

## COMPUMEDICS AT THE 2003 ASM MEETING

[DECEMBER 2003]

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## NEW SLEEP CENTRE IN CHRISTCHURCH TO INVESTIGATE PAEDIATRIC SLEEP DISORDERS

Renowned Australian Sleep Specialist, Dr. Arthur Teng, of the Sydney Children's Hospital, presented research at the Australasian Sleep Meeting (ASM) in Auckland, showing children with mild ADHD (Attention Deficit Hyperactivity Disorder) to be five times more likely to have an undiagnosed sleeping disorder than children with more severe ADHD.

Given his findings, Dr. Teng and others at the ASM conference have called for more research on the impact of poor sleep on children.

The need for more Sleep Centres is also supported by research showing that about 25% of New Zealanders have a chronic sleeping problem, especially affecting those who live in lower socio-economic areas, work in shift-work or are unemployed.

Another research found that Maoris were twice more likely to suffer from sleeping disorders than any other ethnic group.

With fewer than 20 hospital beds dedicated to sleep disorders across New Zealand, the opening of a new Paediatric Sleep Centre at Christchurch Hospital should help reduce waiting lists and pave the way for further investigations into children's sleep disorders in the country's South Island.

The new Paediatric Sleep Centre, equipped with Compumedics' E-Series EEG/PSG Sleep Recorder, was officially opened on the 23 October 2003 by the Honourable Annette King, New Zealand Minister for Health.

SOURCE: SUNDAY STAR TIMES, PG. A7, 12 OCTOBER 2003



## AN INSIGHT INTO DIABETES AND SLEEP

Compumedics was proud to present a talk by Prof. Jack Clausen on Diabetes and Sleep. Aimed at medical professionals, the talks were held in Melbourne and Auckland on the 7th and 9th of October respectively.

Diabetes and associated cardiovascular complications are a major cause of morbidity and mortality in children as well as adults, especially in developed countries. The lecture reviewed current knowledge regarding the pathophysiology of metabolic, respiratory, and cardiovascular function in diabetics during sleep including the effects of sleep deprivation.

Studies of autonomic nervous system dysfunction may also offer useful insights for reducing lethal complications of diabetes. Advances in monitoring technology have provided new insights into physiological dysfunction during sleep and raise important questions about the role of screening for sleep disorders for reducing the morbidity and mortality associated with diabetes.

Prof. Clausen has over two decades of experience in developing national and international standards for medical instrumentation. In addition, to his clinical activities, he has been a collaborator in multi-disciplinary research projects involving disorders of respiration during sleep, pulmonary physiology, cardiology, anaesthesiology, emergency medicine and radiology. Dr. Clausen is a Clinical Professor of Medicine in Division of Pulmonary and Critical Care Medicine at the University of California at San Diego, California USA. He is also on the research staff at The Scripps Research Institute in La Jolla, California.

# SYNAMPS<sup>2</sup> POWER UNLEASHED

SynAmps was released to the market in 1992 as the most powerful electrophysiological amplifier in the world. Over 1,300 SynAmps are now serving researchers around the globe.

Compumedics Neuroscan is now pleased to announce the SynAmps2, raising the research standard for amplifiers to a new level.

SynAmps2, which continues to use the integrated software programmable approach that allows for the greatest flexibility in data acquisition, is the foundation for quality high-density recordings. Set apart from the competition, SynAmps2 is the only solution that offers uncompromised high-density data. As all subsequent analyses are affected by the quality of the original recording, it is imperative to choose the right recording system.

In developing SynAmps2, Compumedics Neuroscan has vigorously pursued superior solutions for research applications. Data quality has never been compromised for quantity of channels, preparation time or cost.

The SynAmps2 has been engineered utilising the absolute latest technologies to deliver a product that will exceed the requirements of the most demanding protocols. Paramount in the SynAmps2 design is Active Noise Cancellation circuitry, which has produced an amplifier so quiet that electrode preparation is no longer essential. More importantly, SynAmps2 is the only system that provides the flexibility to use the standard and the unique "no preparation" method of electrode placement. This allows researchers the ability to balance time constraints and data quality.

Given that clinical systems offer only up to 64 channels, SynAmps2's capability to exceed 500 channels illustrates the power and potential of the system.





# PROFUSION NEXUS™

## – A NEW WAY TO MANAGE YOUR SLEEP LAB

Sleep labs today, both small and large, face challenges that take time away from staff to evaluate patients and assist with the diagnosis and treatment of sleep disorders. Day to day system maintenance, study archiving, retrieving old study records, and managing lab schedules, among other things, consume significant time and resources, that subsequently add to the operating overhead of the lab. Requirements to produce administrative reports can take hours to prepare. Just trying to stay on top of studies that are scored and ready for interpretation; or determining which reports are to be sent out to referring physicians, can be difficult.

