



Massachusetts State Chapter health, safety and equity in education

Massachusetts School Start Time Legislation Parameters and FAQs

Recommended Legislation Parameters

- Set 8:30am as the earliest allowed 1st period bell time for middle and high schools
- Set the earliest time that elementary schools may operate to provide for safe and healthy school hours for elementary age children

📌 Question: In a nutshell - Why?

Answer: Adolescents require 8.5 to 9.5 hours of sleep per night for optimum health, and early school start times prevent teens from obtaining sufficient sleep.

During puberty adolescents experience a later shift in their sleep cycle due to a later release of the sleep hormone melatonin and due to changes in the sleep 'drive'. Both forces result in bio-chemical and developmentally appropriate later sleep times for teens, which then results in chronic sleep loss when teens are forced to wake at biologically inappropriate times. Sleep experts recommend natural sleep times of 11pm to 8am for adolescents - yet many middle and high school students must wake in the 5 or 6 o'clock hour to catch buses or walk to school.

📌 Question: What is the Massachusetts Legislature's authority to set a minimum threshold for school start time?

Answer: The Massachusetts Constitution, Chapter V, Section II, provides, in part:

"Wisdom, and knowledge, as well as virtue, diffused generally among the body of the people, being necessary for the preservation of their rights and liberties; and as these depend on spreading the opportunities and advantages of education in the various parts of the country, and among the different orders of the people, it shall be the duty of legislatures and magistrates, in all future periods of this commonwealth, to cherish the interests of literature and the sciences, and all seminaries of them; especially the university at Cambridge, public schools and grammar schools in the towns;..." (emphasis added).

The legislature has a constitutional duty to act to ensure that every child attending the Massachusetts public schools has a reasonable opportunity to succeed. Critical to that success are the 3 pillars of good health: nutrition, exercise and sleep. The legislature has acted to set minimum standards for nutrition and exercise. It is time to do likewise for sleep.

👉 **Question: Shouldn't school start times be controlled at the local level?**

Answer: Paradoxically, school districts are organized in ways that limit the ability of local school boards to modify their own schedules independent of regional change. While isolated change has occurred, expecting all school districts to independently act on the research and delay start (and possibly end) times without coordination with neighboring school boards can create logistical problems in regards to numerous factors, including transportation and extracurricular scheduling. Whether the actual significance of these logistical problems is real or merely perceived, they are frequently used by schools as excuses for not addressing healthy start times.

This proposed and necessary legislation merely sets minimum school day start times. At the local level each community will determine how to best organize their school schedules within the parameters set – such as whether or how to stagger start times, and which ages should start first.

Setting minimum school start times is no different than setting nutritional guidelines that allows for local control and choices within the evidence-based guidelines, or setting minimum physical education requirements for high schools but allowing each school determine how it will fulfill the requirement.

👉 **Question: Can't we just leave it up to the state Department of Education to make a recommendation? Won't school boards eventually act if changes are suggested by the state Department of Education?**

Answer: School start times are a public health problem first and foremost. Recommendations from the DOE are not law, and schools would still face the same logistical concerns that often prevent them from acting independently of their neighbors.

Public health and safety mandates that protect children are considered essential components of society. Child labor laws, child safety seat regulations, graduated driving licenses, minimum age requirements to purchase tobacco and alcohol, and school nutritional guidelines are merely a few examples of the ways in which we protect children and promote public health through legislation.

👉 **Question: Why should legislation also address minimum start times for elementary schools?**

Answer: Elementary school children tend to be “morning larks”, waking up early and ready to learn earlier in the day. That said, no one wants elementary school children going to school in the dark. Some schools, however, attempt to implement a “flip option” by swapping too-early high school start time with elementary school start time, causing elementary children to be at the bus stop well before 7:00 a.m. No elementary, middle school or high school child should go to school in the dark. It is not safe or healthy.

