

sleepmatters

ASEAN SLEEP NEWSLETTER NEWS / OPINIONS / INSIGHTS

Pg 1 { ASRCC: Educational courses, services & interviews

Pg 3 { Interview: OSA and hypertension

Pg 4 { Interview: Sleep disorders, an East Malaysian perspective

Pg 5 { Seven essential updates: PAP masks

Pg 7 { Sleep myths & tips for a healthy sleep

Pg 8 { Insights: Sleep watching – Interview with a Sleep Technologist

ASEAN Sleep Research and Competence Centre (ASRCC)

Inaugural ASRCC Sleep Technology course graduates gain valuable insights and clinical skills

In collaboration with Philips Malaysia, a subsidiary of Royal Philips, the newly-established ASEAN Sleep Research and Competence Centre (ASRCC) in Malaysia has been operating since May 2014, providing training and education in specialised sleep disorder treatment and Sleep Technology/Sleep Medicine professional training for the South-East Asian region.

ASRCC's Training Academy offers three intensive, certified courses in conjunction with the Faculty of Medicine of the University of Malaya. These courses have been designed for clinicians, general practitioners, technicians, nurses, medical assistants and fresh graduates.

Sleepmatters spoke to several inaugural graduates who attended the first Sleep Technology course in August, 2014.



Dr Rajveer Singh Saren
Consultant ENT &
Head and Neck Surgeon,
Hospital Tuanku Jaafar
Seremban, Malaysia

The ASRCC sleep laboratory and Sleep Technology course are the best in the country, and ASRCC has the potential to be a major sleep medicine hub in the region. I believe ASRCC is the future of sleep medicine in Malaysia.

The syllabus was very intensive, and the presenters were very knowledgeable, experienced, and extremely patient

in teaching and delivering the detailed syllabus with a close, interactive approach. The hands-on training at the centre was very good too. The course provides a fundamental basis for understanding sleep-disordered breathing, and is a must-attend course to prepare oneself to be a good healthcare provider in this field, as there are many medico-legal issues creeping up in time. As sleep medicine is a multidisciplinary field, I believe this course would be beneficial to professionals (doctors and allied health) from various disciplines such as Neurology, Respiratory, Psychiatry, Otorhinolaryngology, and Primary Care who are interested in sleep medicine, as there needs to be harmonious interactions between all disciplines.

{ I believe ASRCC is the future
of sleep medicine in Malaysia.
– Dr Rajveer Singh Saren }



Dr Loo Chun Pin
Senior Specialist,
Department of ORL,
Hospital Sungai Buloh
Selangor, Malaysia

The ASRCC course covered substantial sleep medicine topics and the course could probably be extended to about eight days. The course started from the basics and covered the material in depth; it was good to be reminded again of basic principles, because, to be honest, a lot of time even specialist consultants cannot remember the basics but are too shy to speak out.

My advice to other candidates is to have a genuine interest and a basic knowledge of sleep medicine before attending this course.



**Mr Mohd Zainuddin
Bin Mat Nawi**
Assistant Medical Officer,
Paediatric Respiratory
Unit, Hospital Serdang
Selangor, Malaysia

The ASRCC course was very comprehensive and I strongly recommend it to anyone who is interested in becoming directly involved in this field. The knowledge shared by the speaker was easy to understand, and covered all aspects of sleep technology.

I feel the course could still be improved in several ways. First, the duration of the course could be extended to enable a better depth of understanding, with more time allocated for practical work, especially scoring in the sleep lab. Second, it would be good to include more material on paediatric sleep.



Ms Lim Ah Cheng
Registered Nurse,
Paediatric Respiratory
Unit, Hospital Serdang
Selangor, Malaysia

This course was the best of all short courses I have attended before. It covered all aspects of sleep technology and sleep medicine, and the speakers were excellent, presenting very comprehensive and easy to understand lectures.

I would suggest extending the duration of the course to seven days to allow more time for practical work, and to enable more in-depth learning of normal sleep physiology. The staff involved in sleep medicine need to understand normal sleep well before managing abnormal sleep. Also, I would like to see the addition of a module on paediatric sleep medicine.

My advice to others interested in this course would be to first gain a strong knowledge and understanding of sleep medicine by attending short courses, reading books on relevant topics, and gaining some practical exposure in the field.

The duration of the course could be extended to enable a better depth of understanding and more materials on paediatric sleep.

– Mr Mohd Zainuddin Bin Mat Nawi



Dr Visasiri Tantrakul
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OSA and hypertension

What is the association between Obstructive Sleep Apnea OSA and hypertension?