The Compumedics ProFusion neXus Laboratory Management System may just be the best way to address these challenges. Just released by Compumedics this past October, ProFusion neXus is an advanced set of services that operate in conjunction with the rest of the Compumedics ProFusion software to automate many of the daily, weekly or monthly administrative tasks. ProFusion neXus (also referred to as neXus) has a lot to offer.

When you work within the neXus environment, the first thing you notice is the “Patient-Centric™” design that helps you manage workflow in the sleep lab. Beginning with the creation of a patient record, you proceed to work with the patient - performing studies, generating reports, adding other documents – all of the information related to the patient, including all studies, is accessible through one application on any workstation in your lab.

Customers who have been involved with the development and testing of the ProFusion neXus software found that they have spent less time managing

studies with more time to focus on scoring studies and managing patients.

ProFusion neXus could be the new infrastructure that you need for your lab; if yours is a small lab, it will help you be more efficient, to do more with less. If yours is a large, complex lab (and ProFusion neXus really shines in large, complex labs) you may experience significantly lower costs of operation. And if you have an interest in research, the data management capabilities of ProFusion neXus will be most welcome.

Here are a few key benefits of ProFusion neXus:

- Patient-Centric Operation
- Designed to support your workflow
- Automatic management of diagnostic studies, including tracking the current status of each study
- Access to all patient data, studies, reports, and associated documents through one application
- Worry-free automation of study archiving, including the generation of labels and a built-in log of the location of all studies
- More capabilities are currently under development including advanced lab scheduling, and administrative reports

Check out our website, contact your local sales representative, give us a call, but do not delay your evaluation of neXus. We bet you will conclude that an investment in neXus can make your life easier, save you money and make your lab more productive.



### ProFusion neXus... information flow at the Next Logical Level

# INTERNATIONAL UPDATE

## UNIVERSITY OF MICHIGAN MEDICAL CENTER SELECTS COMPUMEDICS FOR SLEEP DISORDER CENTER

The prestigious Michael S. Aldrich Sleep Disorders Laboratory at the University of Michigan (U of MI) Medical Center in Ann Arbor recently selected the Compumedics E-Series PSG Systems for their 13-bed sleep lab. As part of the purchase, the U of MI Sleep Disorders Laboratory is acting as a development center for the new ProFusion neXus Network Services Software.

The U of MI Sleep Disorders Laboratory is one of the earliest centers in the US to be dedicated to clinical and research work in sleep disorders. After evaluating a number of other vendors for new digital polysomnography systems to replace the eight-year-old technology they had been using, the department selected Compumedics.



Compumedics installed the systems for monitoring sleeping patients in thirteen beds in the lab. The installation in May this year included the ProFusion neXus software platform that enables the lab to operate efficiently and at much lower cost than alternate approaches.

The ProFusion neXus software was installed with the aim of improving efficiencies in the lab's operations and functions, a tool much needed in today's increasingly busy and data-intensive healthcare environment.

ProFusion neXus allows all study results to be accessed, reviewed and interpreted from any of the 25-workstation clients connected through the U of MI wide area network. Managing the immense amount of information generated from this advanced sleep lab had become a significant challenge and a limitation to future growth. ProFusion neXus is a scalable platform that makes the planned growth of the lab into new areas, including 9 beds to be installed at a remote site, cost effective.

By using the ProFusion neXus software as a data management tool, combined with the advanced capabilities of the Compumedics E-Series PSG System, it is anticipated that the lab will be better positioned to manage large amounts of data from increasingly complex diagnostic studies.

## DYNAMIC GROWTH IN THE USA

Compumedics' sleep diagnostic business in the United States has grown significantly in all parts of the market. From large university hospital laboratories to private companies providing contract services, Compumedics offers the right solution for each particular need. Customers have seen important advantages to the highly

developed network philosophy engineered into Compumedics' products. Utilising unique approaches to hardware design and network integration, Compumedics continues to be at the forefront in this fast-growing field. With the recent addition of ProFusion neXus, which incorporates a powerful SQL database, Compumedics has now

set a new standard for dynamic information exchange and workflow management. The highly technical United States market, which is always quick to recognise and utilise well designed laboratory management tools, is finding ProFusion neXus particularly appealing.



