Compumedics vista

A COMPUMEDICS CLIENT UPDATE

[AUGUST 2003]

Welcome to the first edition of Compumedics Vista – an update for all users of Compumedics products. Compumedics Vista aims to keep its readers in touch with Compumedics' latest products, events and updates. We are endeavouring to improve our communication efforts with our users and welcome any suggestions you may have in this regard.

INSIDE

SLEEPLESS IN SINGAPORE

While the subject of sleep would have crossed our minds at least occasionally during our school years, it was the only subject on the agenda for a school conducted in Singapore recently.

Compumedics developed and hosted the first Singapore Sleep School to further the sleep medicine education of regional health professionals. Forty-four delegates from Singapore, Philippines, Malaysia, China, Indonesia and Thailand attended the two-day series of lectures and workshops delivered by internationally recognised experts in various aspects of the diagnosis and treatment of sleep disorders.

"We are at the threshold of a very exciting time in the field of sleep medicine – professional and consumer interest in the area has increased exponentially over the past few years", said Course Director Dr. Leng Poh Hock.

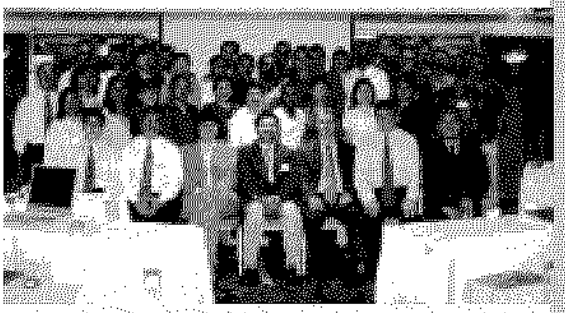
Dr. Leng said that the Sleep School was in recognition of the need to improve the awareness of sleep medicine and standards of practice among health professionals.

Pediatric sleep medicine was one of the major areas of focus for the two days. In her address on sleep disordered breathing, Dr. Jenny Tang from Singapore's KK Women's and Children's Hospital highlighted the significant and previously under diagnosed incidence of the condition in children. Dr. Tang also led delegates through a workshop demonstrating the particular requirements of conducting a pediatric sleep study.

Delegates also had the opportunity to gain hands on experience from the experts in setting up diagnostic equipment and interpreting results.

Feedback from those that attended this first Singapore Sleep School has been very positive and similar events are now being planned in both the Asian region and in other emerging sleep medicine markets.

Please direct enquiries on future sleep schools to the Marketing Department at marketing@compumedics.com.au



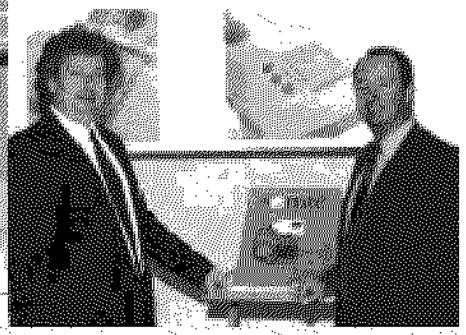
A WAKE-UP CALL FOR INSOMNIACS

Catalyst, ABC Television's national science program, recently reported on a most unusual application for Compumedics' sleep diagnostic equipment.

The program reported on a radical new treatment for insomnia, which is being trialed at Adelaide's Flinders University by Dr. Leon Lack and his team in the Sleep Research Laboratory. While conventional wisdom would suggest that treating insomnia would be mostly about cajoling patients to sleep, Dr. Lack's therapy centres around waking his patients up – and not once or twice, but as many as 50 times a night!

