clinicians may not be equipped to meet the needs of families in this area. Informational resources about sleep (for CYP, parents and clinicians) could be useful and offer the potential to mitigate, although not overcome, some of the existing challenges.

O9 AN AUDIT OF THE ANNUAL PRESCRIBING PATTERNS OF MELATONIN WITHIN A REGIONAL PAEDIATRIC DEPARTMENT IN THE NORTH EAST OF ENGLAND

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Intro Melatonin is widely used off licence in children and young people with an evidence base for delayed sleep phase syndrome but only modest impact as a hypnotic. We reviewed national and regional prescribing data and undertook a detailed review of all melatonin prescriptions issued to those under the age of 18 within one of the UK's largest dedicated paediatric hospitals, this included cost analysis. This was aimed at understanding whether prescribing was appropriate, whether alternative behavioural therapies had been recommended and whether there had been consideration of other causes of poor sleep.

Method All melatonin prescriptions issued from the hospital for patients under the age of 18 over a year were measured. We assessed whether prescriptions were issued in accordance with local Melatonin Shared Care Guidance standards[1] that emphasise fixed timing and review of benefit. This included reviewing all electronic patient care records.

Results Adherence to the standards outlined in the shared care agreement were not being met. There was a difference between prescriptions issued by the community team versus inpatients, outpatient prescribing had better documentation about discussions regarding breaks and reviewing the dose. See table 1. Total costs of prescriptions £13,299.16; the majority of this was for oral suspension (£8730.34), this should be third line and not issued to children under 5years.[1]

Abstract O9 Table 1 Documentation of key shared care recommendations

Documentation of -	Yes	No
Patient bedtime	152/220	68/220
Bedtime routine	101/220	119/220
Prior behavioural input	20/220	200/220
Recommendations about timing	123/220	97/220
Consideration of risk factors for OSA	32/220	188/220
Review of dose /discussion with family	74/220	146/220

Discussion The evidence base for melatonin highlights the importance of advice around timing, behavioural intervention and review of ongoing need and benefit. The audit highlighted a lack of knowledge about melatonin and led to a trust wide sleep education programme. While well tolerated for many, there is a cost to inappropriate prescribing. There is a clear need for better access to behavioural interventions and better support for carers with education, information and support.

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O10 3D-DESIGNED CUSTOM-MADE MODULAR HEADGEAR FOR CHILDREN USING NON-INVASIVE VENTILATION. [THE 'COMFORT' PROJECT: CUSTOM-MADE FACEMASKS FOR RESPIRATORY THERAPY]

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Non-invasive ventilation (NIV) is assisted respiratory support delivered via facemask for people with chronic respiratory failure. Commercial NIV masks are available but masks that fit well are difficult to find for children who have small or asymmetrical facial features. Compromised ventilation can have significant health and quality of life impacts for patients and their families.

Previous development of 3D printed custom-made masks to improve comfort, fit and performance of NIV for children revealed that in 45% mask-fit was compromised by poorly-fitting headgear (Willox 2020).[1] Parents report that headgear is of 'paramount' importance for mask-fit.

Design concepts and materials for a custom-made modular headgear were refined using patient and parent/carer feedback until a final prototype was reached. The custom-made headgear was evaluated against a comparator mass manufactured stock headgear using adult volunteers using pre-set levels of headgear strap tension (100g, 200g and 300g). Air leak was demonstrated using leak data from a Nippy Junior Plus ventilator and pressure was measured using a Tekscan F-Socket 9811 pressure sensor array.

Air leak measurements at medium tension (200g) were 82 l/min for custom mask/custom headgear, 69 l/min for stock mask/custom headgear and 79 l/min for stock mask/stock headgear. Pressure readings at the nasal bridge at medium load (200g) were 86 g/cm2 for custom mask/custom headgear, 53g/cm2 for stock mask/custom headgear and 123 g/cm2 for stock mask/stock headgear.

At medium tension, a stock mask with customised headgear was the optimum combination. 3D printing of silicon is in its infancy therefore 3D custom-made mask technology is evolving; however implementation of custom-made headgear may result in significant patient benefit.