### Recent US sleep sites that have joined the Compumedics family

1. University of Michigan, Ann Arbor, MI
2. Maine Medical Center, Portsmouth, ME
3. Carolina Sleep Services, Charlotte, NC
4. ENT and Allergy Associates, Tarrytown, NY
5. Hennepin County Medical Center, Minneapolis, MN
6. St. Lukes Medical Center, Houston, TX
7. Emory University, Atlanta, GA
8. Louisville Sleep Diagnostics, Louisville, KY
9. Medcath, Charlotte, NC
10. Naval Regional Medical Center, San Diego, CA



Jim Lewis, based at Compumedics' US office in Fridley, Minnesota, is the Product Manager for the Compumedics Neuroscience division. With 20 years experience in the Neurodiagnostics

industry and a passion for Neurophysiology, Jim is responsible for the Product Management of Compumedics' clinical EEG and EMG products.

Jim is responsible for overseeing a product from its conception through to the end of its product-lifecycle. This includes completing product specifications and communication milestones during the engineering and initial production phases; releasing the product internationally, and finally interfacing with the service team for the smooth transition of an established product.

Jim has a Bachelor of Science in Business Management from the University of Wisconsin, Platteville, USA, where his is also completing his MBA.

## TOP TIPS & SHORTCUTS FOR COMPUMEDICS' NEURODIAGNOSTICS

### Wheel Mouse for Navigating within the Digital Video Window

When recording or reviewing Digital Video, you can use the mouse wheel to navigate around the video window. After you have zoomed in on a particular section of the video, either by left clicking the mouse over the desired area, or sweeping an area of interest (hold left mouse button down and drag across picture), press and hold the centre wheel and move the mouse to navigate around the zoomed picture.

If you do not have a wheel mouse, simply hold down the "Ctrl Key" and the left mouse button simultaneously and move the mouse around the picture to navigate up, down, left & right.

### Tagging multiple pages

When in the "Summary" window and tagging EEG & Video data for editing, rather than individually selecting each page by selecting the Tag button for each page, an easier way is to tag multiple pages simultaneously. This can be achieved by first selecting the start of the EEG or Video section

### CHOICE NEUROPHYSIOLOGY PAPERS

- Morris HH, Lüders H, Lesser RP, Dinner DS, Klem GH: **The value of closely spaced scalp electrodes in the localization of epileptiform foci: A study of 26 patients with complex partial seizures.** *Electroenceph Clin Neurophysiol* 1986; 63: 107-111.
- Burgess RC, Jacobs EC, Collura TF, Turnbull JP, Lüders H, and Klem G. **Computerized epilepsy monitoring unit for preoperative EEG and video evaluation.** *Epilepsia* 30: 718, 1989.
- Klem, George H., **EEG Technology in the Epilepsy Monitoring Unit**, *Epilepsia*, Vol. 38, Supplement 7, 1997.
- Lesser RP, Lüders H, Dinner DS, Morris H. **An Introduction to the basic concepts of polarity and localization.** *Journal Clinical Neurophysiology* 1985;2:45-61
- Doherty, Timothy J. & Stashuk, Daniel W.; **Decomposition-Based Quantitative Electromyography: Methods and Initial Normative Data in Five Muscles**, *Muscle & Nerve*, Pg 204 – 211, August 2003.
- Fumisuke Matsuo, **Expanded Head Surface EEG Electrode Array: An Application to Display the Voltage Topography of Focal Epileptiform Discharges of Mesiotemporal Origin**, *Journal of Clinical Neurophysiology*, 8(4):442-451 Raven Press Ltd., New York, 1991 American Electroencephalographic Society.
- Doherty T, Stashuk D, and Brown W: **MUNE using Decomposition-enhanced Spike Triggered Averaging**, Supplements to Clinical Neurophysiology volume 55, Elsevier Science B.V. 2003; pp. 108-121.
- Swoboda K, Bromberg M: **MUNE in Spinal Muscular Atrophy. Motor Unit Number Estimation (MUNE)**, Supplements to Clinical Neurophysiology volume 55, Elsevier Science B.V. 2003; pp. 184-189.
- Brenner, Richard P., **EEG in Encephalopathy and Coma**, *Journal of the American Society Electrodiagnostic Technologists*, Inc., 2003 Volume 43, Number 3; pp. 164-184
- St. Louis, Erik K., **To Sleep, Perchance to Seize: the Odd Marriage of Sleep and Epilepsy**, *Journal of the American Society Electrodiagnostic Technologists*, Inc., 2003 Volume 43, Number 3; pp. 140-163

of interest by using the left mouse button, clicking inside the tabular or graphical display. Then while holding the SHIFT Key down select the end of the required section of data using the left mouse button. A window pops up and you can select "Tag Inside" and the entire selected section is Tagged.

### Individual Trace Control

In Acquire or Review, individual settings can be applied to specific EEG Channels. When displaying EEG data, Right mouse click over the trace label of the channel you wish to alter (far left of EEG waveform display). A window with the following options appears; Trace Setup, Individual channel filters, Montage Stamp.