👉 **Question: Are other states looking at legislation to regulate school start times?**

Answer: Yes, and here are some bills filed to date:

California [SB328](#)

Maine [LD468 \(HP331\)](#)

Nevada [AB166](#)

Rhode Island [HB5888](#)

👉 **Question: Who supports later school start times for adolescents?**

Answer: Myriad professional education and health groups have endorsed healthy school start times. Below are just a few entities (with links to the position statement or press coverage) which have addressed the issue:

[The American Academy of Pediatrics](#)

[Massachusetts Association of School Committees](#)

[Massachusetts Interscholastic Athletic Association](#)

[Middlesex League Superintendents](#)

[Massachusetts Medical Society](#)

[Melrose, MA Department of Health](#)

[The Education Commission of the States](#)

[The National Education Association](#)

[U.S. Secretary of Education Arne Duncan](#)

[The National Association of School Nurses](#)

[The Society of Pediatric Nurses](#)

[The Centers for Disease Control](#)

[The American Thoracic Society](#)

[The American Academy of Child and Adolescent Psychiatry](#)

[American Medical Association](#)

[The National Sleep Foundation](#)

[American Academy of Sleep Medicine](#)

[The Lloyd Society \(Juvenile Justice Group\)](#)

♥ **Question: What are the effects of chronic sleep deprivation?**

Answer: Chronic sleep deprivation is associated with a host of medical, mental health, safety, and behavioral issues. Below is a just sample of some of the research:

- Suicide ([Bernert and Joiner, 2007](#))
- Depression and anxiety (Bates, 2002; [Chorney et al, 2008](#); Gibson et al, 2006; Kahn, 2006)
- Multiple Sclerosis ([Hedstrom et al, 2011](#))
- Obesity (Mitchell et al, 2013; [Must and Parisi, 2009](#); Taheri et al, 2004)
- Increased insulin resistance ([Mathews et al, 2012](#))
- Poorer dietary choices (Hale, 2013)
- Increased automobile accidents (Danner and Phillips, 2008; NCSDR, 1997; [Wahlstrom, 2014](#))
- Increased risk-taking: violence, drug use, sexual activities, unsafe behaviors ([O'Brien, 2005](#))
- Increased sports injuries ([Milewski et al, 2012](#))
- Poorer academic performance, grade failure (Kahn et al, 1989; [Wahlstrom, 2014](#))
- Increased disparity, wider achievement gap ([Buckhalt, 2011](#); Jacob and Rockoff, 2011)
- Poorer attention and problem solving (Gibson et al, 2006; Kilgore et al, 2007)
- Increased bullying and violence on school property ([Hildenbrand et al, 2013](#))
- Increased teen pedestrian accidents ([Davis et al, 2013](#))

♥ **Question: Why are different times for elementary and middle/high schools proposed?**

Answer: During puberty two phenomenon occur that shift the adolescent sleep and wake times to later than younger children and adults: melatonin is secreted later in the evening, and the sleep drive is delayed. These temporary changes are the reason adolescents biologically cannot adapt well to early wake times, which results in chronic sleep loss and related health and safety concerns. Research consistently points to 8:30am as the earliest that school should start for adolescents, in fact many experts recommend 9am or later.

Elementary-age children are biologically programmed to be awake and alert earlier than teens, and thus some schools familiar with the research choose to start elementary earlier. However any earlier than 8am risks having children walking to school in the dark.

This legislation would not dictate which age group starts first – it only sets healthy parameters within which local communities can set starting times.

👉 **Question: Could schools still have ‘zero period’ classes or hold extra-curricular meetings before school?**

Answer: This legislation, as proposed, would not prevent voluntary ‘zero period’ courses or extracurricular meetings before the school day. While sleep experts do not encourage such practices, the decision to do so should be made at the local level. This proposed legislation only addresses school schedules that are mandatory for all students.

👉 **Question: Won’t later start times interfere in extra-curricular activities?**

Answer: The Massachusetts Interscholastic Athletic Association Sports Medicine Committee supports later school start times for the health of the athletes. Later morning start times have the potential to reduce sports injuries and reduce the amount of time spent on homework – thus protecting student-athletes and providing additional opportunities for community and extra-curricular involvement. Among schools around the country and in Massachusetts that have adopted later start times, extra-curricular activity participation remains largely unchanged.

