

Results 30 split-night studies were undertaken on 10 infants (8 female) aged 0.06–1.79 (mean 0.79, SD 0.44) years. At baseline (ie, air), children with PWS had a mean (SD) central apnoea index (CAI) of 6.9 (6.3) per hour, with accompanying falls in SpO₂. Oxygen therapy led to statistically significant reductions in CAI, as well as improved SpO₂ (Abstract P198 Table 1). No significant change in the number of obstructive events was noted.

Abstract P198 Table 1 Effect of oxygen therapy on sleep-disordered breathing in infants with PWS

	Air	Oxygen	p-Value*
% Study with SpO ₂ <90%	1.5 (3.8)	0.2 (0.4)	<0.05
Lowest SpO ₂ (%)	77 (8)	89 (6)	0.06
Longest central apnoea (s)	10.3 (4.2)	9.8 (3.7)	0.68
Maximum tCO ₂ (mm Hg)	56.5 (7.5)	55.3 (12.5)	0.58
Central apnoea index (CAI)	6.9 (6.3)	3.7 (4.2)	<0.001
Obstructive event index (OEI)	3.9 (4.1)	5.4 (8.7)	0.37

*Paired t-test.

Discussion Infants with PWS have sleep-disordered breathing problems, which are predominantly central in origin, and cause significant hypoxia in some patients. Improvements in both central event indices and oxygenation were noted on oxygen therapy. Longitudinal work with this patient group would help to establish timing of onset of obstructive symptoms. Whether early recognition of central hypoventilation, and correction with oxygen alter the evolution of respiratory dysfunction and excessive daytime somnolence in later life remains to be seen.

P199 **DIABETIC MACULAR OEDEMA (DME) AND OBSTRUCTIVE SLEEP APNOEA (OSA)—VISUAL IMPROVEMENT POST CPAP THERAPY. PROOF OF PRINCIPLE STUDY**

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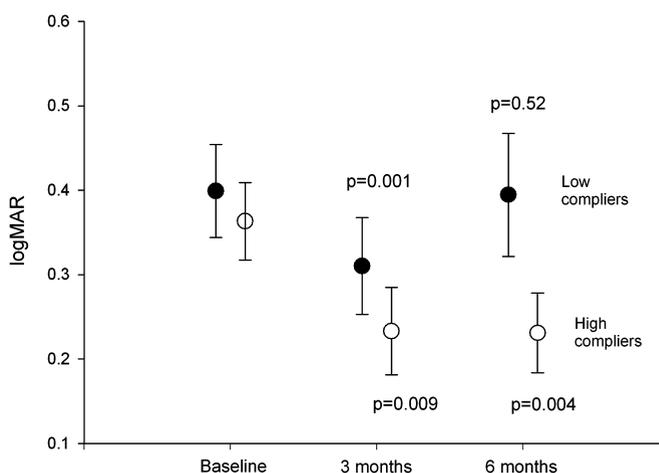
Introduction and Objectives DME is an important cause of visual loss and is more advanced in patients with coexistent OSA.¹OSA is very common in individuals with DME (54%), compared to unselected patients with type II diabetes (23%)² and age matched controls (8%).³ This study was designed to see if CPAP could improve vision in patients with DME and coexistent OSA, perhaps via a reduction in intermittent hypoxia and/or blood pressure oscillations.

Methods 35 patients with DME (identified by ocular coherence tomography, OCT) and OSA (oxygen desaturation index >10, or apnoea hypopnoea index >15) were identified. Visual acuity (VA, logMAR, similar to the Snellen chart) and OCT measurements were made twice at baseline (pre-CPAP), 3 and 6 months (post-CPAP).

Results 32 patients (17 males) participated; 4 withdrew. 28 have 3-month follow-up data and, 24 have 6-month data. Average (SD) age 66.6 years, (8.3), BMI 31.8 Kg/m² (6.7), HbA1c 7.5% (1.4%), ESS 7.9 (4.6), ODI 20.9 (14.8) and AHI 19.0(14.5). CPAP compliance was averaged over the 6 months and a median split into 'high' and 'low' compliers performed (> and <2.5 h/n). At 3 months VA improved significantly in both high (p=0.009) and low compliers (p=0.001). This was only sustained at 6 months in high compliers, p=0.004. (Low compliers p=0.52). There was no significant reduction in macular oedema at either 3 or n.

