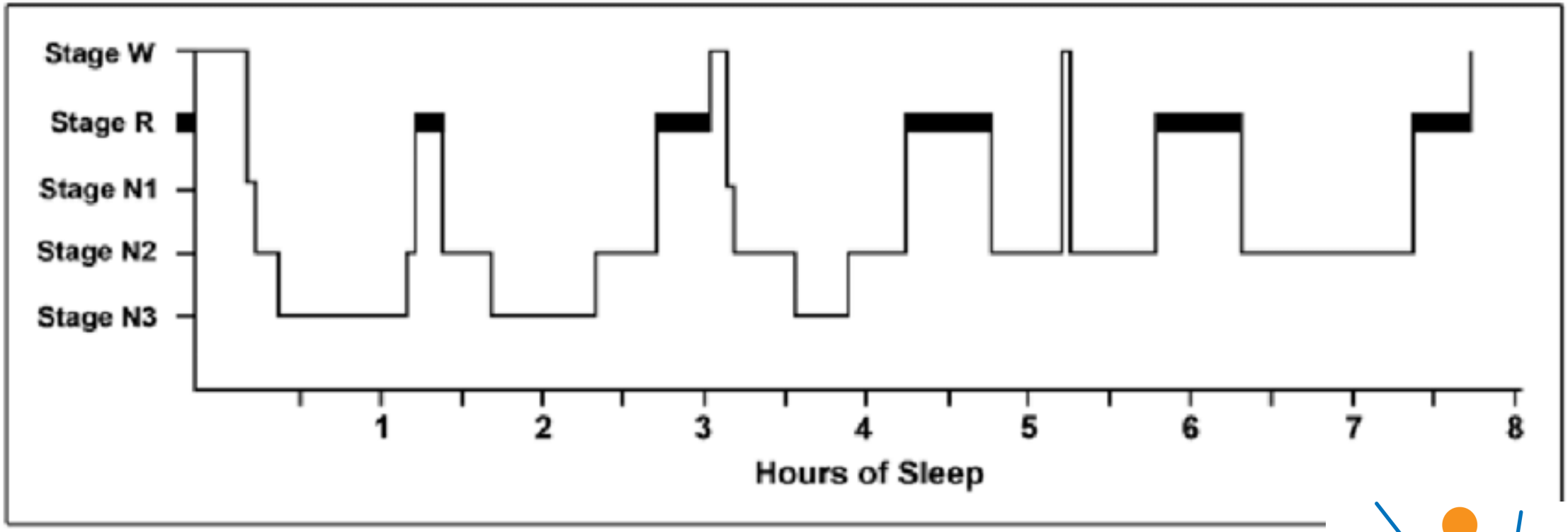
OSA and obesity – seek and ye shall find