Research conducted by Milewski et al (2012) showed a 68% increase in sports injuries among adolescents who obtained less than 8 hours of sleep compared to their peers who obtain more than 8 hours per night. These results are not surprising considering that chronic sleep deprivation is associated with decreased reaction time, decreased attention, and poorer peripheral vision. Students who obtain more sleep spend less time on homework, which is also not surprising considering the cognitive effects of sleep deprivation.

Later school day start times do not necessarily need to translate to great changes in school-day end times, however considering that a large portion of teen sexual activity and drug use occurs during the un-supervised hours after school, many health and safety experts as well as parents are not opposed to later school day end times. It is also important to note that event scheduling between schools will be easier if changes are enacted statewide.

👉 **Question: Won’t teens just stay up later if school starts later?**

Answer: No. Given the later shift in circadian rhythm that occurs during puberty, a teen’s bedtime is dictated by biology whereas his/her wake time is dictated by the alarm clock.

Adolescent sleep deprivation is driven in large part by early wake times. In myriad studies of adolescents in schools where later school start times were enacted, adolescent bedtimes remained largely unchanged and total sleep time increased in relation to the later start to the school day.

👉 **Question: Does it cost anything to move school start times?**

Answer: Not necessarily – it depends on how schools choose to alter bus schedules. Many schools have adopted changes at no cost or with cost-savings. Other schools have chosen to purchase more buses as part of their plan. The strategies are as varied as the school districts, and if costs are incurred the price tag is minimal when compared to the cost of decreased enrollment, reduced learning, preventable auto accidents, school violence, bullying, compromised health, and depression – all of which are associated with chronic sleep deprivation. Schools that have increased spending on so-called “adjustment counselors” and other social workers may see cost savings from a decreasing need for these services that are currently used to prop up students suffering from depression and anxiety.

Economists writing for the Brookings Institution’s Hamilton Project estimated increased future earnings for students in middle and high schools who move to one hour later to be an additional \$17,500 per student in 2011 dollars. These economists compare the possible costs of purchasing more buses or practice field lights in order to accommodate later start times, and they estimate a conservative benefit-to-cost ratio of 9-1 for any dollar spent in moving start times one hour later. Experts point out that schools do not ignore nutritional guidelines, health codes, asbestos or mold due to cost, and nor should they ignore unhealthy school start times.

👉 **Questions: Isn’t it the parents’ responsibility to make sure kids get enough sleep? Don’t we need to prepare teens for the real world? Isn’t this coddling teens? I got up early and I was ok.**

Answer: Parents and teens are responsible for healthy bedtimes, and schools are responsible for healthy wake times. The changes in sleep that occur during puberty are temporary, and end in the mid-twenties. In fact many colleges are altering their schedules, including Stanford University and Duke University, which banned courses before 8:30am due to the research. Once puberty is complete, the young adult is better able to rise early in the morning if needed. Regarding ‘early school start times were good enough for me’- the current early school start times are a relatively more recent phenomenon – occurring when schools starting adding multiple bus tiers approximately 20 years ago – before experts recognized the shift in sleep cycle that occurs during puberty.

Suggested Reading (all fully available online):

‘Still Sleepless in America: The Paradox of Local Control in Education’, August 2015, Education and Health: <http://sheu.org.uk/x/eh332ss.pdf>

Education Commission of the States Policy Brief ‘Later Education Start Times for Adolescents: Time for Change’: <http://www.ecs.org/clearinghouse/01/12/19/11219.pdf>

‘Examining the Impact of Later High School Start Times on the Health and Academic Performance of High School Students: A Multi-Site Study’ (February 2014), Center for Applied Research and Educational Improvement, University of Minnesota: <http://conservancy.umn.edu/handle/11299/162769>

‘Organizing Schools to Improve Student Achievement’, Brookings Institution Hamilton Project Report, 2011: http://www.hamiltonproject.org/papers/organizing_schools_to_improve_student_achievement_start_times_grade_co/

‘Raising Awareness of Sleep as a Healthy Behavior’, August 2013, in the CDC publication Preventing Chronic Disease, available at the CDC website: www.cdc.gov/pcd/issues/2013

References:

Bates, J., Viken, R., Alexander, D., Beyers, J., & Stockton, L. (2002). Sleep and adjustment: Sleep diary reports by mothers related to behavior reports by teachers. *Child Development*, 73(1), 62-74.