Epidemiologic studies have found that having (OSA) increases the risk of developing hypertension, and that this risk increases even more if OSA is severe. Blood pressure will increase when OSA or breathing arrest occurs at night, because of the fall in oxygen level during an apneic episode. Over time this effect will carry over into the daytime.

Epidemiologic studies have found that having (OSA) increases the risk of developing hypertension.

Which hypertensive patients should be screened for OSA?

Hypertensive patients with symptoms of OSA such as snoring, witnessed apnea, or excessive daytime sleepiness should be screened for OSA. Furthermore, studies have shown that obesity is a good predictor of OSA in this group of patients. Patients with difficult-to control hypertension (BP $\geq 140/90$ mmHg while taking three or more anti-hypertensive medications) should also be screened because of the extraordinarily high prevalence of OSA (approximately 80%) in this group.

What is the effect of Continuous Positive Airway Pressure (CPAP) treatment for OSA on blood pressure in hypertensive OSA patients?

Evidence has shown that treating sleep apnea using CPAP lowers blood pressure, not only during the night, but also during the day. Many studies have demonstrated small but significant reductions both in systolic and diastolic blood pressure (approximately 2 mmHg).

What is the effect of CPAP administration on blood pressure in OSA patients with resistant hypertension?

Patients with uncontrolled or resistant hypertension are likely to gain the greatest benefit from CPAP treatment, with substantial reduction in both systolic and diastolic BP.

What is the relationship between the number of hours of CPAP usage and control of blood pressure in hypertensive OSA patients?

“CPAP adherence” is usually defined in studies as CPAP use for an average of ≥ 4 hours per night on at least 70% of the total number of nights; most studies showing this level of adherence have demonstrated a significant reduction in blood pressure (BP); thus, CPAP adherence is a predictor of BP reduction. However, a subgroup analysis in one study showed marked reduction in systolic BP (5.3 mmHg) only with CPAP duration of >5.3 h/day. Thus, there appears to be a dose-response relationship between hours of CPAP use and BP reduction; the longer the CPAP duration, the greater the benefit.

What is your advice for hypertensive OSA patients?

OSA has a cause-effect relationship with hypertension. Hypertensive patients should be screened for OSA especially in those with clinical symptoms of OSA, as described above. For greater hypertension control and prevention of the future cardiovascular complications, patients with OSA should use CPAP on regular basis, especially those with moderate-to-severe OSA and daytime sleepiness. Studies have also shown that, in obese patients, weight reduction in combination with CPAP treatment significantly improves BP in addition to CPAP treatment alone.

OSA has a cause-effect relationship with hypertension. Hypertensive patients should be screened for OSA, especially in those with clinical symptoms of OSA.

For more information on clinical services and education & training programmes at ASRCC, please visit <http://www.aseansleep.org>, or contact:

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Sleep disorders: An East Malaysian Perspective

What is the burden of sleep disorders – OSA in particular – in East Malaysia?

OSA is a common condition based on clinical experience, though there are no epidemiological studies looking at the prevalence of sleep disorders including OSA in East Malaysia. However, there is no reason to believe that the prevalence is lower than other parts of Malaysia, or South East Asia. In addition, due to the unique geography in East Malaysia, where accessibility of health care can be an issue, the majority of patients with OSA are not diagnosed and patients often present late and with complications. This observation is confirmed by a study that we conducted looking into the severity of OSA among the cohort of patients who enrolled in our lab for a sleep study – 75% of those patients were found to have severe OSA (Apnea Hypopnea Index (AHI) ≥ 30).

What are the key challenges in diagnosing and treating OSA in East Malaysia?

OSA is often underdiagnosed or misdiagnosed in East Malaysia, which could be due to:

- The low awareness of this condition among the public leading to patients not seeking treatment. Patients or relatives often regard snoring as a normal component of good sleep. Hence, they often do not seek treatment until complications occur.
- The low awareness of the condition among healthcare personnel as many do not consider OSA as a possible diagnosis. One possible explanation is that the exposure of our healthcare personnel to sleep medicine practice is low as the subspecialty of sleep medicine is not well established in Malaysia, and even less so in East Malaysia. In addition, there are not many CME programmes on sleep disorders/OSA available to healthcare personnel.
- Only major cities have access to sleep labs. Patients from more rural areas would need to travel hundreds of kilometres by land transport or by air to enrol in a sleep study. This further increases the cost of the test, which already is an issue among the lower income group.