Toni McBride

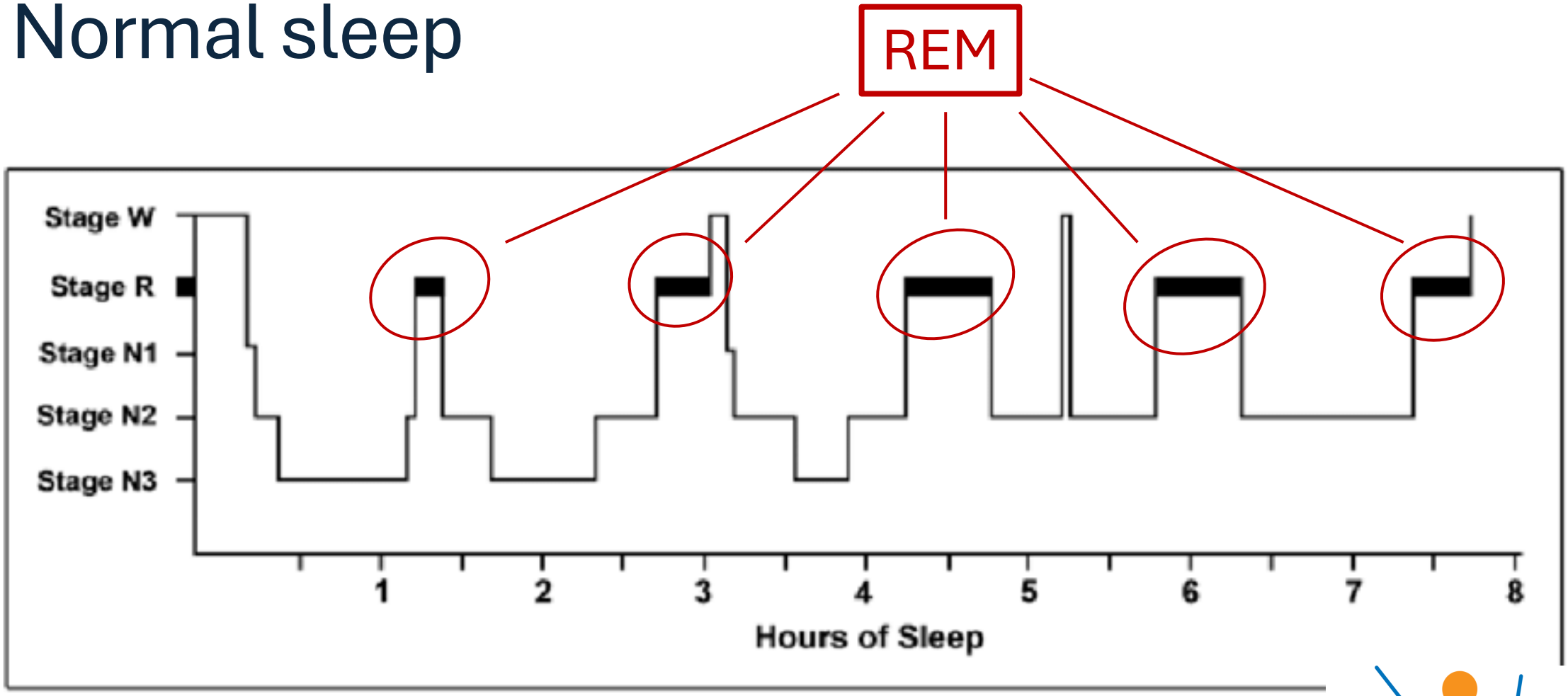
Royal Manchester Children's Hospital

The many faces of OSA

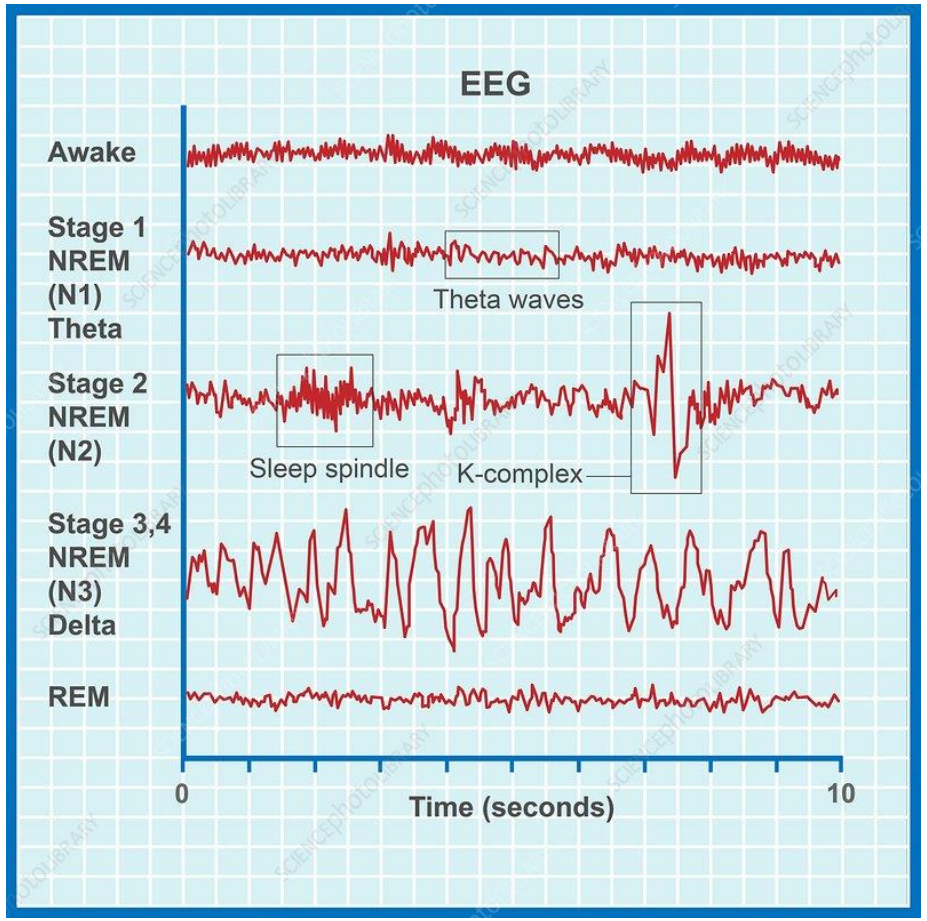
Normal sleep

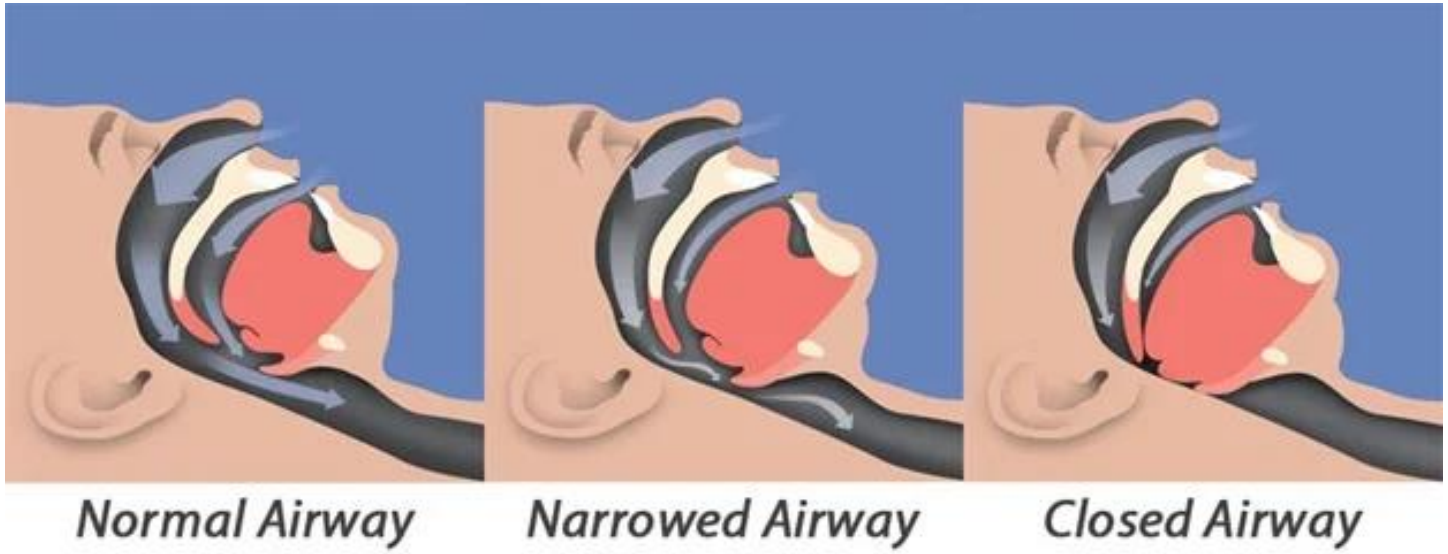


Normal sleep

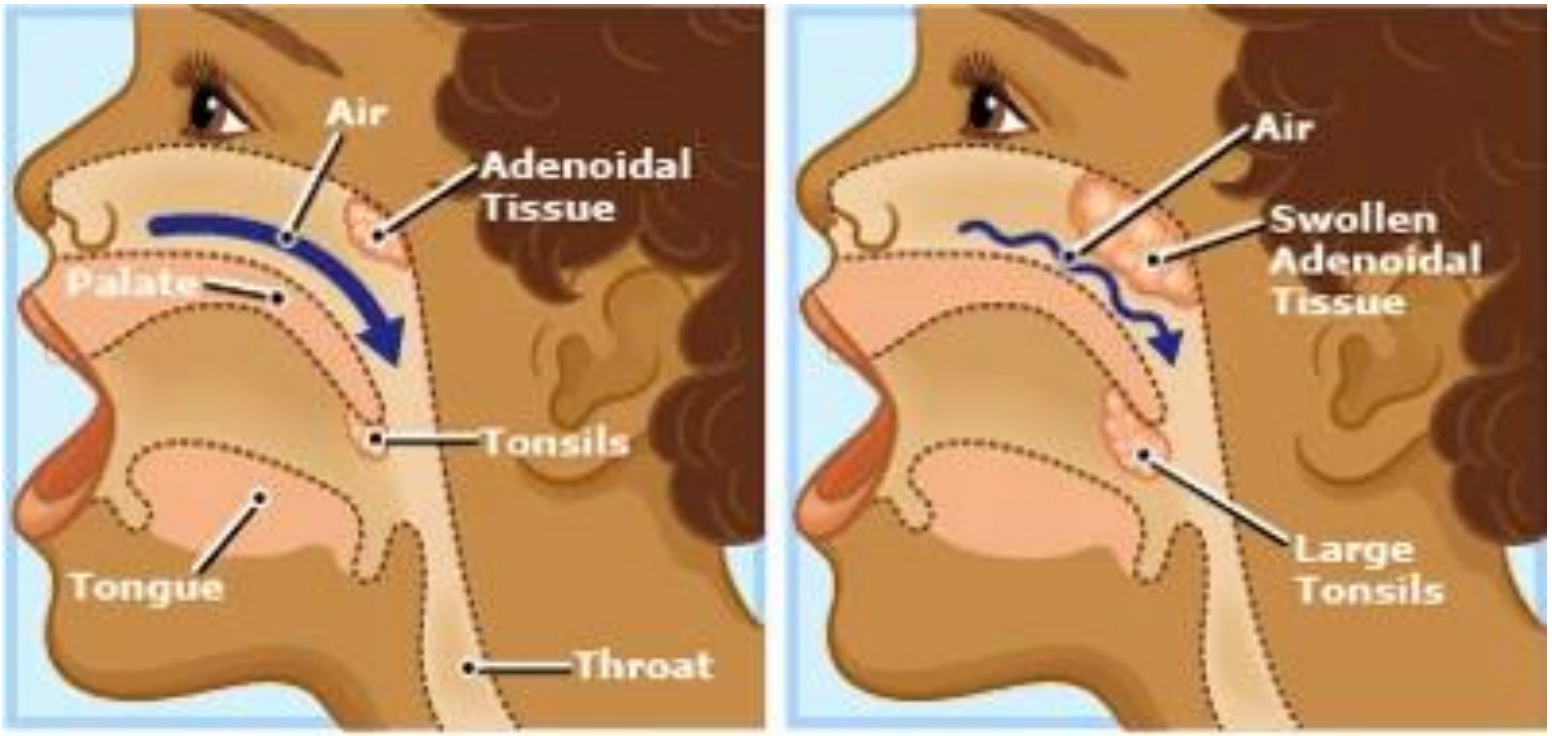


REM sleep


EEG
Awake
Stage 1
NREM
