Overview of Sleep Disorders: Parts I and II (Current Topics in Sleep Medicine from the University of Pennsylvania) Richard J. Schwab, MD References

1. National Sleep Foundation. Sleep in American Poll 2013. Available from: <u>http://www.sleepfoundation.org</u>.

From slide(s): 8

2. Mitler MM, Miller JC, Lipsitz JJ, Walsh JK, Wylie CD. The sleep of long-haul truck drivers. N Engl J Med. 1997 Sep 11;337(11):755-61.

From slide(s): 17

3. Pack AI, Maislin G, Staley B, Pack FM, Rogers WC, George CF, Dinges DF. Impaired performance in commercial drivers: role of sleep apnea and short sleep duration. Am J Respir Crit Care Med. 2006 Aug 15;174(4):446-54.

From slide(s): 17

4. Stutts J, Wilkins J, Vaughn B. AAA Foundation for Traffic Safety. Washington, D.C.: 1999. Why Do People Have Drowsy Driving Crashes? Input from Drivers Who Just Did.

From slide(s): 18

5. Steele MT, Ma OJ, Watson WA, Thomas HA Jr, Muelleman RL. The occupational risk of motor vehicle collisions for emergency medicine residents. Acad Emerg Med. 1999 Oct;6(10):1050-3.

From slide(s): 27

6. Johns MW. A new method for measuring daytime sleepiness: the Epworth sleepiness scale. Sleep. 1991 Dec;14(6):540-5.

From slide(s): 28

 Littner MR, Kushida C, Wise M, Davila DG, Morgenthaler T, Lee-Chiong T, Hirshkowitz M, Daniel LL, Bailey D, Berry RB, Kapen S, Kramer M; Standards of Practice Committee of the American Academy of Sleep Medicine. Practice parameters for clinical use of the multiple sleep latency test and the maintenance of wakefulness test. Sleep. 2005 Jan;28(1):113-21.

From slide(s): 29

8. Butkov, Nic. Atlas of Clinical Polysomnography. Ashland, OR: Synapse Media Inc., 1996.

Permission Statement:

Butkov, Nic. Atlas of Clinical Polysomnography. Ashland, OR: Synapse Media Inc., 1996. Copyright © 1996 Synapse Media Inc. All rights reserved. Permission to reproduce in electronic course materials granted by the publisher.

From slide(s): 34, 183, 210

9. Lee SA, Amis TC, Byth K, Larcos G, Kairaitis K, Robinson TD, Wheatley JR. Heavy snoring as a cause of carotid artery atherosclerosis. Sleep. 2008 Sep;31(9):1207-13.

Permission Statement:

Lee SA, et al. Heavy snoring as a cause of carotid artery atherosclerosis. Sleep. 2008 Sep;31(9):1207-13. Copyright © 2008 The American Academy of Sleep Medicine. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref #64059058.

From slide(s): 35, 37

10. Young T, Palta M, Dempsey J, Skatrud J, Weber S, Badr S. The occurrence of sleep-disordered breathing among middle-aged adults. N Engl J Med. 1993 Apr 29;328(17):1230-5.

From slide(s): 41

11. Tufik S, Santos-Silva R, Taddei JA, Bittencourt LR. Obstructive sleep apnea syndrome in the Sao Paulo Epidemiologic Sleep Study. Sleep Med. 2010 May;11(5):441-6.

From slide(s): 41

12. White DP. Sleep apnea. Proc Am Thorac Soc. 2006;3(1):124-8.

From slide(s): 42-43

 Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 1985-2010.

Available from: www.cdc.gov/obesity/downloads/obesity\_trends\_2010.ppt.

From slide(s): 45-71

14. Tsai WH, Remmers JE, Brant R, Flemons WW, Davies J, Macarthur C. A decision rule for diagnostic testing in obstructive sleep apnea. Am J Respir Crit Care Med. 2003 May 15;167(10):1427-32.

Permission Statement:

Tsai, et al. A Decision Rule for Diagnostic Testing in Obstructive Sleep Apnea. American Journal of Respiratory and Critical Care Medicine, Vol. 167, No. 10 (2003), pp. 1427-1432. Copyright © 2003 American Thoracic Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041735.

From slide(s): 72

15. Kushida CA, Efron B, Guilleminault C. A predictive morphometric model for the obstructive sleep apnea syndrome. Ann Intern Med. 1997 Oct 15;127(8 Pt 1):581-7.

From slide(s): 72

16. Mallampati SR, Gatt SP, Gugino LD, Desai SP, Waraksa B, Freiberger D, Liu PL. A clinical sign to predict difficult tracheal intubation: a prospective study. Can Anaesth Soc J. 1985 Jul;32(4):429-34.