The major challenges for treatment of OSA are the cost of CPAP, and acceptance of CPAP therapy compared to the earnings of many East Malaysians. The cost of CPAP machines, compared to the earnings of East Malaysian, is considered high. As a result, affordability of CPAP machines becomes a common problem in our practice. In addition, most individual medical insurance policies, corporate insurance, and employers do not provide reimbursement for CPAP machines. For patients who are genuinely poor, application can be made to the social welfare department for assistance, though this may take months and approval is not guaranteed. In this day and age, there are still patients who would not accept CPAP as a form of treatment of OSA. Many cite inconvenience as a reason. Some claim that they do not want to use them as it is not a form of cure, hence they might become dependent on it in the long run. All these misconceptions lead to lower acceptance of CPAP.

What do you feel could be done to optimise the diagnosis and treatment of OSA patients in East Malaysia?

The awareness of both public and health care personnel should be improved to reduce the number of undiagnosed/ misdiagnosed cases of OSA. This can be done through public health education talks, newspaper articles, social media and CME for doctors. Patients who have already been diagnosed and are currently on treatment could set up support groups to help educate the public and provide assistance. All major hospitals, regardless of where they are located should be equipped with facilities to perform PSG. With increased awareness and availability of facilities to perform polysomnography (PSG), more patients could be diagnosed and treated.

What do you feel is the role of general practitioners in screening and diagnosing OSA in East Malaysia?

Given that a GP is the first to be consulted for most problems, they have a major role to play in screening and diagnosing OSA. In East Malaysia, where major hospitals are located mainly in the larger towns/cities, GPs play a larger role, as they may be the only health practitioner

that many patients have access to. Familiarity with OSA would allow GPs to make a necessary referral when OSA is suspected.

The role of the GP is further strengthened with the availability of single channel screening devices such as 'RUSleeping RTS Screener'. This device allows GPs to screen patients who present with symptoms of OSA, and refer only those whose screening test showed high probability of OSA. This practice would reduce the number of unnecessary referrals and would certainly reduce the cost.

What other sleep disorders are prevalent in East Malaysia?

No data is available on the prevalence of sleep disorders in East Malaysia, however insomnia certainly is the most common sleep disorder encountered in daily clinical practice. REM behavioural disorders are also common especially among patients with advanced Parkinson's disease. Restless leg syndrome/Periodic limb movement disorders are not uncommon, but remain largely undiagnosed or misdiagnosed in this part of the world.



Dr Teofilo L. Lee-Chiong Jr.
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Chief Medical Liaison for Philips Respironics
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Seven essential updates: PAP Masks

Selecting a proper mask for positive airway pressure (PAP) treatment or non-invasive ventilation (NIV) is essential to assure therapeutic efficacy, patient comfort and long-term treatment adherence. There are many masks available in the market to choose from, including nasal masks, nasal pillows, oral masks, oronasal masks, and total facemasks. This article reviews the most important articles on PAP masks published in the past four years.

1 During a single night of CPAP titration, 55 subjects with obstructive sleep apnea (OSA) were randomised to nasal pillows, nasal masks or oronasal masks. Whereas continuous positive airway pressure (CPAP) was equally effective in mild, moderate and severe apnea using nasal pillows or nasal masks, significantly higher CPAP settings were required

when using oronasal masks for moderate-severe apnea compared to nasal masks.

Ebben MR *et al. Sleep Med* 2012 Jun;13(6):645-9.

2 A potential advantage of nasal pillows over nasal and oronasal masks is less contact with the face. Nasal pillows appear to be effective for OSA patients and can be used even in patients who require high CPAP settings (e.g., ≥ 12 cm H₂O). In a prospective trial, 21 subjects with OSA were randomised to either nasal pillows or nasal masks. No differences between groups were noted in daily device usage, leak, AHI, subjective ratings of comfort, and side effects (all $P > 0.05$). Compared to nasal masks, pillows were described as being less stable but also less obstructive and claustrophobic.

Zhu X *et al. J Clin Sleep Med* 2013 Sep;9(9):873-7.

3 Oronasal masks are associated with more residual respiratory events and higher therapeutic PAP settings compared to nasal masks during auto-titration. In this retrospective study, 109 subjects with OSA (AHI ≥ 15 events per hour) underwent PAP titration using automated CPAP Automatic Positive Airway Pressure (APAP) devices using either nasal or oronasal masks. Polygraphy was then performed with the subjects on the established CPAP settings. Mean APAP pressures were significantly greater and residual apneas were higher (both $P < 0.05$) in the group that used oronasal masks.

