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Title: Pulse oximetry to assess sleep disordered breathing (SDB)

Ms. Sara 8065 Neale sara.neale@UHBristol.nhs.uk [1] and Dr. Adrian H. 8066 Kendrick adrian.kendrick@UHBristol.nhs.uk [1]. [1] Department of Respiratory Medicine, University Hospitals, Bristol, United Kingdom, BS2 8HW .

Body: Pulse oximetry is a simple tool used to assess suspected SDB. Currently focus is mainly on using 4% hypoxic dips/hr, although other indices exist. Aim: To determine the use of pulse oximetry in the assessment of SDB using 4 indices and the value of using 2 nights of assessment Methods: 150 consecutively referred patients had 2 nights of oximetry at home (Minolta 300i). Data was analysed (Download 2001; Stowood Scientific, UK), by experienced Physiologists and artefact removed. The 4% and 3% dips/hr, cumulative %time at SpO_2< 90% (CT_{90}; Olson et al, J Sleep Res 1999;8:51-55) and Δindex>0.6 (Levy et al, Chest 1996;109:395-99) were obtained for each night. Results: 132 patients gave usable data, 39F and 93M, aged 50 yrs (19 - 79).

No of patients with positive diagnosis on both and each night.

	Both Nights	Night 1	Night 2
4%: 5 - 15.hr	24	4	15
4%:>15/hr	24	4	6
3%:5 - 15/hr	36	4	12
3%:>15/hr	36	3	13
CT90	54	10	20
Δindex>0.6	56	5	18

The median(range) differences between the two nights (N1 - N2) for the group were: 4% dips/hr: -0.78 (-29.5 to 19.9), 3% dips/hr: -1.2 (-15.6 to 20.2), CT_{90}: -0.12 (-21.9 to 29.7) and Δindex: -0.04 (-10.4 to 1.2). Using a combination of these indices, 26/132 (20%) were negative for all 4, 66 (50%) positive for all 4, 10 for any 3, 12 for any 2 and 18 for any one. Conclusions: To use pulse oximetry 1) requires analysis by experienced practitioners to ensure accuracy of data; 2) requires two nights, resulting in a > 23% increase in a positive diagnosis from the second night; 3) with a combination of the 4 indices, all of which have good sensitivity and specificity for SDB, gives an indication of the likelihood of SDB being present. Using a

combination of any 3 or all 4 accounts for 77% of the patients assessed.