using SenseWear Professional Software, Version 6.1. Epoch-by-epoch agreement rate (AR) between the measures of sleep versus wake was calculated. Cohen's kappa coefficient (K), predictive value for sleep (PVS) and wakefulness (PVW), sensitivity and specificity were calculated. Linear regression analyses were performed for EE against apnea hypopnea index (AHI), 3% oxygen desaturation index (ODI), body mass index (BMI), waist-hip ratio (WHR), gender, age and average heart rate (HR) during sleep.

Results: A total of 23 758 mins of sleep and wake were analysed. Whilst the epoch-by-epoch AR was high (79.9 ± 1.6%), Cohen's K revealed only fair agreement (0.36 ± 0.03). The ability of the Sensewear to estimate sleep was very good (PVS: 85.8 ± 1.8%. Sensitivity: 88.7 ± 1.5%), however it was less accurate in determining wake (PVW: 55.8 ± 2.9%, specificity 49.9 ± 3.6%). Sleep EE was significantly associated with AHI (r = 0.54), 3% ODI (r = 0.51), BMI (r = 0.68), WHR (r = 0.52) and male gender (r = 0.58, P < 0.001 for all). Forward stepwise multiple linear regression however revealed that BMI (β = 0.72), male gender (β = 0.51), age (β = −0.35), and average HR during sleep (β = −0.17) were independent predictors of EE (Model R^2 = 0.78).

Conclusions: The SenseWear armband provides a reasonable estimation of sleep versus wake. Furthermore, in a selected population of OSA patients, increasing OSA severity is associated with increased EE during sleep, although primarily through the mechanism of increased BMI. These data add to the complexity of weight control in this population.

Po91

Light sensors for determination of lights off time in home polysomnography

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Introduction: Polysomnography (PSG) in the home has advantages over in-laboratory PSG, but one important disadvantage is the inability of current devices to record lights off (Loff) and on times and thus important indices such as sleep onset latency and sleep efficiency cannot be determined. This study evaluates the characteristics of a prototype light sensor (Compumedics) used with a portable PSG device (SomtePSG, Compumedics), and its utility in the home where light conditions are uncontrolled and it is impractical to calibrate the light sensor to the conditions in each individual home.

Methods: Three examples of the light sensor were exposed to incandescent light at a range of controlled light levels to determine their signal characteristics. Twenty-four home PSGs were analysed to explore the characteristics of the light sensor signal in the home.

Results: The table below shows the results for the sensor signal characteristics. The light sensor allowed a discernable Loff to be identified in 19 of 24 home PSGs, and in these 19, the mean difference between patient reported and light sensor Loff was 1.2 min (SD 16.6, range −23 to +50).

	sensor 1	sensor 2	sensor 3
Linear Range (Lux)	0 - 334	0 - 382	0 - 350
Sensitivity (mv/Lux)	0.749	0.655	0.713
Drift (Lux) over 14 hours	0.2	0.1	0.4
Linearity (full scale)	<1%	<1%	<1%

Discussion: The light sensor signals were found to have good sensitivity and linearity, low drift and record a range of lux appropriate for the home setting. When used in home PSG, these light sensors were able to establish Loff in the majority of PSGs. The wide range of differences between patient reported and sensor Loff demonstrates the importance of objective determination of Loff in home PSG, particularly for studies where accurate measurements of Loff dependant indices such as sleep onset latency are needed.

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Measurement of service quality in a tertiary sleep disorders centre with the Servqual scale

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Patient satisfaction is an important feature of overall service quality. The Servqual scale, developed by Parasuraman and colleagues[1], is based on the observation that customer satisfaction is related to the gap between what the customer expects and what is delivered. The instrument further splits the quality of service into five perceptual dimensions: tangibles, reliability, responsiveness, assurance, and empathy. The Servqual scale has been used in a large range of industries, but less so in the healthcare industry. Our aim was to evaluate the quality of service using the Servqual instrument. The original Servqual instrument was modified by contextualising it for the sleep disorders industry as well as reducing the number of questions. Patients are asked a series of statements (15) to indicate what they expected in a sleep disorders service and then a further 15 statements to indicate what they perceived they had received from our service. Each statement asked for a likert-type rating (1–7) to indicate the strength of agreement with the statement. The smaller the gap, the better the service. All patients seen in a sleep medical review during the months of January and February were asked to complete the SERVQUAL instrument. We decided upon this patient group as these are most likely to experience the breadth of our service and staff (i.e. admin, medical nursing, scientific, testing, troubleshooting etc). The instrument consisted of 15 statements each; asking for their expectations of service and perceptions of the service they received. In addition, patients were also asked to give a weighting for each of the dimensions of service. A total of 292 patients were asked to complete the SERVQUAL instrument. To date, 47.3% of the surveys have been completed. Data analysis reveals an overall service quality gap of 0.1 ± 1.2. This suggests our service quality has met the expectations of the patients. The average gap for each dimension was as follows: Tangibles 0.1 ± 0.8, Reliability 0.2 ± 1.1, Responsiveness 0.1 ± 1.1, Assurance 0.1 ± 0.9, and Empathy 0.1 ± 0.9. From a quality improvement perspective, this suggests resources would be best directed towards increasing the reliability of the service.

Reference: 1. Parasuraman et al. Refinement and reassessment of the Servqual scale. Journal of Retailing 1994; 67: 420–451.

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The comparison of an unobtrusive method of recording airflow with recordings using nasal cannulae for the diagnosis of SDB in the home

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Introduction: Home testing is an accepted method for diagnosis of sleep disordered breathing (SDB). A potential problem in home testing is signal quality loss requiring repeat recordings.

Aim: To examine the ability of a device that does not require the attachment of sensors to diagnose SDB in a large group of adults in their own home.