professionals' (PCP) knowledge of BI, perceptions of their role and current practice.

Methods Six databases were searched (MEDLINE, EMBASE, PsycINFO, CINAHL, Cochrane Library CENTRAL, Web of Science), using terms for 'sleep', 'child/paediatric', 'primary health care', 'general practitioner' and 'health visitor'. Selection criteria included qualitative and/or quantitative studies of PCPs seeing parents or children presenting with paediatric sleep problems or parents/carers of children presenting in primary care. The focus is PCP attitudes, knowledge, understanding and practice regarding paediatric sleep management in primary care. SH is leading paper screening and data extraction. A second reviewer BS screened 20% of initial titles/abstracts, will screen 20% of full texts and will check data extraction. The mixed methods appraisal tool will be used for quality appraisal. A mixed-methods synthesis will include a thematic synthesis of qualitative papers and a narrative synthesis of quantitative papers.

Results Database searches resulted in 7578 results, de-duplicated to approximately 5500. Approximately 400 papers were included from title/abstract screening for potential eligibility. Full texts are currently being screened for full eligibility and data is being extracted. Results will be presented at the conference.

Discussion A greater understanding of PCP knowledge of BI, perceptions of their role and current practice will identify key areas to inform research to improve the management of paediatric sleep problems in primary care.

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P032

DATA FROM THE BRAZILIAN BAEPENDI HEART STUDY COHORT YIELD NEW INSIGHTS INTO THE GENETIC EPIDEMIOLOGY OF INSOMNIA

¹Sabrina S Ahmed*, ²Tâmara P Taporoski, ²Luz M Gomez, ¹Francieli S Ruiz, ³Felipe Beijamini, ²Andréa RVR Horimoto, ²André B Negrão, ⁴Kristen L Knutson, ²Alexandre C Pereira, ¹Annette Sterr, ¹Malcolm von Schantz. ¹Faculty of Health and Medical Sciences, University of Surrey, Guildford, UK; ²Incor, University of São Paulo School of Medicine, São Paulo, Brazil; ³Federal University of Fronteira Sul, Realeza, Brazil; ⁴Feinberg School of Medicine, Northwestern University, Chicago, USA

10.1136/bmjresp-2019-bssconf.32

Introduction Insomnia significantly impacts lifetime morbidity and thus has substantial socioeconomic costs. In developed, high-income countries insomnia prevalence is increasing. However, little is known about insomnia in less urbanised, lower-income populations. Baependi is a Brazilian rural town, which has been shown to maintain sleep cycles synchronised to natural daylight, in spite of electrification. We aimed to investigate the components of insomnia in the family-based Baependi Heart Study cohort, using the Insomnia Severity Index (ISI) questionnaire.

Methods and materials Descriptive analysis was performed on data collected from the Baependi population (n=1,202) using R software. Heritability analysis was calculated using polygenic mixed modelling. Genome-wide association analysis (GWAS) was subsequently performed on the Baependi data, in order to interrogate for associations with polymorphisms previously related with insomnia symptoms (n=811).

Results Descriptive regression analysis categorised 7.6% of the participants as suffering from 'clinical insomnia' based on their ISI scores, with an average total score of 6.5 ± 5.0 (SD). Heritability of ISI score, based on the best-fit model adjusted for sex, age, education, and depression, was 19%. GWAS yielded four associations of genome-wide significance with single-nucleotide polymorphisms (SNP) rs869481, rs62037617 and rs3747579, which are located in the CORO7 gene, and rs3789038, located on the neighbouring HMOX2 gene on chromosome 16.

Conclusion This is one of the first studies of ISI score distribution in a general population. The heritability value observed is consistent with previously published literature, which have used different measures of insomnia symptoms. In addition, this is the first reported GWAS analysis for ISI score, identifying the first significant genome-wide genetic associations of ISI score. Thus, this study confirms the reliability and suitability of ISI as a measure for genetic studies in population.

Acknowledgements This study was supported by the Santander Universities Researcher Mobility Award and CNPq (PVE 400791/2014-5).

P033

THE FEASIBILITY OF REMOTE MONITORING IN PAEDIATRIC PATIENTS REQUIRING NON-INVASIVE POSITIVE AIRWAY PRESSURE THERAPY (NIPAPT)

Ross Langley*, Alex Thomas, Sakina Dastagir, Ridma Jayarathna, Rishi Pabary. Royal Brompton Hospital, London

10.1136/bmjresp-2019-bssconf.33

Introduction Non-invasive positive airway pressure therapy (NIPAPT), including bi-level and continuous airway pressure (CPAP), is used to treat children with multiple conditions including obstructive sleep apnea-hypopnea syndrome (OSAHS). Sustained improvement requires significant effort from the patient, their family and the clinical team. Increasingly, we have found that, despite inpatient establishment, adherence reduces and symptoms re-occur. Re-establishment requires further clinic reviews and admissions, often over several nights. In response, we undertook a pilot study in which 4G-modem equipped ventilators were used to enable remote monitoring of adherence in patients admitted for establishment/re-establishment of NIPAPT.