Bergin, C., & Bergin, D. (2009). Sleep: The E-Z Z Z Intervention. *Educational Leadership*, 67(4), 44-47.

Buckhalt, J. A. (2011), Insufficient Sleep and the Socioeconomic Status Achievement Gap. *Child Development Perspectives*, 5: 59–65. doi: 10.1111/j.1750-8606.2010.00151.x

Calamoro, CJ, Mason, T, and Ratcliffe, SJ. (2009) Adolescents Living the 24/7 Lifestyle: Effects of Caffeine and Technology on Sleep Duration and Daytime Functioning *Pediatrics*: 123, e1005.

Carrell et al (2011) A’s from Zzz’s, *American Economic Journal: Economic Policy* 3: 62–81

Carskadon, MA, Harvey, K, Duke, P, Anders TF, Litt, IF, Dement, WC. (1980) Pubertal changes in daytime sleepiness. *Sleep*, 2, 453-460.

Chapman LJ, Taveira AD, Newenhouse AC, Meyer RH, Josefsson KG. Causal factors in production agriculture injuries: working children and youth versus adults. In S. Kumar (Ed.) *Advances in Occupational Ergonomics and Safety*. Washington DC:IOS Press 1998:73-76.

Chorney, DB, Detweiler, MF, Morris, TL & Kuhn BR. (2008) The Interplay of Sleep Disturbance, Anxiety and Depression in Children. *J. Pediatr. Psychol.* 33 (4): 339-348.

Crowley, S., Acebo, C., and Carskadon, M.A. Sleep, circadian rhythms, and delayed phase in adolescence. *Sleep Medicine*, Sep 2007, Vol 8, Issue 6, p602-612.

Danner F, Phillips B. Adolescent sleep, school start times, and teen motor vehicle crashes. *J Clin Sleep Med* 2008;4:533—5

Gibson, E., Powles, A., Thabane, L., O'Brien, S., Molnar, D., Trajanovic, N., et al. (2006). "Sleepiness" is serious in adolescence: Two surveys of 3235 Canadian students. *BMC Public Health*, 6116-9..

Gradisar, M., Terrill, G., Johnston, A., & Douglas, P. (2008). Adolescent sleep and working memory performance. *Sleep & Biological Rhythms*, 6(3), 146-154. doi:10.1111/j.1479-8425.2008.00353.x.

Hildenbrand AK, Daly BP, Nicholls E, Brooks-Holliday S, Kloss JD. Increased risk for school violence-related behaviors among adolescents with insufficient sleep. *Journal of School Health*, June 2013, 83(6) 408-414.

Hansen, M., Janssen, I., Schiff, A., Zee, P., & Dubocovich, M. (2005). The Impact of School Daily Schedule on Adolescent Sleep. *Pediatrics*, 115(6), 1555-1561. doi:10.1542/peds.2004-1649.

Hedström A, et al "Shift work at young age is associated with increased risk for multiple sclerosis" *Annals of Neurology*, 2011; DOI: 10.1002/ana.22597.

Kahn, A., Van de Merckt, C, Rebauffat, E., Mozin, M., Sottiaux, M., Blum, D., et al. (1989). Sleep problems in healthy pre-adolescents. *Pediatrics*, 84(3), 542-546.

Kahn-Greene, E., Lipizzi, E., Conrad, A., Kamimori, G., & Killgore, W. (2006). Sleep deprivation adversely affects interpersonal responses to frustration. *Personality & Individual Differences*, 41(8), 1433-1443.

Killgore, W., Kahn-Greene, E., Lipizzi, E., Newman, R., Kamimori, G., & Balkin, T. (2008). Sleep deprivation reduces perceived emotional intelligence and constructive thinking skills. *Sleep Medicine*, 9(5), 517-526.