Bettinzioli M *et al. Sleep Breath* 2014 Feb 15.

4 Another randomised, crossover study also reported greater measured leak with the oronasal compared to nasal masks during APAP titration. Arousals and masks respiratory events were greater with oronasal mask, but there was no significant difference in mean pressure between the two interfaces. Seventy nine percent of the 24 treatment-naïve subjects with OSA preferred a nasal mask during initiation of CPAP therapy.

Teo M *et al. Sleep* 2011 Jul 1;34(7):951-5.

5 If a nasal mask is used during CPAP titration, switching to an oronasal mask during therapy can result in a higher residual AHI and might require adjustments to the prescribed PAP settings. After undergoing in-laboratory CPAP titration to an AHI of less than five events per hour with either a nasal or oronasal

mask, 21 subjects with OSA were given the two types of masks for three weeks each while on optimal device settings. Residual AHI was significantly higher with oronasal masks compared to nasal masks ($z = -3.296$, $P < 0.001$). More importantly, 50% of subjects had residual AHIs greater than 10 per hour while using oronasal masks.

Ebben MR *et al. Sleep Med* 2014 Jun;15(6):619-24.

6 Changing masks from a nasal to oronasal type increased leak ($P < 0.01$) and residual AHI ($P = 0.03$) in 12 obese patients with OSA (AHI = 59.8 ± 28.6 events per hour and body mass index [BMI] = $37.7 \pm 5.0 \text{ kg/m}^2$), but did not alter therapeutic CPAP settings. The difference in residual AHI between masks was not due to measures of upper airway size, such as Mallampati scale or mandibular protrusion.

Bakker JP *et al. Sleep Breath* 2012 Sep;16(3):709-16.

7 Air leak during CPAP therapy might contribute to the emergence of central sleep apnea in patients with predominantly obstructive respiratory events. Central sleep apnea indices (CAI) during CPAP titration were collected from 310 subjects with OSA. A majority of the subjects used nasal masks during titration. Although similar in age, gender, BMI and AHI, the group with CAI < 5 per hour had a lower median leak ($P = 0.056$) and a lower maximum leak ($P = 0.003$) compared to those with CAI ≥ 5 per hour.

Montesi SB *et al. J Clin Sleep Med* 2013 Nov 15;9(11):1187-91.



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Sleep myths

MYTH: Daytime naps don't help, and they waste time

TRUTH: According to the Australian Sleep Health Foundation (SHF), adults do not usually need to take daytime naps if they have slept well for a long enough period at night. However, daytime naps can be useful for sleep catch-up if sleep has been lost at night.¹

If daytime naps are taken, the SHF and the American Society for Sleep Medicine (ASSM) advise avoiding napping any later than mid-afternoon to ensure a good night's sleep will still be achievable.^{1,2} In addition, the

SHF suggests napping for no longer than 15 to 20 minutes to help avoid any resulting "sleep inertia" (feelings of sleepiness or haziness and a lack of alertness) upon waking.¹ For the same reason, the ASSM recommends napping for no longer than 1 hour.²

References 1. Sleep Health Foundation. Common Myths About Sleep. Available at: www.sleephealthfoundation.org.au 2. American Society of Sleep Medicine. Sleep Hygiene – The Healthy Habits of Good Sleep. Available at: <http://yoursleep.aasmnet.org/Hygiene.aspx>



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Events in the region and world: Jan – Aug 2015

Symposium of the Clinical Research Priority Program "Sleep and Health", & 15th Zurich Sleep Medicine Symposium Zurich, Switzerland	15 – 17 January 2015 http://www.sleep.uzh.ch/agenda/symposium.html	29th Annual Meeting of the Associated Professional Sleep Societies (joint meeting of the American Academy of Sleep Medicine and the Sleep Research Society) Seattle, Washington	6 – 10 June 2015 http://www.sleepmeeting.org/event/2015/06/06/dates-deadlines/sleep-2015-the-29th-annual-meeting-of-the-associated-professional-sleep-societies
6th World Congress on Sleep Medicine Seoul, Korea	21 – 25 March 2015 http://wasmcongress.com/	XIV European Biological Rhythms Society (EBRS) Congress and IV World Congress of Chronobiology Manchester, England	2 – 6 August 2015 http://www.ebrs-online.org/
American Thoracic Society (ATS) Conference Denver, Colorado	15 – 20 May 2015 http://conference.thoracic.org/2015/	3rd ASEAN Sleep Congress Singapore	20 – 22 November 2014