Select Trace Setup and you can then change individual settings for a specific channel eg. if there is muscle artefact, you can change the High Pass filter to 30Hz. This setting is applied to that individual channel for the rest of the recording. The channel label is highlighted in a different colour to indicate it has an individual setting which is applied to that specific channel(s) for any selected montage.

### Custom Labelling

If you wish to add a respiration channel (via an airflow transducer) to an existing Montage, you can set up a specific channel and channel label within the montage itself. Select "Tools", "Montage Manager" and select the montage you wish to edit. Select "Edit" and choose where you would like the channel to be displayed on the Electrodes list on the left hand side of the window using the left mouse button. Select "Add" and then select any unused channel eg, 22-PG. Reselect 22-PG from the Electrode labels list, select "Edit" and type "RESP" in the custom label window. Select "use" and "OK".

NB. When this montage is used, the "RESP" label appears (instead of 22-PG).

NB. If recording respiration, it is recommended that the following individual channel settings are used: HPF - Off, LPF - 15Hz, SENS 50uV/mm.

# RECENT EVENTS



**The Compumedics Team at the Australasian Sleep Meeting (ASM), Auckland, NZ in October 2003**



From L-R: Eugene Baey, Jeff Kuznia, Olivia Ho, Gerald Lim, Liz Kealy, Andrew Kegele

## ASTA meeting at the newly updated St. John of God Sleep Centre

Perth ASTA held their local meeting at the recently relocated and updated St John of God Sleep Centre. This was an excellent opportunity for people from the various sleep labs in Perth to meet and also view the set up of the SJOG Sleep Centre.



Andrew Kegele of Compumedics (left) presenting Dr. Tim McDonald (right) with his Platinum Rugby Pass.

## And the winner is...

The lucky winner of the 2003 ASM raffle prize is Dr. Tim McDonald of the Monash Medical Centre in Victoria.

Dr. McDonald won a Corporate Platinum Ticket – valued at AUD\$1000 – to the Australia vs. Ireland Rugby Match at the Rugby World Cup 2003.

## As luck would have it...

At the recent ESA (Epilepsy Society of Australia) conference that was held in November this year in Auckland, New Zealand, husband and wife team - Drs G. and D. Ramadas of Whakatane Hospital, NZ - were lucky enough to win a bottle of wine each on separate prize draws.

# EVENTS DIARY

## Medica

19-22 November 2003  
Duesseldorf  
Exhibition Centre  
Duesseldorf, Germany

## ISBET 2003

(International Society for Brain Electromagnetic Topography)  
19-23 November 2003  
Santa Fe, New Mexico,  
USA

**Topics in Respiratory & Sleep 2003 Conference**  
21 November 2003  
Roanoke, VA, USA

## RSNA

(Radiological Society of North America)  
30 November  
– 4 December 2003  
Chicago, IL, USA

## AES

(American Epilepsy Society)  
7-9 December 2003  
Boston, MA, USA

## ASNA

(ASEAN Neurological Association Biennial Conference)  
29 November -  
2 December 2003  
Waterfront Cebu City Hotel  
Cebu, Philippines

**AARC International Respiratory Congress**  
(American Association for Respiratory Care)  
8-10 December 2003  
Las Vegas, Nevada, USA

**Australian Society of Psychophysiology Conference**  
12-14 December 2003  
Wrest Point Casino Hobart, Australia

**Neuroscan School**  
15-17 December 2003  
Tianjin Normal University Tianjin, China

**Arab Health**  
18-21 January 2004  
Dubai International Exhibition Centre Dubai, UAE

**ASRS**  
(Asian Sleep Research Society)  
28 February  
– 2 March 2004  
Zhu Hai Holiday Resort Hotel Zhu Hai, China

**ANS**  
(Australian Neuroscience Society)  
27-30 January 2004  
Melbourne Convention Centre Melbourne, Australia

# SUGGESTION BOX

The Compumedics Vista Update is for you – our valued customers. Any comments, suggestions or feedback you may have on Compumedics Vista would be greatly appreciated.

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## Article Contributions:

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Please forward all contributions to:

Email: [marketing@compumedics.com.au](mailto:marketing@compumedics.com.au)



# THE COMPUMEDICS DIVISIONS

## Defining Life's Signals

Compumedics' operations consist of four divisions – each with its own product focus:



**Compumedics Sleep**  
Clinical Diagnostic Systems for Sleep Disorders



**Compumedics Neuroscience**  
Clinical Diagnostic Systems for Neurophysiology



**Compumedics Neuroscan**  
World-leading Research EEG/ERP systems



**Compumedics Neuromedical Supplies**  
Electrodes, sensors and supplies for Neurology and Sleep laboratories

If you would like to receive the Compumedics Vista Update via Email, please send your details and email address to [marketing@compumedics.com.au](mailto:marketing@compumedics.com.au)

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