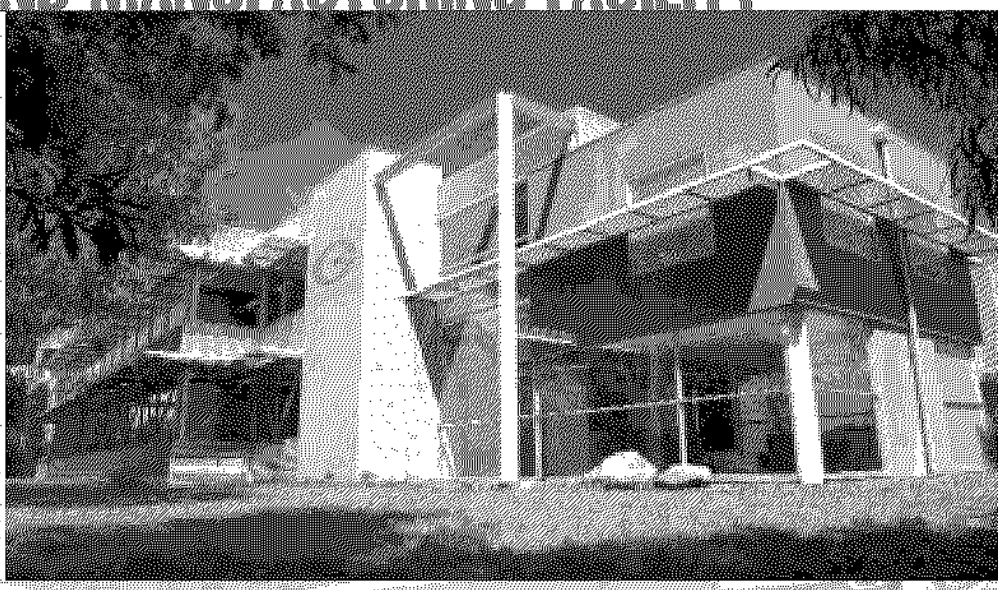
Dr. Lack wants his patients to practise falling asleep, so every time they do so, they are woken up after a few minutes. Patients spend what must seem like the longest 24 hours of their lives in his clinic, learning the art of falling asleep. Early results of the work are promising for the 30% of Australians who suffer insomnia, with some of Dr. Lack's patients enjoying vastly improved sleep after their treatment.

A full transcript of the program is available on the following website link: http://www.abc.net.au/catalyst/stories/s849417.htm#transcript



COMPUMEDICS' NEW CORPORATE HEADQUARTERS AND MANUFACTURING FACILITY

On the 20th of December 2002, the Federal Minister for Trade, Mr. Mark Vaile, officially opened Compumedics' new corporate headquarters and manufacturing facility in Abbotsford. Located along the picturesque Yarra River, this architecturally designed building is only 5km away from the Melbourne CBD. The new 6000m² site is approximately three times the size of our previous home on Marine Parade, providing ample space for future growth. Since 1997, the Company has grown 500% and we can only anticipate the continued growth of our business into the future.



We welcome you to visit us at our new office.
Please contact the Marketing Department for an appointment on marketing@compumedics.com.au

QUOTED: FEDERAL TRADE MINISTER, MARK VAILE

"Entrepreneurial vision, expertise and hard work have resulted in technology that is internationally recognised and a company that is leading in a rapidly growing field of medicine," Minister Vaile said during the opening of the Compumedics new Abbotsford headquarters and manufacturing facility.

Mark Vaile is the Deputy Leader of the National Party, Federal Minister for Trade and holds the Federal seat of Lyne on the Mid North Coast of New South Wales.

COMPUMEDICS US HEADQUARTERS AND NEW CORPORATE STRUCTURE

From the beginning of this calendar year, Compumedics adopted a new corporate structure that has seen the North and South American markets being administered from its new US Headquarters in El Paso, Texas (see right).

Conversely, the rest of the world is being administered from Melbourne, with the support of offices in Singapore and Germany, as well as a network of distributors in over 50 countries worldwide.

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SOMTÉ

Research has found that around 50% of people suffering from Congestive Heart Failure also suffer from some form of sleep-disordered breathing. It is due to the increasing awareness of this prevalence that our flagship product, Somté, was developed.

Somté is the first 'holter-style' (worn on the upper torso) device designed to study the nature, severity and interrelationship between sleep disordered breathing and cardiac dysfunction. This is assisted with the use of advanced ECG analysis software with HRV measurements.

Its petite size and weight (234gm) allows the unit to be worn easily as an ambulatory device, as well as being stored away neatly.

Somté can be configured to run purely as a limited channel sleep recording unit providing a quick and affordable test for patients to determine if their condition warrants the need for a full sleep test.