(N1)
Theta
Theta waves
Stage 2
NREM
(N2)
Sleep spindle
K-complex
Stage 3,4
NREM
(N3)
Delta
REM
0
Time (seconds)
10


Normal Airway
Narrowed Airway
Closed Airway

Ts and As

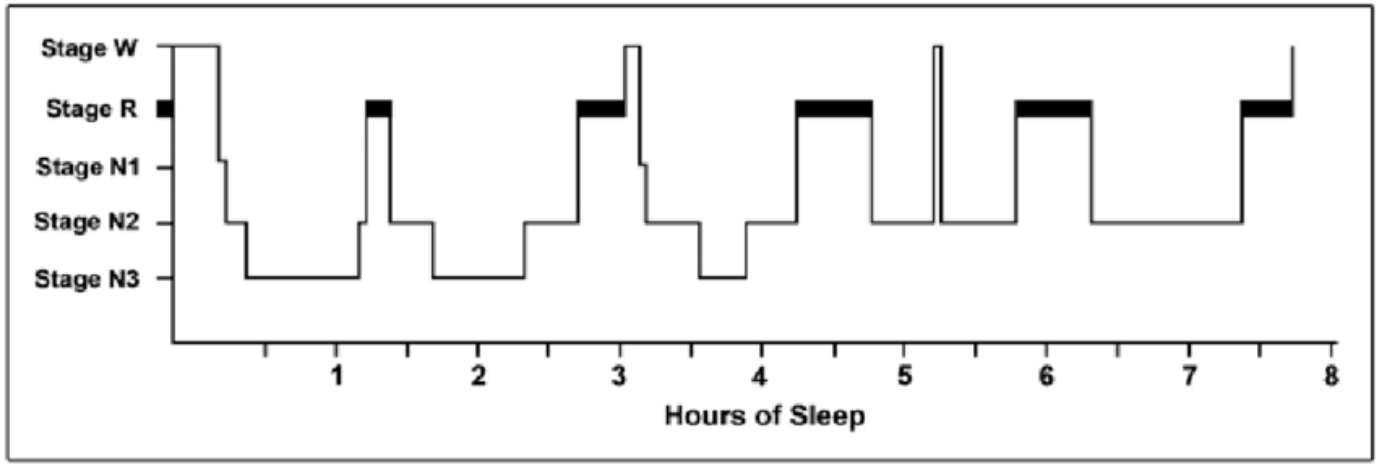

Air
Adenoidal Tissue
Palate
Tonsils
Tongue
Throat
Air
Swollen Adenoidal Tissue
Large Tonsils