From slide(s): 73

17. Schellenberg JB, Maislin G, Schwab RJ. Physical findings and the risk for obstructive sleep apnea. The importance of oropharyngeal structures. Am J Respir Crit Care Med. 2000 Aug;162(2 Pt 1):740-8.

From slide(s): 75

 Bearn CB, Kim C, Gislason T, Arnardottir ES, Benediktsdottir B, Einarsdottir H, Juliusson S, Schwab RJ.
Photographic Measures of the Tongue and Upper Airway Correlate to Anatomical Measures Taken From Magnetic Resonance Images. American Thoracic Society International Conference, San Francisco, CA, May 2012.

From slide(s): 86-87

19. Patel NP, Schwab RJ: Sleep Apnea Syndromes. Fishman's Pulmonary Diseases and Disorders, 4th edition. Fishman AP (eds.). McGraw Hill, 2008.

From slide(s): 91, 92, 129

20. Kauta S, Keenan B, Goldberg L, Schwab RJ. Sleep Consult Service Model for Inpatient PSGs and Auto-CPAP Titration. J Clin Sleep Med 2013 (submitted).

From slide(s): 93-98

21. Schwab RJ, Gupta KB, Gefter WB, Metzger LJ, Hoffman EA, Pack AI: Upper airway and soft tissue anatomy in normal subjects and patients with sleep-disordered breathing. Significance of the lateral pharyngeal walls. Am J Respir Crit Care Med 152: 1673-89, Nov 1995.

From slide(s): 99

22. Schwab RJ, Pasirstein M, Pierson R, Mackley A, Hachadoorian R, Arens R, Maislin G, Pack AI. Identification of upper airway anatomic risk factors for obstructive sleep apnea with volumetric magnetic resonance imaging. Am J Respir Crit Care Med. 2003 Sep 1;168(5):522-30.

From slide(s): 101

23. Schwab RJ, Remmers JE, Kuna S: Anatomy and Physiology of Upper Airway Obstruction. Principles and Practice of Sleep Medicine (5th edition). Kryger, Roth, Dement (eds.). Elsevier Science, Page: 1153-1182, 2011.

From slide(s): 102

24. Foster GD, Sanders MH, Millman R, Zammit G, Borradaile KE, Newman AB, Wadden TA, Kelley D, Wing RR, Sunyer FX, Darcey V, Kuna ST; Sleep AHEAD Research Group. Obstructive sleep apnea among obese patients with type 2 diabetes. Diabetes Care. 2009 Jun;32(6):1017-9.

From slide(s): 107

25. George CF, Boudreau AC, Smiley A. Simulated driving performance in patients with obstructive sleep apnea. Am J Respir Crit Care Med. 1996 Jul;154(1):175-81.

### Permission Statement:

George CF, et al. Simulated driving performance in patients with obstructive sleep apnea. American Journal of Respiratory and Critical Care Medicine, Vol. 154, No. 1 (1996), pp. 175-81. Copyright © 1996 American Thoracic Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041737.

From slide(s): 109

26. Nieto FJ, Young TB, Lind BK, Shahar E, Samet JM, Redline S, D'Agostino RB, Newman AB, Lebowitz MD, Pickering TG. Association of sleep-disordered breathing, sleep apnea, and hypertension in a large community-based study. Sleep Heart Health Study. JAMA. 2000 Apr 12;283(14):1829-36.

From slide(s): 111

27. Peppard PE, Young T, Palta M, Skatrud J. Am J Respir Crit Care Med. 2001 Jan;163(1):19-25. Sleep-disordered breathing and cardiovascular disease: cross-sectional results of the Sleep Heart Health Study.

From slide(s): 112

 Shahar E, Whitney CW, Redline S, Lee ET, Newman AB, Nieto FJ, O'Connor GT, Boland LL, Schwartz JE, Samet JM. Prospective study of the association between sleep-disordered breathing and hypertension. N Engl J Med. 2000 May 11;342(19):1378-84.

Permission Statement:

Shahar E, et al. Prospective study of the association between sleep-disordered breathing and hypertension. N Engl J Med. 2000 May 11;342(19):1378-84. Copyright © 2000 American Thoracic Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041733.

From slide(s): 113

29. Marin JM, Carrizo SJ, Vicente E, Agusti AG. Long-term cardiovascular outcomes in men with obstructive sleep apnoea-hypopnoea with or without treatment with continuous positive airway pressure: an observational study. Lancet. 2005 Mar 19-25;365(9464):1046-53.