This allows the unit to be configured to specific needs, as well as specific budgets.

The benefit of Somté is that it can be worn to sleep by patients in their own homes, thereby freeing up urgently needed beds in hospitals and clinics and speeding up the waiting period for sleep tests around the country. Conventional sleep tests normally take place in a sleep laboratory, where waiting periods can be up to one and a half years in certain parts of Australia. With the use of Somté, this pressure on sleep labs is significantly alleviated.

With 13 channels collecting different data, the Somté offers more information than existing small limited-channel recorders. This is enhanced by its low operational costs (it runs on 2 x AA batteries that provide up to 30 hours of recording) and high storage capacity (512MB Compact Flash Card will last for multiple days).

CLEARANCE TO MARKET
SOMTÉ IN THE US

In January we announced the much-anticipated clearance for the sale of Somté in America by the US Food and Drug Administration (FDA). Somté can now be sold to over 2400 specialty sleep centers in addition to private physicians and clinics. It is estimated that as many as 40% of the 58 million Americans suffering some form of cardiovascular disease also have a sleep disorder. This means that the potential market for Somté in the US is of the order of US$130 million per annum.

This announcement followed the approval to market Somté in Canada and last year's European Union, Australian and Japanese regulatory approvals. The media responded positively to the announcement and we also saw a substantial rebounding of the shareprice.

SOMTÉ AT THE ATS (AMERICAN THORACIC SOCIETY) SEATTLE 2003 CONFERENCE – 16-21 MAY

Poster # G16:

J. Menagh et al, "The Utility of Unattended, at Home Diagnostic Sleep Studies Using a New Portable Sleep Data Acquisition Device".

Poster # G10:

D. Cunnington et al, "Comparison of Full In-Laboratory Polysomnography to a Portable Sleep Data Acquisition Device".

INTERNATIONAL UPDATE

DRIVER OF JAPAN BULLET TRAIN NODS OFF AT 170MPH

By Audrey McAvoy in Tokyo, *The Independent* – UK, 28 February 2003

The driver of a bullet train in Japan is under investigation after falling asleep for nearly ten minutes at the helm. The train was travelling at 170mph with 800 passengers on board.

No one was hurt in the incident because the train was on autopilot at the time.

A spokesman for West Japan Railway, the operating company, said they were investigating why the driver fell asleep. "We are very shocked," said Kosuke Sugiyama. "Our business is all about passengers trusting us enough to travel on our trains."

Railway staff became suspicious when the train pulled into Okayama station, about 90 miles east of Hiroshima. It came to a halt about 100 metres before it was supposed to, leaving rear carriages outside the station.

They inspected the driver's car and found him asleep in his chair, according to a source at West Japan Railway. Staff knocked on the window but he continued to sleep. Eventually the conductor went inside the compartment and woke him up.

The driver, 33, told his superiors that he "had no memory" of what happened for a period of about eight minutes until he woke up.

A West Japan Railway spokesman said the driver had plenty of sleep and had not been drinking alcohol.

Police said the driver was under investigation for possible violations of the railway law and for causing danger due to professional negligence while driving.

Mr. Sugiyama said this was the first time on record that someone had fallen asleep while driving a bullet train. The train was on autopilot at the time. Drivers normally take over and steer the train manually in the final stretch to a station.

IN A SIMILAR STORY...

On the 16 February 2003, just a couple of weeks prior to the Bullet Train incident, another driver in Japan, this time manning the auxiliary engine of a freight train, was caught sleeping on the job. Standing at just 160cm and weighing 99kgs, the amply built auxiliary man was diagnosed by doctors as highly likely to be suffering from a mild case of Sleep Apnea Syndrome (SAS). The man was caught sleeping when the freight train he was on, suddenly stopped after being unable to climb a steep slope. As this occurred, the driver of the train put the brakes on and moved to the back of the carriage, to check on the auxiliary driver, who should have fired up the vehicle to push the train up the hill. Instead, the man was found asleep. The auxiliary driver was allowed to continue working for another 32kms before going to hospital for a check-up. The man has since been taken off the driving roster, while he receives treatment for his sleeping disorder.