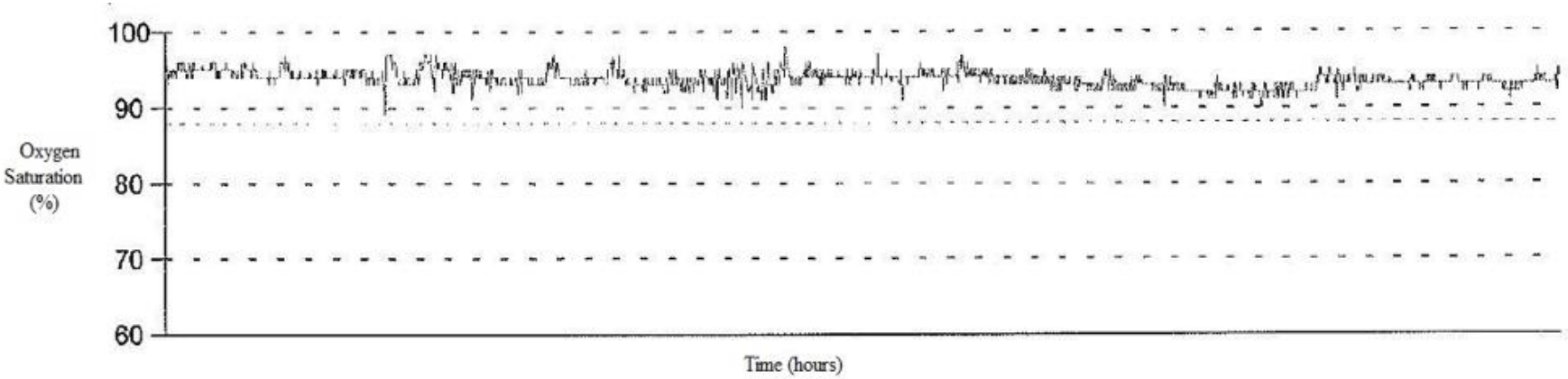
Why is OSA important?

5%

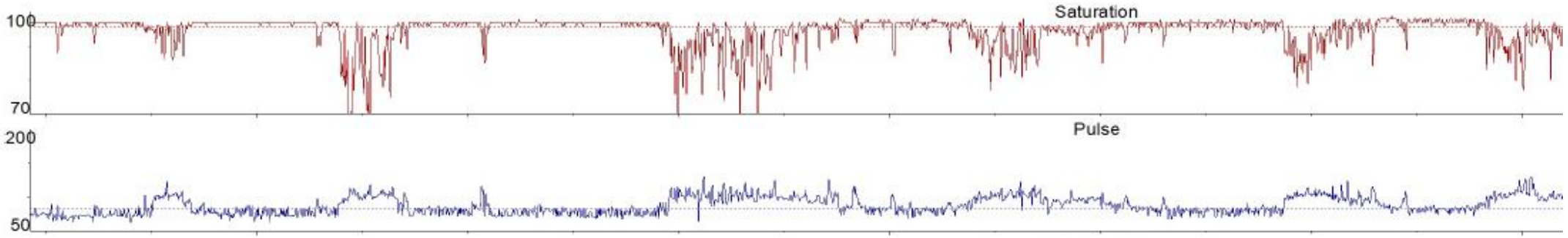
Who is at risk?