Methods From July 2019 all new/re-establishment patients requiring NIPAPT were offered and consented for remote monitoring. The secure monitoring system Airview© (Resmed) was used with the ventilator devices - Lumis 100 & 150 (Bi-Level) and Airsense S10 Elite (CPAP). Data collected included ventilator usage, AHI, leak and pressures. Data checks were carried out after one week of being established, and then regular intervals (up to 90 days).

Retrospective adherence data was collected from patients prior to remote monitoring.

Results Post establishment, initial data (3 patients) showed variable overnight adherence with mean use 38 minutes, 47 minutes and 7 hours 26 minutes respectively. Following the first phone contact with the parents, a personalized plan was agreed and arranged. The aim of each plan addressed issues such as adjusting/changing the mask interface, humidification and parental encouragement. Further scheduled contacts will occur on a personalized basis. Parents will receive a satisfaction questionnaire at the end of the monitoring period.

Discussion Remote monitoring technology has the potential to guide adjustments in NIPAPT therapy, monitor and improve adherence and reduce financial burden of hospital based review. Our preliminary work shows high uptake. We await results of the patient satisfaction questionnaire and cost breakdown following pilot study completion.

P034 A NOVEL APPROACH TO QUANTIFY SLEEP-RELATED RHYTHMIC MOVEMENT DISORDER USING AUTOMATIC 3D ANALYSIS

¹Marcus Gall, ²Rachel van Sluijs, ²Elizabeth Wilhelm, ¹Heinrich Garn, ³Peter Achermann, ⁴Cathy Hill*. ¹Sensing and Vision Solutions, Austrian Institute of Technology GmbH, Austria; ²ETH, Switzerland; ³Zurich Center for inter-disciplinary Sleep Research, University of Zurich, Switzerland; ⁴School of Clinical and Experimental Sciences, Faculty of Medicine, University of Southampton, UK

10.1136/bmjresp-2019-bssconf.34

Background Unlike other episodic sleep disorders, there are no agreed severity indices for sleep-related rhythmic movement disorder (RMD). Rhythmic movements (RMs) can be characterized by polysomnography, but sensor placement may inhibit movements. Actigraphy and 2D video can be used in the home, but have limitations. Actigraphy does not differentiate RMs from other movements, while manual scoring of 2D video is laborious.

Abstract P034 Figure 1 RM time of night distribution plot. Each data point shows how many 1.5 s segments are classified as RMs per 30 minutes, combining data across subjects. Automatic 3D analysis and manual 2D annotations show high agreement

We developed a sensitive method to detect and quantify RMs using automatic 3D video analysis.

Method Children with RMD (n=6, 4 male) aged 5–14 years were studied for two nights in a sleep laboratory. A ceiling-mounted camera captured 3D depth images, while another recorded 2D video, from lights off until lights on. We developed algorithms to analyze the characteristics of RMs and built a classifier to distinguish rhythmic from non-rhythmic movements based on 3D video data alone. Data from 3D automated analysis were compared to manual 2D video annotations in 1.5s segments to assess algorithm performance [figure 1]. Novel indices were developed: the RM index, frequency index and duration index to better characterize RMD severity.

Result Automatic 3D analysis demonstrated high levels of agreement with the manual approach (Cohen's Kappa >0.9; F1-score >0.9). We also demonstrated how RM assessment can be improved using plots of our novel indices for ease of visualization.

Conclusion 3D video technology is widely available and can be integrated into sleep laboratories. Our automatic 3D video analysis algorithm yields reliable quantitative measurement of RMs, reducing the burden of manual scoring. Furthermore, our novel RMD severity indices offer standardized measures of utility to clinical and research practice.

P035 THE UTILISATION OF A REMOTE MONITORING SYSTEM FOR THE IMPROVEMENT OF PATIENT CPAP COMPLIANCE

Lisa McIntyre*. NHS Lothian, Edinburgh, UK

10.1136/bmjresp-2019-bssconf.35

Introduction First-line treatment for obstructive sleep apnoea hypopnoea syndrome (OSAHS) is continuous positive airway pressure (CPAP). Compliance with CPAP is essential for treatment to be effective. Excess air leakage from the CPAP mask can be uncomfortable for patients and is an important independent predictor of CPAP compliance. As the incidence of OSAHS is rising, novel treatment pathways must be utilised to maintain service standards whilst also maximising CPAP usage. The aim of this study was to determine whether a novel remote monitoring pathway could decrease excess CPAP mask leak and increase usage of the CPAP machine.

Methods Patients (n=48) started on CPAP were allocated to receive either Standard Care (SC) (n=22) or Remote Monitoring (RM) (n=26) follow-up according to their appointment time. Nurses consulted software (AirviewTM; Resmed Ltd) three times per week to review RM patients and contacted them if required. Additional contact could be initiated by patients from either group at any time. Patients were followed-up 4–6 weeks after CPAP issue; SC patients were reviewed in hospital, whilst RM patients were reviewed by telephone. Data was collected on median mask leak (L/min) and mean compliance (hrs/night).

Results There was no significant difference in compliance between SC (4.76±2.39 hrs) and RM (5.20±1.78 hrs) groups (p=0.486) (figure 1). There was a significant difference in mask leak between SC (13(8–25) L/min) and RM (3(1–7) L/min) groups (p<0.001) (figure 2).