Source: Mainichi Newspaper, 5 March 2003

A TALL ORDER FOR THIS SLEEP STUDY

The burgeoning interest in sleep science has spawned research studies all over the world, but few of them are quite like the study recently completed by University of Sydney researcher, Pamela Johnson.

Pamela conducted 36 full sleep studies at altitudes of up to 5,000 meters while trekking in the Himalayas. The work she did with the portable Compumedics equipment was the same as that done in specialised clinics all over the world. However in Pamela's case, her clinic was a room in one of the tea houses in which the group stayed on the trek and her assistants were friends, colleagues and even family, who not only trekked for 15 days from 2400 metres to 5600 metres but also volunteered to have sleep studies performed on them at each new altitude. The "volunteers" also helped with the setting up for the sleep studies – the last thing one feels like doing after a hard day's trek!

One of Pamela's major objectives of the expedition was to study the changes to sleep and breathing during ascent to different altitudes. While she is still analysing that data, the success of one of her other objectives is already clear. She aimed to prove that such studies could be conducted in non-clinical conditions and you couldn't get much more non-clinical than what Pamela experienced. This was Pamela's fourth research trip to the Nepal Himalaya.

"It's hard to get across how challenging it is to arrive at camp exhausted and set up sleep studies in freezing conditions, with poor lighting and an audience of interested locals," she said.

The three PS2 and one Somté unit supplied by Compumedics came through the rugged experience with flying colours with every one of the 36 sleep studies deemed to be successful.

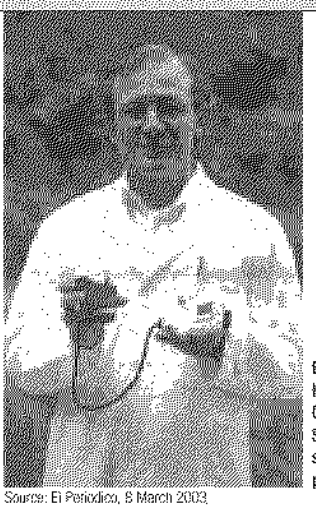
A sherpa carrying Compumedics PS2 Sleep Diagnostic System amongst climbing gear for the trip ahead

Apart from the obvious day to day difficulties, the expedition team also encountered a particularly dramatic situation when one of the accompanying Sherpas suffered severe head injuries after a fall. His injuries were so severe that doctors at Sir Edmund Hillary Hospital had concerns that he may be brain dead. By conducting EEG studies using the Compumedics' PS2, they were able to prove that the man's brain was still functioning and had him airlifted to Kathmandu for specialist treatment.

IN A SIMILAR STORY THAT TAKES THE STUDY OF SLEEP TO HIGH ALTITUDES...

Physiologist Eduard Escrich, lecturer at the Faculty of Medicine in the Autonomous University of Barcelona (Universitat Autònoma de Barcelona – UAB), amalgamates his main work of oncology research, specialising in diet and breast cancer, with his great passion for mountain climbing both as a sport and as a field of study. He is as interested in the beauty of a mountain summit and in the fresh outdoors, as he is in the quest to scientifically understand the mechanisms which make it possible for men to climb the high summits of the Earth.

Escrich participated as a physiologist in the Aconcagua expedition organised by the TV-3 program *El cim (The Summit)*. During the climb, his second to the highest summit in the Americas, he was responsible for the prevention of sickness related to a lack of oxygen for the entire team. At the same time, he was in charge of a study sponsored by the UAB on the subject of sleep disruption due to altitude and its relationship with acclimatisation and physical performance. Although a good climber is made by training and experience, Escrich is confident that his studies will help make it possible to scientifically evaluate a person's state of health during mountain climbing.



Eduard Escrich holding the Compumedics Somté Sleep System for the study of sleeping patterns.

Source: El Periodico, 8 March 2003

PROFILE

OF ELIZABETH KEALY

Born in Zimbabwe, Liz Kealy was first introduced to the science of Sleep Medicine while working part time as a Sleep Technician in the Medical School of the University of Witwatersrand, South Africa. It was here in South Africa where Liz set up the first dedicated Sleep Clinic in the country, and then moved on to manage a sleep lab in the UK. Since then, she has gained invaluable insight into the operations of different sleep labs globally. Liz is a Clinical Applications Specialist at Compumedics.