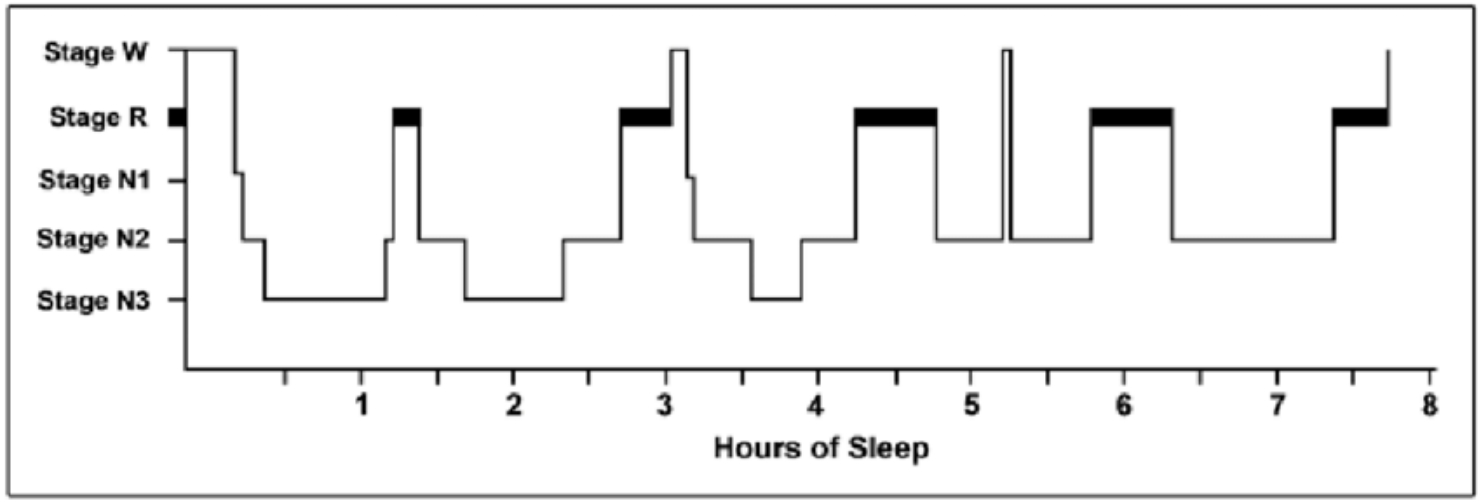
Investigation



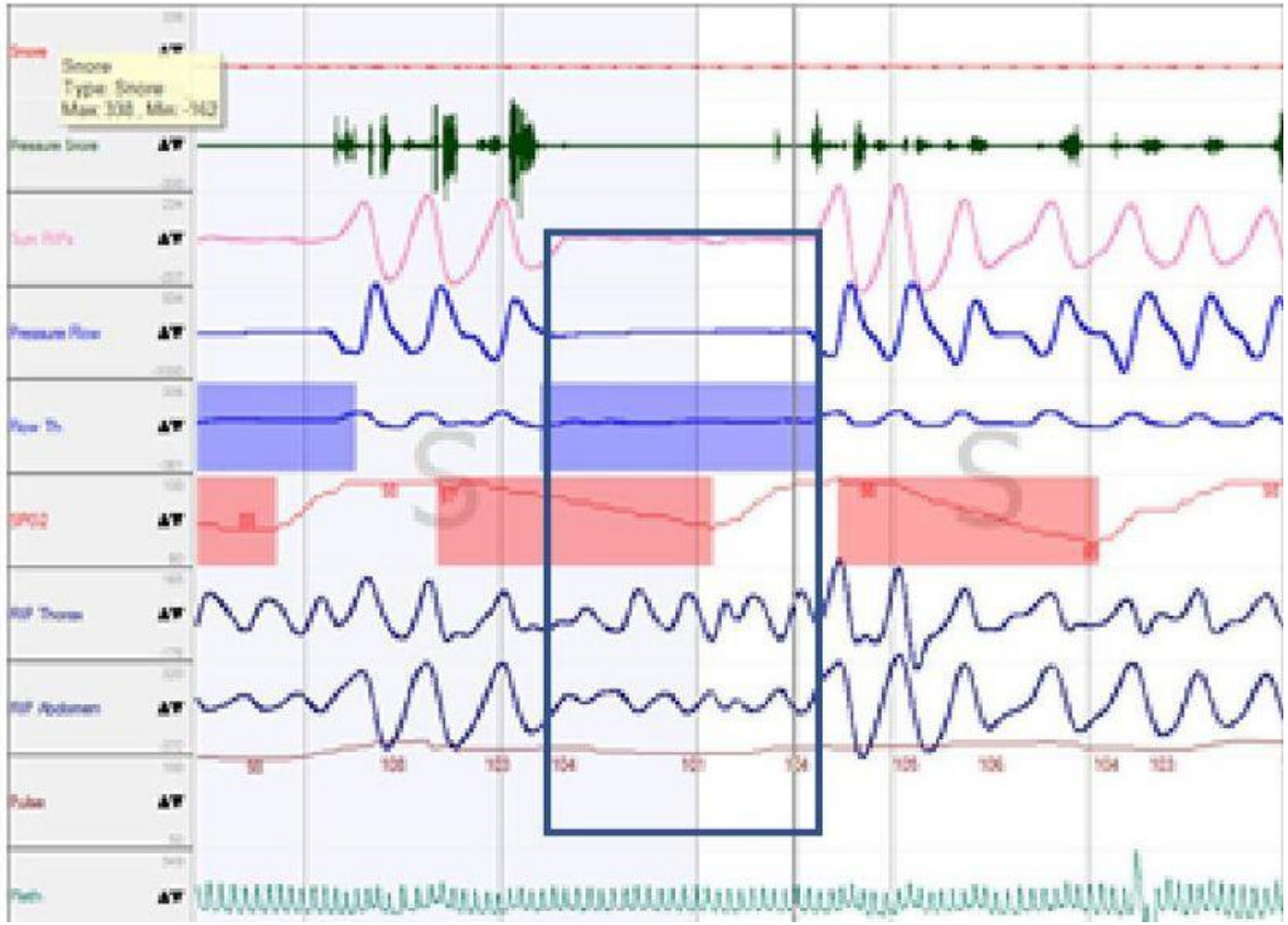


OSA on ONSS


Saturation
100
70
Pulse
200
50

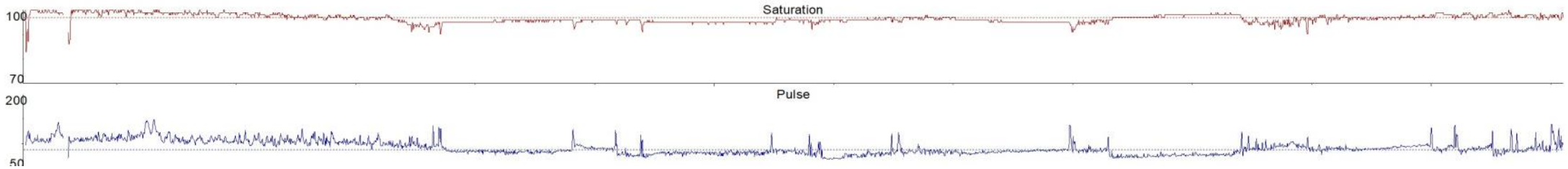

Stage W
Stage R
Stage N1
Stage N2
Stage N3
1
2
3
4
5
6
7
8
Hours of Sleep

OSA on CRSS



Everitt et al, ADC E&P 2023 (108)