#### Permission Statement:

Marin JM, et al. Long-term cardiovascular outcomes in men with obstructive sleep apnoea-hypopnoea with or without treatment with continuous positive airway pressure: an observational study. Lancet. 2005 Mar 19-25;365(9464):1046-53. Copyright © 2005 Elsevier Health Science Journals. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041725.

From slide(s): 114, 127

30. Redline S, Yenokyan G, Gottlieb DJ, Shahar E, O'Connor GT, Resnick HE, Diener-West M, Sanders MH, Wolf PA, Geraghty EM, Ali T, Lebowitz M, Punjabi NM. Obstructive sleep apnea-hypopnea and incident stroke: the sleep heart health study. Am J Respir Crit Care Med. 2010 Jul 15;182(2):269-77.

Permission Statement:

Redline S, et al. Obstructive Sleep Apnea–Hypopnea and Incident Stroke. American Journal of Respiratory and Critical Care Medicine, Vol. 182, No. 2 (2010), pp. 269-277. Copyright © 2010 American Thoracic Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041731.

From slide(s): 115

31. Kanagala R, Murali NS, Friedman PA, Ammash NM, Gersh BJ, Ballman KV, Shamsuzzaman AS, Somers VK. Obstructive sleep apnea and the recurrence of atrial fibrillation. Circulation. 2003 May 27;107(20):2589-94.

From slide(s): 116

32. Young T, Finn L, Peppard PE, Szklo-Coxe M, Austin D, Nieto FJ, Stubbs R, Hla KM. Sleep disordered breathing and mortality: eighteen-year follow-up of the Wisconsin sleep cohort. Sleep. 2008 Aug;31(8):1071-8.

### Permission Statement:

Young T, et al. Sleep disordered breathing and mortality: eighteen-year follow-up of the Wisconsin sleep cohort. Sleep. 2008 Aug;31(8):1071-8. Copyright © 2008 The American Academy of Sleep Medicine. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041740.

From slide(s): 118

33. Gami AS, Howard DE, Olson EJ, Somers VK. Day-night pattern of sudden death in obstructive sleep apnea. N Engl J Med. 2005 Mar 24;352(12):1206-14.

Permission Statement:

Gami AS, et al. Day-night pattern of sudden death in obstructive sleep apnea. N Engl J Med. 2005 Mar 24;352(12):1206-14. Copyright © 2005 Massachusetts Medical Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041729.

From slide(s): 120

34. Pepperell JC, Ramdassingh-Dow S, Crosthwaite N, Mullins R, Jenkinson C, Stradling JR, Davies RJ. Ambulatory blood pressure after therapeutic and subtherapeutic nasal continuous positive airway pressure for obstructive sleep apnoea: a randomised parallel trial. Lancet. 2002 Jan 19;359(9302):204-10.

# Permission Statement:

Pepperell JC, et al. Ambulatory blood pressure after therapeutic and subtherapeutic nasal continuous positive airway pressure for obstructive sleep apnoea: a randomised parallel trial. Lancet. 2002 Jan 19;359(9302):204-10. Copyright © 2002 Elsevier Health Science Journals. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041727.

From slide(s): 125

35. Haentjens P, Van Meerhaeghe A, Moscariello A, De Weerdt S, Poppe K, Dupont A, Velkeniers B. The impact of continuous positive airway pressure on blood pressure in patients with obstructive sleep apnea syndrome: evidence from a meta-analysis of placebo-controlled randomized trials. Arch Intern Med. 2007 Apr 23;167(8):757-64.

### Permission Statement:

Haentjens P, et al. The impact of continuous positive airway pressure on blood pressure in patients with obstructive sleep apnea syndrome: evidence from a meta-analysis of placebo-controlled randomized trials. Arch Intern Med. 2007 Apr 23;167(8):757-64. Copyright © 2007 American Medical Association. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041724.

From slide(s): 126

36. Mansfield DR, Gollogly NC, Kaye DM, Richardson M, Bergin P, Naughton MT. Controlled trial of continuous positive airway pressure in obstructive sleep apnea and heart failure. Am J Respir Crit Care Med. 2004 Feb 1;169(3):361-6.

Permission Statement:

Mansfield DR, et al. Controlled trial of continuous positive airway pressure in obstructive sleep apnea and heart failure. Am J Respir Crit Care Med. 2004 Feb 1;169(3):361-6. Epub 2003 Nov 3. Copyright © 2004 American Thoracic Society. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041721.

From slide(s): 128

37. Loube DI, Gay PC, Strohl KP, Pack AI, White DP, Collop NA. Indications for positive airway pressure treatment of adult obstructive sleep apnea patients: a consensus statement. Chest. 1999 Mar;115(3):863-6.