LIZ'S TOP 10 PICKS OF PAPERS ON SLEEP MEDICINE

- Douglas, Neil J., "**Home Diagnosis Of The Obstructive Sleep Apnoea/Hypopnoea Syndrome**", Sleep Medicine Reviews, Vol. 7, No. 1, pp 53-59, 2003
- D. Poyares, C. Guilleminault, A. Rosa, M. Ohayon, U. Koester, "**Arousal, EEG Spectral Power And Pulse Transit Time In UARS And Mild OSAS Subjects**", Clinical Neurophysiology, Vol 113, No.10, pp 1598-1606, 2002
- Bradley T.D. & Floras J.S., "**Sleep Apnea And Heart Failure: Part I: Obstructive Sleep Apnea**", Circulation, Vol. 107, No. 12, pp 1671-1678, 2003
- Bradley T.D. & Floras J.S., "**Sleep Apnea And Heart Failure: Part II: Central Sleep Apnea**", Circulation, Vol. 107, No. 13, pp 1822-6, 2003
- Spiegel, K., Leproult R., Van Cauter E., "**Impact Of Sleep Debt On Metabolic And Endocrine Function**", The Lancet, Vol. 354, No. 9188, pp 1435-9, 1999
- Manser R.L., Rochford P. Naughton M.T., Pierce R.J., Sasse A, Teichtahl H., Ho M., Campbell D.A., "**Measurement Variability In Sleep Disorders Medicine: The Victorian Experience**", Internal Medicine Journal, Vol. 32, No. 8, pp 386-93, 2002
- Van Dongen H.P., Maislin G., Mullington J.M., Dinges D.F., "**The Cumulative Cost of Additional Wakefulness: Dose-Response Effects on Neurobehavioural Functions and Sleep Physiology from Chronic Sleep Restriction and Total Sleep Deprivation**", Sleep, Vol. 26, No. 2, pp 117-26, 2003
- McNicholas W.T. & Krieger J., "**Public Health And Medicolegal Implications Of Sleep Apnoea**" Eur Respir J., Vol. 20, No. 6, pp 1594-1609, 2002
- Phillips B.G. & Somers V.K., "**Sleep Disordered Breathing And Risk Factors For Cardiovascular Disease**", Curr Opin Pulm Med., Vol. 8, No. 6, pp 516-520, 2002
- Solin P., Kaye D.M., Little P.J., Bergin P., Richardson M., Naughton M.T., "**Impact of Sleep Apnea on Sympathetic Nervous System Activity in Heart Failure**", Chest, Vol. 123, No. 4, pp 1119-1126, 2003

TIPS

SOME OF THE NEW FEATURES NOW AVAILABLE ON PROFUSION PSG 2

ProFusion PSG 2

Manual Scoring Improvements

Quick Delete, Resize and Reclassification of Scored Events

- Scored events can be quickly deleted by holding the mouse pointer over the event and pressing the Delete key. To resize, simply "click & drag" at the start or end point of the event, and to reclassify, simply left-click on the event and press the first letter of the new type – eg. "O" for Obstructive Apnea, "C" for Central Apnea, etc.

Classify Hypopneas

- An option to activate sub-classification of hypopneas into Obstructive, Central or Mixed is now available.

Report Generation Enhancements

Support for Custom Report Parameters

- Through the use of powerful VB Scripting supported by MS Word, virtually any report parameter can be created, eliminating the need to wait for software updates for future report parameters.

Split Night Study Reporting

- A report option is now available which generates a single Split-Night Report for studies that include a diagnostic portion and up to 2 therapeutic segments. Easily select the epoch range that represents each segment.

User Interface Improvements

Enter User Events in Pageback

- Technicians may enter notes after the fact, while recording a study. Events entered in PSG Online 2 may also be edited during Pageback.

User Defined Graphic Summary Analysis Window

- Now, users can fully customize the graphic summary display. Show from one to thirteen trend or event graphs in any order and with any scaling factors.

Enhanced Automatic Analysis

Improvements in Limb Movement/PLM Analysis

- A major reconstruction of this analysis package provides user adjustable thresholds and criteria and improved marking of limb movements. Improvements also include analysis support for two EMG inputs for each limb, ensuring a more accurate analysis, and the ability to mark and report PLM episodes.