Beware of the normal oximetry

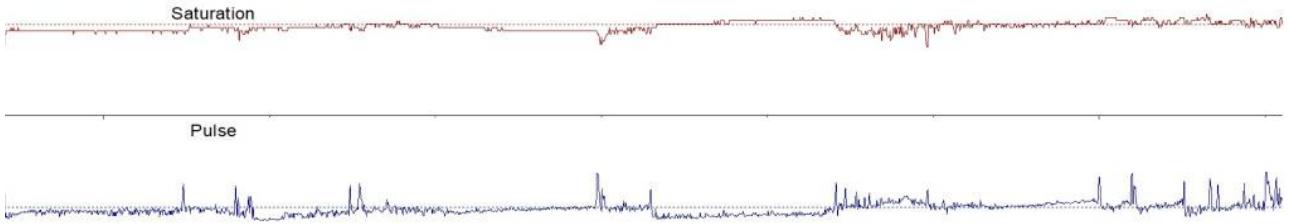


ODI 1.17
Median sats 97%

Beware of the normal oximetry

Respiratory Analysis

	Number (Index)
Obstructive	7 (1.6)
Mixed	-
Central	2 (0.5)
Undef A.	-
Total Apn.	9 (2.0)
Hypopnea	46 (10.4)
A+H	**55 (12.4)**
Limitations	-
RERAs	-
RDI	55 (12.4)