Tips for healthy sleep

TIP: Avoid intense exercise within 6 hours of bedtime

The association between regular exercise and good sleep patterns is well established, and there is a biological basis for such an association. In accordance with the hypotheses that sleep functions to conserve energy, restore body tissue and down-regulate body temperature, most scientists believe exercise positively affects sleep patterns due to its effects on energy depletion, tissue breakdown, and elevation of body temperature, respectively. While not the most effective therapy for insomnia, exercise is a potentially attractive alternative or adjuvant therapy to other more expensive and difficult-to-deliver treatment options.¹

While the US National Sleep Foundation lists regular exercise as one of the ten "Healthy Tips for Better Sleep",² the ASSM recommends exercising only earlier in the day, avoiding any intense exercise within 6 hours of bedtime.³

It is advisable to talk to a doctor before embarking upon a new exercise programme.³

References 1. Youngstedt SD. *Clin Sports Med* 2005 Apr;24(2):355-65, xi. 2. National Sleep Foundation. Healthy Sleep Tips. Available at: <http://sleepfoundation.org/sleep-tools-tips/healthy-sleep-tips> 3. American Society of Sleep Medicine. Sleep Hygiene – The Healthy Habits of Good Sleep. Available at: <http://yoursleep.aasmnet.org/Hygiene.aspx>



Ms Worakot Suwansathit

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Sleep-watching...

What do you enjoy most about being a Sleep Technologist?

Before I became a Sleep Technician, I never understood how great an impact sleep disorders can have upon a person's life! In managing my first ever case at the sleep lab, I had the opportunity to monitor a patient who was easily able to fall asleep, but, the longer he slept, the louder he snored. And every time he snored, I saw how uncomfortable he felt, and how difficult it was for him to breathe. In addition, when I looked into his face, I saw his face and lips had turned blue. After applying CPAP to this patient, he looked much better! When he woke up in the morning, what he said drove my desire to be a sleep technician and help improve people's quality of life through what I do. He said "I have never been in such a deep sleep, and have not felt fresh like this for ages before I came to the sleep lab!"

After more than 15 years' experience as a Sleep Tech, I feel so proud of my duty because it helps people so profoundly. When I am using CPAP on my patients and they recover with good breathing, I almost feel like a lifesaver bringing someone safely to the shore.

What is the most challenging aspect of your profession?

The first challenge is when dealing with a patient who has concomitant disease such as chronic obstructive pulmonary disease (COPD) with diabetes mellitus, hypertension, obesity or hypoventilation syndrome. Especially during the titration period which usually eventually matches to the BiPAP. It also takes skill to successfully manage patients during titration. It is not enough to simply give a mask to the patient; we need to make sure they are comfortable and that the right mask is selected that gives a nice seal. I believe

that the skill of the Sleep Technician contributes greatly to treatment success; it is therefore very important for us to continue practicing and developing our knowledge and skills.

What is the biggest change you have seen in the profession since you began?

Since starting my career as a Sleep Technician I have seen many changes for good, both in terms of technological development and in the accessibility of services and information. There has been new research into and development of sleep testing tools, including ambulatory devices, which have become easier to use with greater functionality and capacity to align to the American Academy of Sleep Medicine (AASM) requirements.

What factors do you think influence a patient's choice of CPAP mask, and patient adherence?

Nowadays, it is very easy to find information quickly on the internet. However, because there are so many sources of information, patients can become confused or misunderstand the information. As Sleep Technicians, it is our responsibility to make sure patients receive the correct information to help them gain a better quality of life.

Because poor compliance results in treatment failure, matching each patient with the right PAP machine is very important to successful treatment outcomes. For example, certain basic machines may not be appropriate for use in a patient with a complex sleep disorder. In such cases, a sleep doctor should be consulted. Correct mask fitting is also a very important factor in encouraging compliance.

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In the next issue of Sleepmatters:

- OSA and diabetes
- Sleep disorders in Vietnam
- Seven essential updates: Home Sleep Testing

Letters to the Editor:

Our readers are invited to write to the editor by volunteering content that they feel strongly about or feel needs coverage in a publication such as this. Your input is welcome and valued, particularly with case studies and hot topics currently debated in the field, as well as reviews of Asia Pacific congresses and conferences that you might like to share with the audience. Your letters will be featured in future issues of Sleepmatters allowing an open forum between the experts, to increase the level of engagement amongst the audience.

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