From slide(s): 131

38. Schwab RJ, Badr SM, Epstein LJ, Gay PC, Gozal D, Kohler M, Lévy P, Malhotra A, Phillips BA, Rosen IM, Strohl KP, Strollo PJ, Weaver EM, Weaver TE; ATS Subcommittee on CPAP Adherence Tracking Systems. An official American Thoracic Society statement: continuous positive airway pressure adherence tracking systems. The optimal monitoring strategies and outcome measures in adults. Am J Respir Crit Care Med. 2013 Sep 1;188(5):613-20.

From slide(s): 151

39. Liu Y, Park YC, Lowe AA, Fleetham JA. Supine Cephalometric Analyses of an Adjustable Oral Appliance Used in the Treatment of Obstructive Sleep Apnea. Sleep Breath. 2000;4(2):59-66.

# Permission Statement:

Liu Y, et al. Supine Cephalometric Analyses of an Adjustable Oral Appliance Used in the Treatment of Obstructive Sleep Apnea. Sleep Breath. 2000;4(2):59-66. Copyright © 2000 Springer-Verlag, Berlin/Heidelberg. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref #64059057.

40. Lesage S, Hening WA. The restless legs syndrome and periodic limb movement disorder: a review of management. Semin Neurol. 2004 Sep;24(3):249-59.

From slide(s): 181

41. Kagimura T, Nomura T, Kusumi M, Nakashima K, Inoue Y. Prospective survey on the natural course of restless legs syndrome over two years in a closed cohort. Sleep Med. 2011 Oct;12(9):821-6.

From slide(s): 184

42. Panossian LA, Avidan AY. Review of sleep disorders. Med Clin North Am. 2009 Mar;93(2):407-25.

### Permission Statement:

Panossian LA, et al. Review of Sleep Disorders. Med Clin North Am. 2009 Mar;93(2):407-25, ix. doi: 10.1016/j.mcna.2008.09.001. Copyright © 2009 Elsevier Health Science Journals. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041716.

From slide(s): 189-190

43. Ripley B, Overeem S, Fujiki N, Nevsimalova S, Uchino M, Yesavage J, Di Monte D, Dohi K, Melberg A, Lammers GJ, Nishida Y, Roelandse FW, Hungs M, Mignot E, Nishino S. CSF hypocretin/orexin levels in narcolepsy and other neurological conditions. Neurology. 2001 Dec 26;57(12):2253-8.

From slide(s): 192

44. Hallmayer J, Faraco J, Lin L, Hesselson S, Winkelmann J, Kawashima M, Mayer G, Plazzi G, Nevsimalova S, Bourgin P, Hong SC, Honda Y, Honda M, Högl B, Longstreth WT Jr, Montplaisir J, Kemlink D, Einen M, Chen J, Musone SL, Akana M, Miyagawa T, Duan J, Desautels A, Erhardt C, Hesla PE, Poli F, Frauscher B, Jeong JH, Lee SP, Ton TG, Kvale M, Kolesar L, Dobrovolná M, Nepom GT, Salomon D, Wichmann HE, Rouleau GA, Gieger C, Levinson DF, Gejman PV, Meitinger T, Young T, Peppard P, Tokunaga K, Kwok PY, Risch N, Mignot E. Narcolepsy is strongly associated with the T-cell receptor alpha locus. Nat Genet. 2009 Jun;41(6):708-11.

From slide(s): 192, 194

45. Hor H, Kutalik Z, Dauvilliers Y, Valsesia A, Lammers GJ, Donjacour CE, Iranzo A, Santamaria J, PeraitaAdrados R, Vicario JL, Overeem S, Arnulf I, Theodorou I, Jennum P, Knudsen S, Bassetti C, Mathis J, Lecendreux M, Mayer G, Geisler P, Benetó A, Petit B, Pfister C, Bürki JV, Didelot G, Billiard M, Ercilla G, Verduijn W, Claas FH, Vollenweider P, Waeber G, Waterworth DM, Mooser V, Heinzer R, Beckmann JS, Bergmann S, Tafti M. Genome-wide association study identifies new HLA class II haplotypes strongly protective against narcolepsy. Nat Genet. 2010 Sep;42(9):786-9.