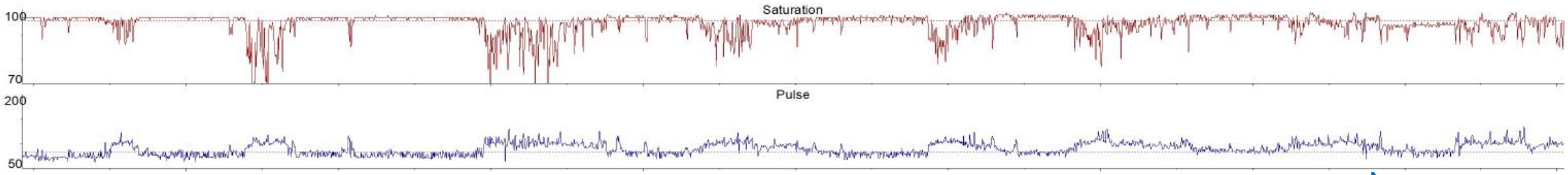
AHI 12.4
Early morning pCO_2 7.0

When to suspect OSA

The baby who isn’t weaning oxygen

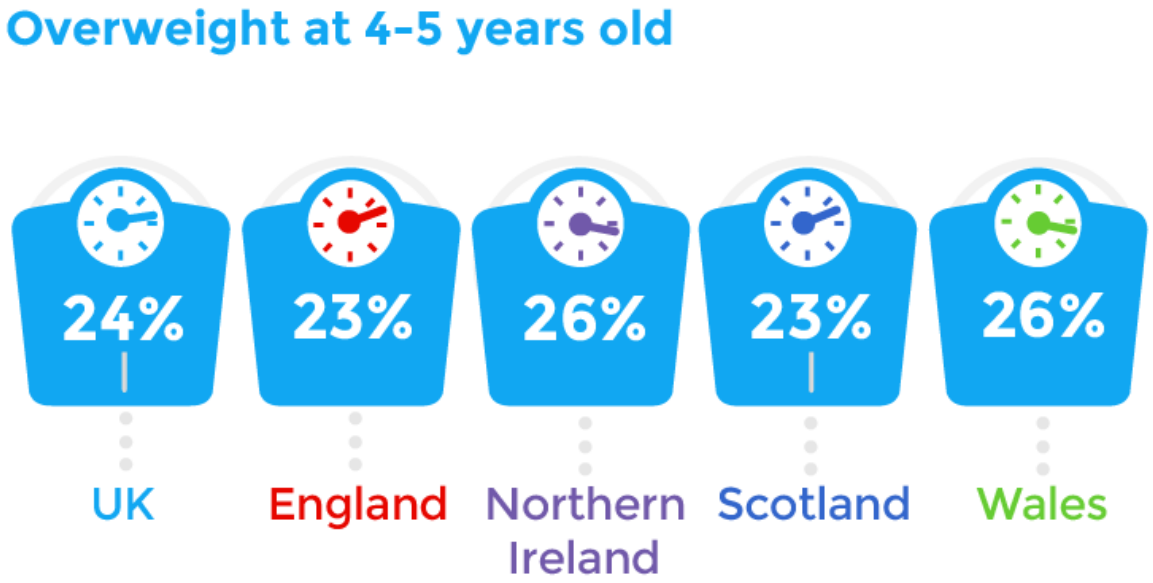
The baby who isn’t weaning oxygen

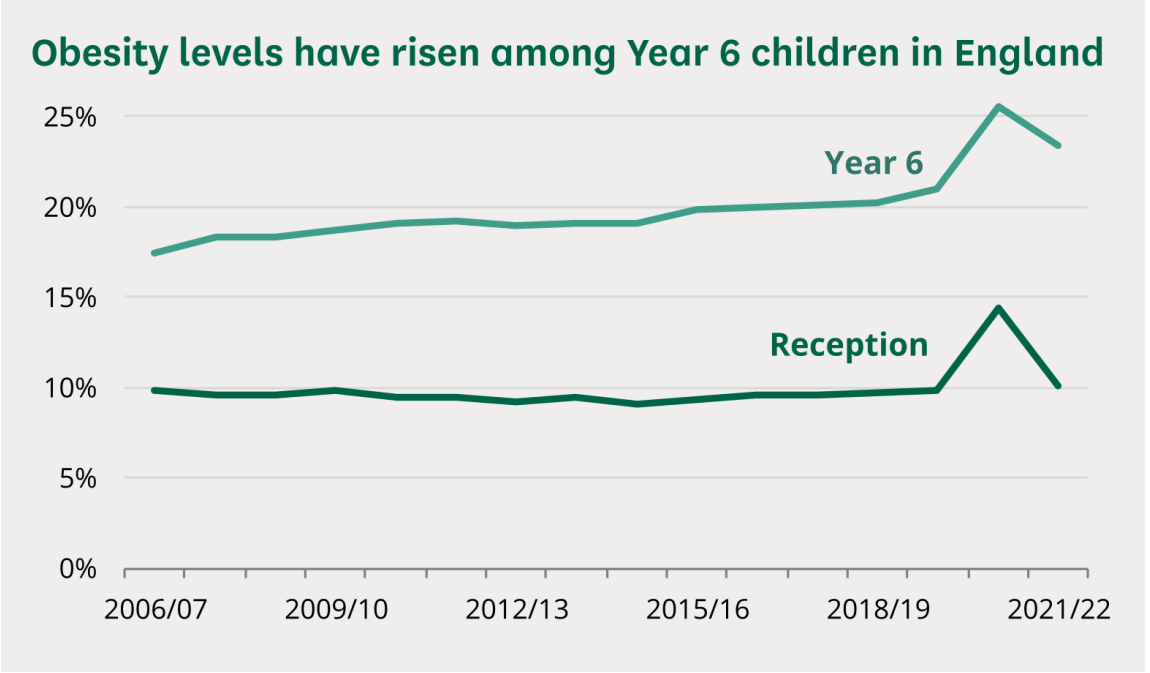
ONSS in 1L/min O2
ODI 82



Obesity-related OSA

Why this is topical

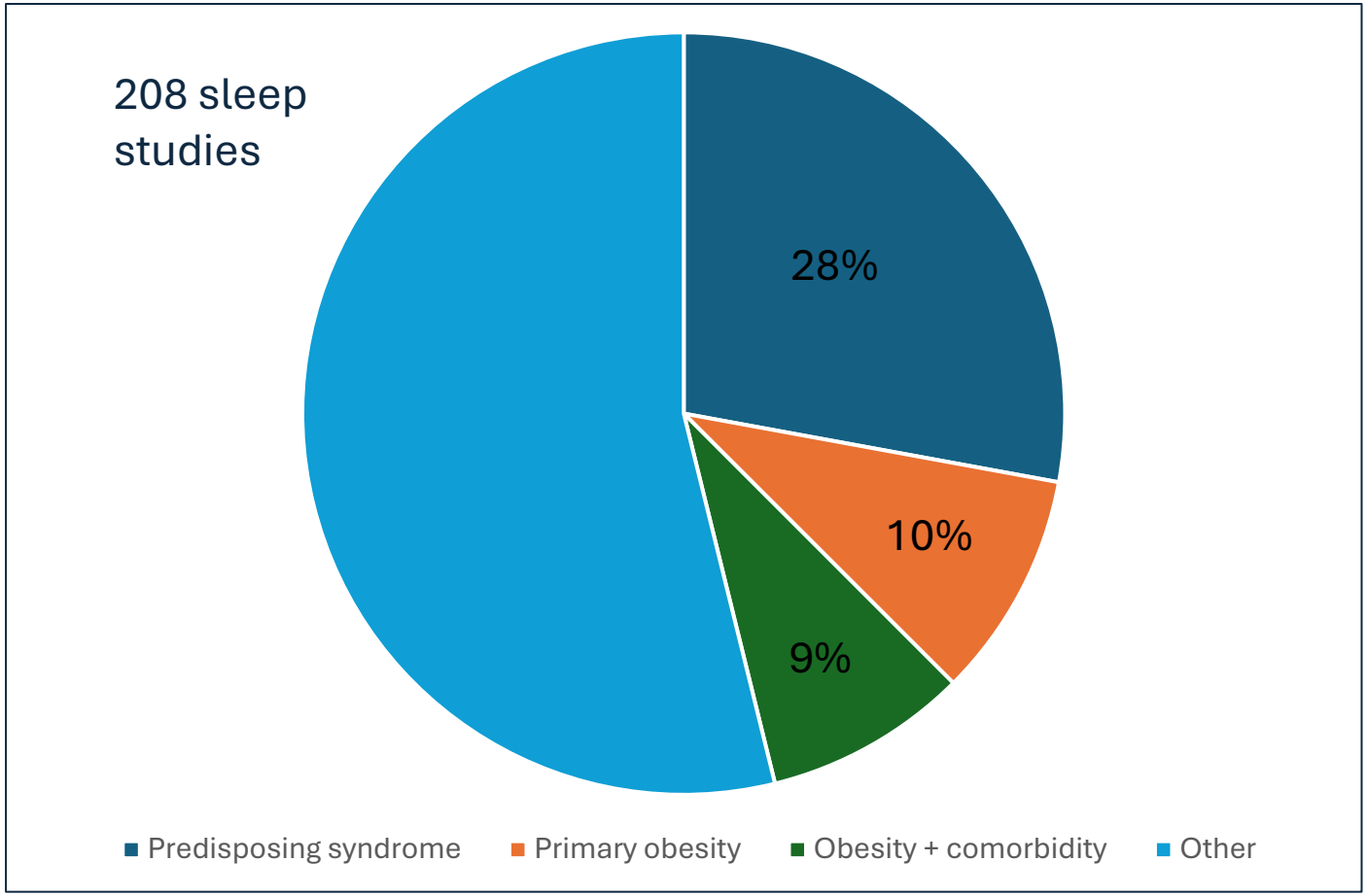




Why this is important

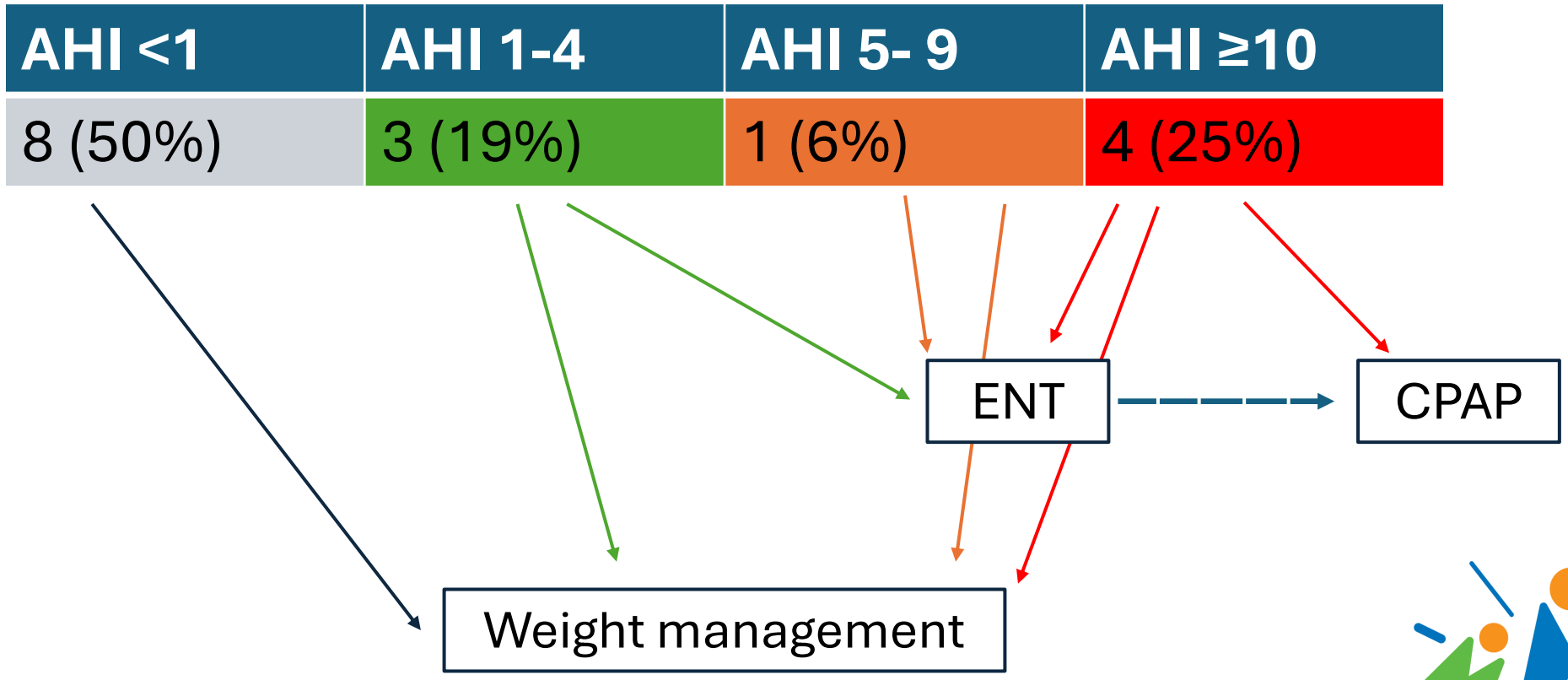
- 13-60% of obese children have OSA
- Every increment of 1kg/m^2 above the 50th centile increases OSA risk by 12%
- AHI >5 is
  - More likely to cause complications