Conclusions This hypothesis-generating uncontrolled study indicates that continued use of CPAP in individuals with DME and OSA was associated with sustained improvement in visual acuity. This result provides justification to perform an RCT and suggests that

logMAR should be the primary endpoint whereas OCT measurements appear uninformative.



Abstract P199 Figure 1 LogMAR after CPAP use, high versus low compliers (mean ± SEM).

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P200 **SNORING AND CAROTID ATHEROMA: NO ASSOCIATION**

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Background Obstructive Sleep apnoea (OSA) has increasingly been linked to cardiovascular endpoints including hypertension, stroke, myocardial infarction, and carotid atherosclerosis. Snoring is strongly associated with OSA. More recently, the snoring component of OSA, by producing local arterial trauma, has been independently linked to the presence of carotid but not femoral atheroma,¹ and to acute carotid trauma in an animal model.² The aim of this study was to identify whether this relationship could be established retrospectively in a high vascular risk cohort of individuals with a recent cerebrovascular event (TIA or stroke).

Method Participants with a recent TIA or stroke in the Oxford Vascular Study (OXVASC) completed an entry questionnaire which included frequency of snoring (never, rarely (1–2/year), occasionally (4–8/year), sometimes (1–2/month), often (1–2/week), usually (3–5/week) and always (every night)). A subset of 316 individuals (aged 62–84 years), with both a completed snoring questionnaire and carotid Doppler data, were included. This information was used to retrospectively assess a potential relationship between presence and severity of snoring, and degree of carotid artery stenosis and plaque type (echogenic/echolucent/mixed, calcified/non-calcified and smooth/irregular).

Results 160 out of 316 participants were male, mean (SD) age 73.2 (11.22). No significant association could be identified between intensity of self-reported snoring and degree of carotid stenosis or plaque morphology.

Conclusions No significant association could be identified between snoring and carotid atheroma. There are no obvious explanations for the discrepancy between this study and previous work, except that the original study measured snoring objectively during a one night

in hospital study, whereas in our study snoring was subjectively assessed and perhaps better represents the usual situation at home. Furthermore, the femoral artery may not be an appropriate 'control' artery with which to compare the carotid for atheroma.

Abstract P200 Table 1 Degree of carotid artery stenosis in 'frequent' and 'non-frequent' snorers

	'Frequent snorers'	'Non-frequent' snorers	p-Value
Carotid stenosis \geq 30%	43%	48%	0.44
Carotid stenosis \geq 50%	16%	21%	0.42

'Frequent snoring' = snoring stated as \geq 1–2/times per week.
p-Values all determined by Fisher's Exact test.

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P201 HEALTH LITERACY AND SLEEP APNOEA

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Introduction We have previously demonstrated that 33% of new patients and 16% of serial users have difficulty completing the Epworth Sleepiness Scale (ESS). To explore reasons for this we assessed literacy in a further group of patients.

Methods 122 Sleep Centre and Lung Function laboratory patients were approached and assessed for level of functional literacy in medicine using the REALM questionnaire. A score \leq 60 suggests a literacy level that would struggle with patient education materials and prescription labels. Education and English language data were collected.

Results 86/92 (93.3%) Sleep and 30/30 (100%) Lung function (LF) patients completed REALM. 5 (5.6%) in the Sleep group declined when shown the test. One did not complete due to time restrictions. Mean age was 51.2 \pm 11.8 years Sleep and 56.1 \pm 17 years LF. Mean age leaving formal education was 18.7 \pm 2.9 years Sleep and 17.7 \pm 2.9 years LF. In the Sleep cohort 24% (21/86) had a graduate and 15% (13/86) postgraduate education vs. LF 27% (8/30) graduate and 3% (1/30) postgraduate education. REALM scores are shown in Abstract P201 Table 1 grouped into the standard four ranges. 78% (Sleep) and 83% (LF) spoke English as their mother tongue; all patients used English as their everyday spoken language.

