there is no way to detect which of these patients should be told not to drive and which should be allowed to continue. Therefore possibly the best practice is to inform patients of the risks and give the responsibility back to them. If patients are diagnosed with obstructive sleep apnoea syndrome, that is they have symptoms of excessive daytime sleepiness as well as a positive sleep study, then by law they must inform the DVLA.

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CPAP and Humidification - Debbie Smith

Having completed a recent audit looking at patient compliance in 163 patients using nasal CPAP from the Oxford Sleep unit, one of the conclusions is that patients are not using 'heated humidification' properly.

40% of patients from this unit are using humidifiers and 30% of the patient responses identified problems with getting the temperature set correctly and still experiencing adverse symptoms. 9% of patients admitted to not fully understanding how to correctly use their humidifiers which gives good reason to look at this identified weak area regarding patient education both verbal & written.

Therefore, in response to this outcome, the following patient guide has been written:

What is a heated humidifier?

A heated humidifier is a chamber of water that allows moisture to be added to the air from the CPAP machine and delivered to the patient via the CPAP hose and mask. Some companies have integrated humidifier units, built into the CPAP machine, and others have a 'bolt-on' version so the humidifier can be added & removed as required.

Who needs a heated humidifier?

A heated humidifier can be useful for those patients suffering from adverse symptoms associated with CPAP usage i.e. 'hay fever like' symptoms, runny nose (rinitis), blocked nose / nasal congestion, asthmatic / hypersensitive allergic patients, and a particularly dry throat in the morning. These tend to be caused by excessive drying of the lining of the nose and throat overnight.

Water type:

The humidifier consists of a water chamber which ideally should be filled with distilled water (such as you put in steam irons or car batteries). Otherwise you can use filtered water or cooled boiled tap water – basically the purer the water the less lime scale accumulation, reducing the need for de-scaling.

Caring for the humidifier:

All humidifiers come with individual manufacturer's instructions; however, care is very straight forward.

Basically the unit and chamber needs to be kept clean and the water not allowed to become stale. A weekly clean of the outside of the unit with a damp cloth & washing-up liquid should be sufficient. In the morning, the water in the chamber should be discarded and the chamber allowed to 'air dry'; the water should be replenished when used again at night.

DO NOT SIMPLY TOP UP WATER LEVELS.

De-scaling:

If the chamber becomes 'scaled up' with lime scale, the chamber should be soaked in 1 part white vinegar & 9 parts water. If this is done regularly, minimal lime scale will accumulate. However, if lime scale does build up, then a proprietary lime scale remover (such as Kilrock or Viakal) will be required , but please ensure the chamber is thoroughly rinsed out with tap water prior to use.

Potential problems:

Rain-out – This is excessive moisture accumulated in the mask &/or long hose causing 'gurgling' noises and discomfort from wetness on the face which can trickle down in to the mouth, causing disturbance from sleep. The reason for this is 'temperature' related.

Too wet or *too dry* – Humidification is essentially making 'condensation' by heating the water, and therefore generally

in the colder winter months, when the ambient room temperature is lower and humidity levels higher, the patient will not require as much heat from the humidifier as less 'condensation' is required. And in the Summer months, more heat is required to create adequate condensation to cope with the lower humidity levels.

If there is 'excessive' moisture in the mask or tubing, the temperature of the humidifier needs to be reduced. Conversely, if the patient is still 'dry' and there is virtually no condensation in the tubing, the temperature needs to be increased.

Inadvertent spillage of water into the CPAP machine – This is a very common problem which generates considerable and unnecessary costs to the NHS and hassle to patients.

Please remove the water chamber & discard the water BEFORE moving the machine around.

Improving patient compliance with CPAP treatment - Debbie Smith MSc, RGN

I undertook a patient audit looking at '**improving compliance with CPAP'** for a recent cohort of 163 patients who had been using CPAP treatment for at least 6 months.

Background:

Despite the high efficacy of CPAP in reversing repetitive upper airway collapse and associated daytime sleepiness in OSA, treatment is limited by variable *adherence* to therapy. When good *adherence* is defined as > 4 hours of nightly use, previous studies have shown that 46 to 83% of patients with OSA are non-adherent to CPAP, but no single factor has been consistently identified as being predictive of adherence.

Aims:

The aims of the audit were to identify which patients going onto CPAP will do well, or not so well, and how this would allow us to identify patients needing more help. In addition, I wanted to know what, if any, were the predictive factors that lead patients to stop CPAP, and how this data can be used to improve compliance further?

Method:

A postal questionnaire was designed with secondary data being obtained from the unit's patient database and notes.

Results / Findings:

The main results showed that the majority of patients in this sample from Oxford are very satisfied with the service they receive, which is reflected in the excellent adherence data, with patients averaging 6.3 hours per night, for 6.6 nights per week.

