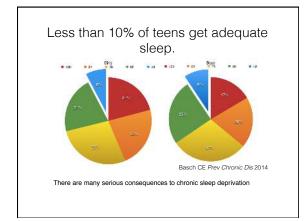
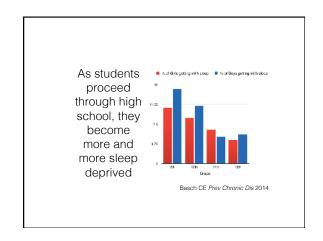


Our goals today

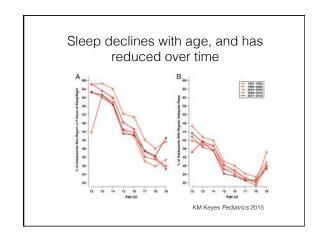
- Review how few teenagers are getting enough sleep, and why
- Discuss the effects of chronic sleep deprivation in teenagers
- Examine the historical reasons which have lead us here
- Review the importance of starting schools later, and the difficulties associated with achieving this





Are we in a "Great Sleep Recession"?

KM Keyes Pediatrics 2015



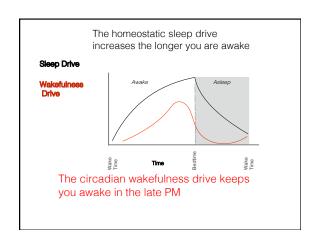
Both period and cohort effects were Cohort vs. 1980 Period vs. 1995 KM Keyes Pediatrics 2015

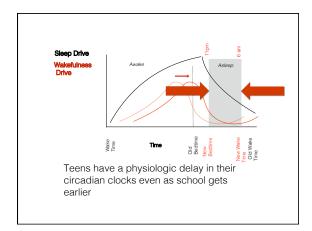
Some concerning trends were noted as well

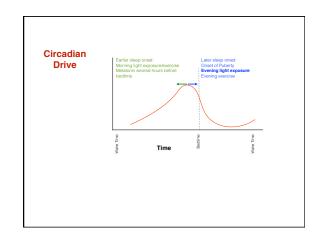
- Girls less likely than boys to get ≥7 hours of sleep
- Minority students, urban students, lower SES students got less sleep
- BUT minorities and low SES more likely to self-report adequate sleep

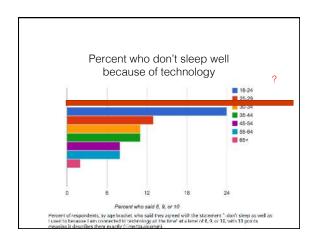
Why are teens so sleep deprived?

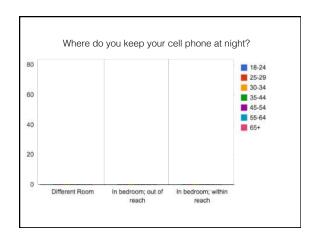
- 1.Circadian biology
- 2.Screens
- 3.Homework
- 4. School start times



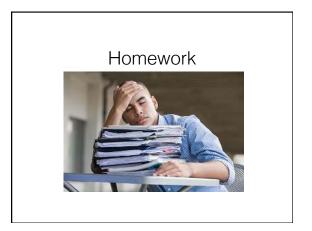


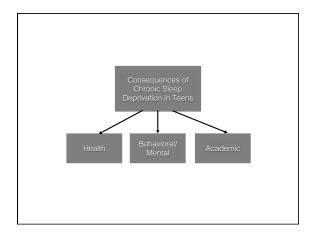


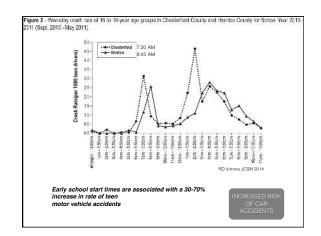


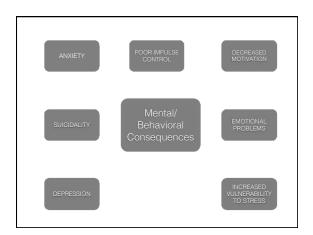


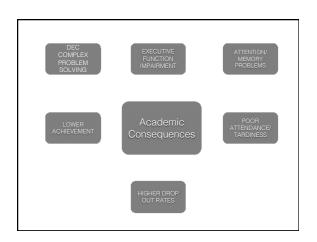












School Start Times are TOO EARLY

"...if you knew that in your child's school there was a toxic substance that reduced the capacity to learn, increased chances of a car crash and made it likely that 20 years from now he would be obese and suffer from hypertension, you'd do everything possible to get rid of that substance and not worry about cost. Early start times are toxic."

....

In 2014, the American Academy of Pediatrics recommended that high school start times be no earlier than $8\!:\!30\,\text{AM}$