Pulse Transit Time Analysis Added

- For those interested in the latest approach to using changes in PTT to assist in defining arousals and obstructive hypopneas, this analysis may be very useful. PTT analysis requires a plethysmography waveform from an appropriate pulse oximeter.

ProFusion PSG Online 2

- A quick zoom option has been added where a trace can be zoomed in or out by moving the mouse cursor over the trace and scrolling the mouse wheel. This even works for DC traces.
- If a study is terminated abnormally, due to a computer failure for example, it is now possible to resume the study when the system is restarted. When PSG Online 2 is launched from NetBeacon in this situation, you are given the option to resume the previous study or begin a new one.
- The new Online Summary in PSG Online 2 will generate a summary while the study is recording, which means no more waiting for ProFusion PSG 2 to generate the summary after study acquisition.

ProFusion PSG 2 and PSG Online 2

- Impedance measurement results can now be saved during recording in PSG Online, and recalled in ProFusion2 PSG during study review.

DIGITAL VIDEO

If you have a middle mouse button or wheel, it has many uses in Digital Video replay. Pressing it while video is zoomed will allow you to pan around the zoomed image. Rolling the wheel will zoom the image in and out.

SIESTA

As a backup in case of power outage or other problems, the Siesta's compact flash card is a great way to prevent loss of your study. When recording a study, selecting both "Record to Siesta's flash disk" as well as "Record to local drive" will set the Siesta to record a backup study to flash card. If disaster should strike, and for some reason the original study is lost, the flash card will contain identical study data.

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** or **Call: 1800 651 751.**

RECENT EVENTS

Neuroscan School

Neuroscan School was held in Australia for the very first time from the 7-11 April 2003.

The event was a great success, with over 30 people attending from all over Australia. Held at the Mercure Hotel, Melbourne, the school was led by Neuroscan founder Dr. Stephen Sands, and software developer Dr. Manfred Fuchs. Neuroscan Schools have been in great demand all over the world. In addition to Melbourne, the School has also toured Mexico and Spain, and is scheduled to visit the US and London within the year. For more information on Neuroscan School, please visit http://www.neuro.com/school.sstg

EVENTS DIARY

TSANZ - QLD Winter Meeting
[illegible]
Gold Coast, Queensland
QLD, Australia

CSANZ
[illegible]
[illegible]
[illegible]
Auckland Convention Centre
Auckland, Australia

Brain and Mind
[illegible]
Parkville, VIC, Australia

17th Asia-Pacific Congress on Diseases of the Chest
[illegible]
Istanbul Convention & Exhibition Centre
Istanbul, Turkey

4th International Conference on Noninvasive Functional Source Imaging
[illegible]
[illegible]
Chieti, Italy

5th Congress of the Federation of European Psychophysiology Societies
[illegible]
Palais des Congrès Jacques Chirac
Bordeaux, France

EPS
European Polysomnography Society
[illegible]
Aspen Lodge
Merlin, Australia

AAN Neurophysiology Workshop
[illegible]
Sheraton Mirage
Port Douglas, Australia

ASA/ASTA
[illegible]
Rotorua Region
Rotorua, New Zealand

International Epilepsy Congress
[illegible]
Lisbon Congress Centre
Lisbon, Portugal

EEG Technicians Conference
[illegible]
Rotorua Convention Centre
Rotorua, New Zealand

ASNA
[illegible]
Spring Conference
[illegible]
[illegible]
Sydney, Australia

ESA
European Sleep Society
[illegible]
Hyatt Regency Perth
Perth, New Zealand

Neuroscan School
[illegible]
Denver, CO

Medica
[illegible]
Messe Düsseldorf, Germany

ASRS
[illegible]
[illegible]
[illegible]
Maui, Hawaii

Asia Pacific Respiratory Congress
[illegible]
Sydney, Australia
Hyatt Regency Sydney

CONTACT

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:
Compumedics welcomes any article contributions made by our readers. Two Movie Passes to any Hoyts Cinema will be given to the contributor of any article used in the Compumedics Vista Update.

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