Despite this, patient information, both written and verbal, has been identified as a weak area particularly regarding **masks and humidification**. Mask issues were identified as the most commented on and problematic area with nearly 50% of patients complaining of noise from mask leaks & discomfort from sores, but unfortunately to date, there is still no 'perfect' mask that fits every patient's needs.

9% of patients admitted to not fully understanding why or how to use their heated humidifier and 34% identified problems controlling the temperature, therefore patient information needs to be further looked into.

Of all the demographic variables analysed, only **the severity of sleep apnoea** was found to have statistical significance and therefore considered to be a predictor of CPAP adherence. Perhaps it is not surprising that worse sleep apnoea ultimately determines how much perceived benefit there is from the CPAP treatment. However, although the only significant predictor of CPAP compliance was found to be the patient's sleep apnoea severity (as also found in previous studies), **CPAP adherence is a multi dimensional phenomenon**, and this single predictor should not be used 'alone' to predict who will comply best with CPAP treatment.

Conclusion:

Further studies are still required to enable a greater understanding of which variables best predict CPAP compliance; however in the meantime further investment into communicating with the patient regarding equipment usage and care is important.

Sleep Survey 2010 Summary - Vicky Cooper

This is a brief summary of the results of the recent sleep survey. A more detailed report will be in the next issue of S-News.

87 centres responded to the survey. The distribution of AfC grade of the lead person is shown in Figure 1. The professions of the lead person are shown in Figure 2.

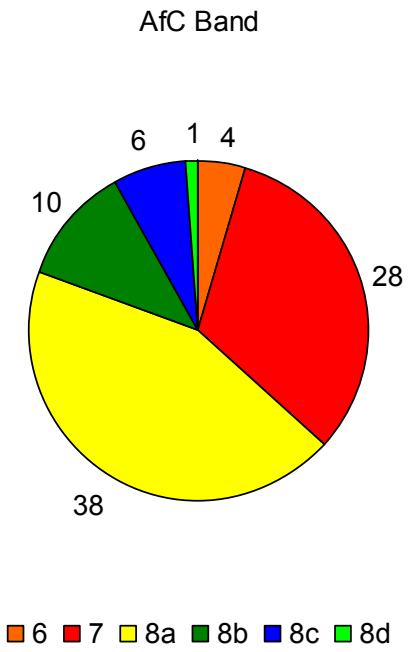


Figure 1. Agenda for Change banding of the lead person for the 87 centres responding to the sleep survey.