  - Less likely to resolve without intervention

Screening for OSA in obesity

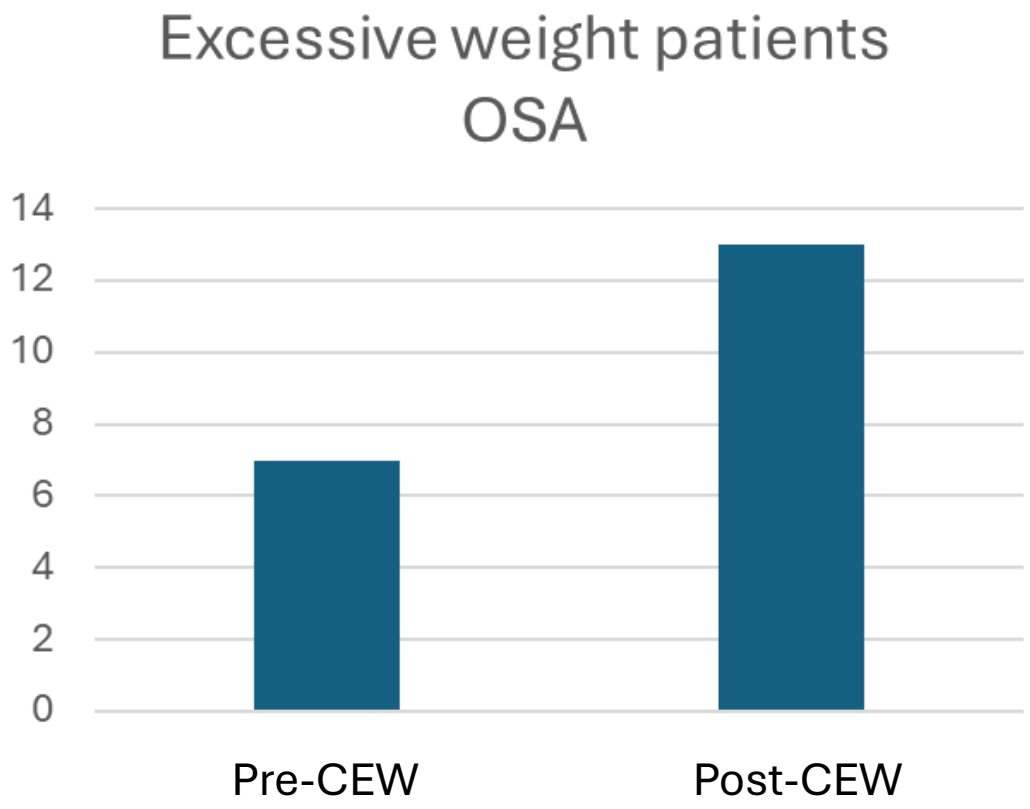


RMCH sleep service

The effect of screening



The effect of screening



Nico

- Referred from CEW clinic
- Overweight, tired, depressed
- Struggling at school
- Struggling to lose weight

Nico

Take home messages

- Have a high index of suspicion
- Don’t trust a normal ONSS in a symptomatic or co-morbid child
- 1st-line treatment for obesity-related OSA is weight management
- Treating OSA in obesity can be curative

Thanks to:
Laura Healy
Lauren Peaple
The RMCH sleep team

Questions?