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O11 IRREGULAR SLEEP/WAKE PATTERNS IN STUDENT-ATHLETES

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Introduction Student-athletes are exposed to a range of academic-related and sport-related risk factors that can threaten healthy sleep practices.[1 2] Emerging evidence has shown that student-athletes display a high prevalence of short sleep durations and poor perceived sleep quality.[3] However, empirical research has primarily reported sleep outcomes over a set monitoring period rather than assessing day-to-day variability in sleep patterns. Therefore, this study aimed to use the Sleep Regularity Index (SRI) to assess sleep variability in student-athletes and examine the impact of training and competition on sleep outcomes.[4]

Methods Rugby Union student-athletes (n = 10, all male) from a single University were recruited with no diagnosed sleep disorder and with a sleep difficulty score <12 on the Athlete Sleep Screening Questionnaire.[5] Actigraphy monitors (GENEActiv, Activinsights, Cambridge, UK) were worn for 14 consecutive nights. Data were collected during normal teaching weeks and in-season with both morning training and evening matches. Sleep/wake and SRI were assessed using open-source GGIR and sleepreg packages on R software.[6]

Results Preliminary results showed that participants had an average sleep duration of 6.85 ± 0.46hr. Nights preceding morning training were of shorter duration with earlier sleep onset and offset, while nights following evening matches were of shorter duration with later sleep onset and offset (table 1). The SRI across participants was 72.0 ± 5.4, with a range of 65.4 – 80.0 (figure 1).

Discussion The findings support previous research indicating that training and competition can impair sleep in athlete populations. Sleep regularity was substantially lower than observed in elite athletes.[7] Furthermore, despite only considering nocturnal sleep, the observed SRI was lower than previous research that also included daytime napping, that is typically more erratic in placement and duration.[4 8] The impact of training and match scheduling on sleep should be considered, and alterations may reduce sleep irregularity in student-athletes.

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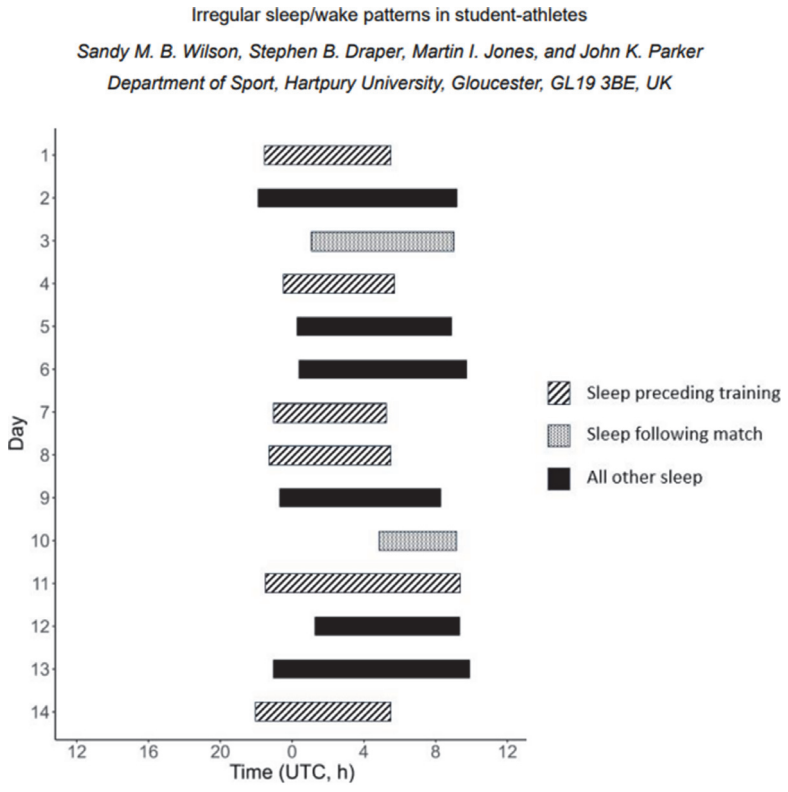

Abstract O11 Figure 1 Raster plot of sleep onset and offset for a participant with irregular sleep (SRI: 65.4)