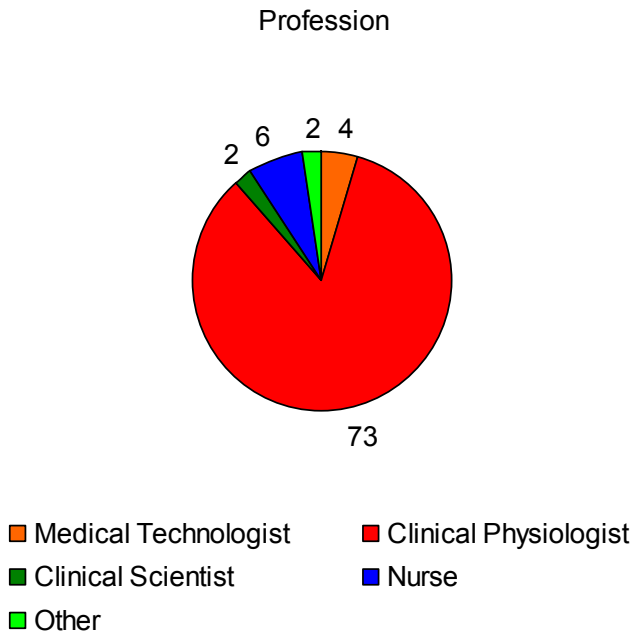
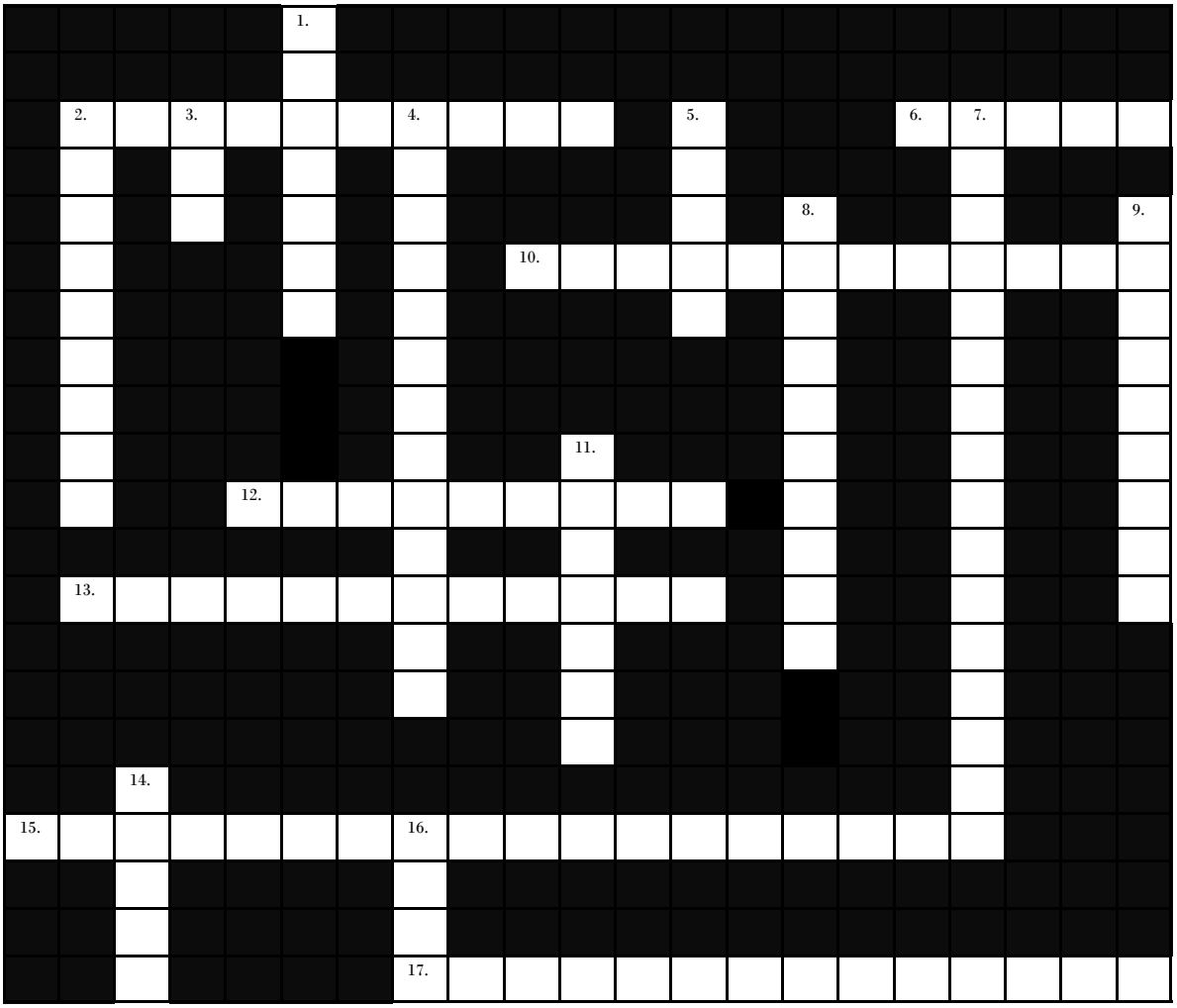


Figure 2. Profession of the lead person for the 87 sleep centres responding to the sleep survey.

If you have not yet submitted data to the survey please do so by 1st June 2011. **Please follow this link.**

ARTP SLEEP Crossword: No. 2

This issue's slightly cryptic crossword focuses on treatment.



Clues

Across

2. What we'd like to get from our patients with CPAP (9)
6. BMI greater than 30 kg/m^2 (5)
7. The ultimate weight loss plan (9,7)
10. A nice clean bed? (5, 7)
12. Drug recently recommended to be confined to use in narcolepsy (9)
13. A place to lay your nose? (5,7)
15. see 2. Down
17. Full sleep study recording (14)

Down

1. On two floors? (2,5)
2. & 15. Across Rethinking the way to act (9, 11,7)
3. Initially, it relocates the jaw (1,1,1)
4. Let the machine work out the pressure (4-9)
5. The best treatment for excessive sleepiness (5)
8. Science of physical function (10)
9. Hormone to regulate sleep/ wake cycle (9)
11. Daytime nap – (ARTP SLEEP journal?) (6)
14. Period of sleep type (5)
16. Surgical option that may not go down so well (1,1,1,1)

Answers in the next edition and on the ARTP SLEEP website: www.artp.org.uk

ARTP Annual Conference 2011—Glasgow

Congratulations to Phillips Respironics for receiving this years Sleep Manufacturer of the year award.

This year's sleep track saw excellent presentations on driver sleepiness and the law by Prof Adrian Williams, sleep walking, REM behaviour disorders and the law by Dr Dev Banerjee, Insomnia by Prof Colin Espie and Parasomnias by Dr Paul Reading.

Crossword 1 Answers

Across

3. Insomnia 5. Apnoea 6. Two 12. Obesity 14. Modafinil 16. Epoch

18. Polysomnography 20 & 21. Slow Wave 22. Nasion 24. Epworth 27. Ease

29. AHI 30. Sleep 32. Restless Legs 33. MSLT 34. ARTP

Down

1. Narcolepsy 2. REM 4. NPT 7. Oximetry 8. Desaturation 9. Ventilation

10. Inion 11. Nasal pillows 13. & 25. Night Terror 15. Hypopnoea

17. Humidifier 19. Alpha 23. CPAP 24. EEG 26. Dream

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