From slide(s): 194

46. Kornum BR, Kawashima M, Faraco J, Lin L, Rico TJ, Hesselson S, Axtell RC, Kuipers H, Weiner K, Hamacher A, Kassack MU, Han F, Knudsen S, Li J, Dong X, Winkelmann J, Plazzi G, Nevsimalova S, Hong SC, Honda Y, Honda M, Högl B, Ton TG, Montplaisir J, Bourgin P, Kemlink D, Huang YS, Warby S, Einen M, Eshragh JL, Miyagawa T, Desautels A, Ruppert E, Hesla PE, Poli F, Pizza F, Frauscher B, Jeong JH, Lee SP, Strohl KP, Longstreth WT Jr, Kvale M, Dobrovolna M, Ohayon MM, Nepom GT, Wichmann HE, Rouleau GA, Gieger C, Levinson DF, Gejman PV,

Meitinger T, Peppard P, Young T, Jennum P, Steinman L, Tokunaga K, Kwok PY, Risch N, Hallmayer J, Mignot E. Common variants in P2RY11 are associated with narcolepsy. Nat Genet. 2011 Jan;43(1):66-71. Epub 2010 Dec 19. Erratum in: Nat Genet. 2011 Oct;43(10):1040.

From slide(s): 194

47. Partinen M, Saarenpää-Heikkilä O, Ilveskoski I, Hublin C, Linna M, Olsén P, Nokelainen P, Alén R, Wallden T, Espo M, Rusanen H, Olme J, Sätilä H, Arikka H, Kaipainen P, Julkunen I, Kirjavainen T. Increased incidence and clinical picture of childhood narcolepsy following the 2009 H1N1 pandemic vaccination campaign in Finland. PLoS One. 2012;7(3).

From slide(s): 195

48. Bardage C, Persson I, Ortqvist A, Bergman U, Ludvigsson JF, Granath F. Neurological and autoimmune disorders after vaccination against pandemic influenza A (H1N1) with a monovalent adjuvanted vaccine: population based cohort study in Stockholm, Sweden. BMJ. 2011 Oct 12;343:d5956.

From slide(s): 195

 Han F, Lin L, Warby SC, Faraco J, Li J, Dong SX, An P, Zhao L, Wang LH, Li QY, Yan H, Gao ZC, Yuan Y, Strohl KP, Mignot E. Narcolepsy onset is seasonal and increased following the 2009 H1N1 pandemic in China. Ann Neurol. 2011 Sep;70(3):410-7.

From slide(s): 195

50. Walsh JK, Randazzo AC, Stone KL, Schweitzer PK. Modafinil improves alertness, vigilance, and executive function during simulated night shifts. Sleep. 2004 May 1;27(3):434-9.

From slide(s): 200

51. The U.S. Xyremâ Multicenter Study Group. A randomized, double blind, placebo-controlled multicenter trial comparing the effects of three doses of orally administered sodium oxybate with placebo for the treatment of narcolepsy. Sleep. 2002 Feb 1;25(1):42-9.

From slide(s): 205

52. Paparrigopoulos TJ. REM sleep behaviour disorder: clinical profiles and pathophysiology. Int Rev Psychiatry. 2005 Aug;17(4):293-300.

From slide(s): 209

53. Iranzo A, Santamaria J, Tolosa E. The clinical and pathophysiological relevance of REM sleep behavior disorder in neurodegenerative diseases. Sleep Med Rev. 2009 Dec;13(6):385-401.

From slide(s): 211

54. Plazzi G, Vetrugno R, Provini F, Montagna P. Sleepwalking and other ambulatory behaviours during sleep. Neurol Sci. 2005 Dec;26Suppl 3:s193-8.

From slide(s): 212

55. Howell MJ, Schenck CH, Crow SJ. A review of nighttime eating disorders. Sleep Med Rev. 2009 Feb;13(1):23-34.

### Permission Statement:

Howell MJ, et al. A review of nighttime eating disorders. Sleep Med Rev. 2009 Feb;13(1):23-34. doi: 10.1016/j.smrv.2008.07.005. Epub 2008 Sep 25. Review. Copyright © 2009 Elsevier Health Science Journals. All rights reserved. Permission to reproduce in electronic course materials granted via Copyright Clearance Center ref # 64041714.

From slide(s): 214

56. Krystal AD, Walsh JK, Laska E, Caron J, Amato DA, Wessel TC, Roth T. Sustained efficacy of eszopiclone over 6 months of nightly treatment: results of a randomized, double-blind, placebo-controlled study in adults with chronic insomnia. Sleep. 2003 Nov 1;26(7):793-9.

From slide(s): 226

57. Kolla BP, Lovely JK, Mansukhani MP, Morgenthaler TI. Zolpidem is independently associated with increased risk of inpatient falls. J Hosp Med. 2013 Jan;8(1):1-6.

From slide(s): 229-232