KuBow, P., Wahlstrom, K., & Bemis, A. (1999). Starting Time and School Life. *Phi Delta Kappan*, 80(5), 366.

Matricciani LA, Olds TS, Blunden S, Rigney G, Williams MT. (2012) Never enough sleep: a brief history of sleep recommendations for children. *Pediatrics*;129(3):548–556

Matthews, Karen, Dahl, Ronald, Owens, Jane, Lee, Laisze, Hall, Martica (2012), Sleep Duration and Insulin Resistance in Healthy Black and White Adolescents. *SLEEP*, Vol 35, Issue 10, 1353-1358.

Meyers, J, Miles, J, Faucett, J, Janowitz, I, Tejada, D, Weber, E, Smith, R, Garcia, L. (2002) Priority risk factors for back injury in agricultural field work:. *Journal of Agromedicine*, (1), 37-52.

Milewski, MD, Pace, JL, Ibrahim, DA, Greg Bishop, G, Barzdukas, A. and. Skaggs, DL. (2012) Lack of sleep is associated with increased risk of injury in adolescent athletes. Presented at Oct 2012 American Academy of Pediatrics National Conference.

Mitchell, J, Rodriguez, D, Schmitz, KH & Audrain-McGovern, J (2013) Sleep Duration and Adolescent Obesity. *Pediatrics* Vol. 131 No. 5 May 1, 2013 pp. e1428 -e1434

Must, A., & Parisi, S. (2009). Sedentary behavior and sleep: paradoxical effects in association with childhood obesity. *International Journal of Obesity*, 33S82-S86. doi:10.1038/ijo.2009.23

National Highway Traffic Safety Administration. Drowsy driving. *Ann Emerg Med* 2005;45:433--4.

National Sleep Foundation. Washington, DC. www.sleepfoundation.org

Noland, H., Price, J., Dake, J., & Telljohann, S. (2009). Adolescents' Sleep Behaviors and Perceptions of Sleep. *Journal of School Health*, 79(5), 224-230. doi:10.1111/j.1746-1561.2009.00402.x.

OBrien, E., & Mindell, J. (2005). Sleep and Risk-Taking Behavior in Adolescents. *Behavioral Sleep Medicine*, 3(3), 113-133. doi:10.1207/s15402010bsm0303_1.

Owens, J. (2005, January). Introduction to special section: NIH Sleep Academic Award program. *Sleep Medicine*, pp. 45-46. doi:10.1016/j.sleep.2004.11.001.

Taheri, S., Ling, L., Austin, D., Young, T., & Mignot, E. (2004). Short Sleep Duration Is Associated with Reduced Leptin, Elevated Ghrelin, and Increased Body Mass Index. *PLoS Medicine*, 1(3), 210-217.

Wahlstrom, K. (2003). Later High-School Start Times Still Working. *Education Digest*, 68(6), 49.

Wahlstrom, K., Dretzke, B., Gordon, M., Peterson, K., Edwards, K., & Gdula, J. (2014). *Examining the Impact of Later School Start Times on the Health and Academic Performance of High School Students: A Multi-Site Study*. Center for Applied Research and Educational Improvement. U of Minnesota.

Wolfson, A., & Carskadon, M. (1998). Sleep schedules and daytime functioning in adolescents. *Child Development*, 69(4), 875.

Wolfson, A., & Carskadon, M. (2005). Meeting Teen Sleep Needs Creatively. *Education Digest*, 71(1), 47-51.

Wolfson, A., Spaulding, N., Dandrow, C., & Baroni, E. (2007). Middle School Start Times: The Importance of a Good Night's Sleep for Young Adolescents. *Behavioral Sleep Medicine*, 5(3), 194-209.

These FAQs were created by:

Stacy Simera, MSSA, LISW-S, SAP
 Outreach Director, Start School Later, Inc.

stacy@startschoollater.net

and

Mary Hamaker, JD
 Chapter Leader, Massachusetts Chapter – Start School Later

mmh827@charter.net