Abstract P201 table 1

REALM score ranges	Equivalent reading age US school grade	UK age equivalent	% Sleep (n=86)	% Lung function (n=30)
0–18	3rd grade or below	8 years or less	0	0.0
19–44*	4th/6th grade	9–12 years	1.2	3.3
45–60*	7th/8th grade	12–14 years	15.1	6.7
61–66	High School	14–15 years+	83.7	90.0

*A score \leq 60 suggests a literacy level that would struggle to cope with patient education materials and prescription labels.

Conclusions Assessing literacy in patients is not easy. We have previously shown how patients struggle to complete the ESS. Problems completing forms occur for many reasons and evidence suggests that clinicians overestimate patient literacy. We found evidence of impaired health literacy in 16.3% of Sleep and 10% of Lung function patients. That some Sleep patients declined to be tested once shown the questionnaire might suggest the 16.3% score

is underestimated. Why Sleep patients should fare worse than LF patients is unclear especially when university and age leaving education were higher in the sleep cohort. All used English as their everyday language however fewer Sleep patients had English as their mother tongue. Cognitive deficits associated with undiagnosed obstructive sleep apnoea syndrome and increased sleepiness could conceivably be a contributory factor. This study suggests clinicians need to provide clinical material and information in a format that is comprehensible to a wide range of patients (such as pictorial format) and that Sleep patients may have special needs.

P202 CLINICS FOR OBSTRUCTIVE SLEEP APNOEA HYPOPNOEA (OSAH)—TIME FOR A CHANGE?

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Introduction OSAH is a significant public health problem. Growing awareness and rising prevalence is increasing demand for sleep services. Many Trusts are unable to expand existing clinic space to meet this demand. In its recent White Paper¹, the Government laid out its vision of a patient-centred NHS, pledging patients more choice and control over decision making about their care. However, a sizeable proportion of patients with suspected OSAH are from the working population, yet the NHS does not routinely provide clinics outside normal working hours.

Method Patients referred for suspected OSAH were randomly appointed to either daytime or evening clinics. Over a 3-month period, opinions of this out-of-hours service and problems encountered on attending the clinics were surveyed by questionnaire completed by patients in the waiting room.

Results Of 165 patients appointed, 156 attended and 136 (87%) completed questionnaires (mean age 50.4 years (range 18–75), 74% male). Over half (57% [77/136]) were in employment of which 21% (16/77) worked shifts and 79% (61/77) days. The rest (59/136 (43%)) were non-working due to disability (42% (24/59)), retirement (39% [23/59]), were full-time carers (10% [6/59]) or were unemployed (8% [5/59]). Patient responses are detailed in Abstract P202 Table 1. In addition, 41% (13/32) of workers seen in evening clinics felt that work would have been a problem if attending in the day. DNA rates were higher for daytime clinics (7%) than evenings (3%). The proportion of workers in the DNAs was unknown.

Abstract P202 Table 1 Patient responses

	Working patients	Non-working patients
Actual attendance		
Daytime clinics	58% (45/77)	66% (39/59)
Evening clinics	42% (32/77)	34% (20/59)
Preference		
Daytime clinics	23% (18/77)*	53% (31/59)
Evening clinics	55% (42/77)	12% (7/59)
No preference	22% (17/77)	36% (21/59)
Problems encountered-daytime clinics		
Work	62% (28/45)	–
Transport	9% (4/45)	13% (5/39)
Car parking	9% (4/45)	46% (18/39)
Partner availability	4% (2/45)	13% (5/39)
Problems encountered-evening clinics		
Work	3% (1/32)	–
Transport	0% (0/32)	15% (3/20)
Car parking	22% (7/32)	30% (6/20)
Partner availability	3% (1/32)	0% (0/20)

*Included 33% working shifts.