

Report to LMSD Acting Superintendent Dr. Wagner Marseille  
and the Board of School Directors  
ISC Sleep and School Start Time Committee  
May 2015

## THE IMPORTANCE OF SLEEP

LMSD is facing a serious problem, one that is prevalent throughout our society: sleep deprivation in our teenagers. Research has shown that lack of sleep is a significant impairment. Insufficient sleep increases the incidence of:

- depression, anxiety, stress and suicidal ideation
- certain medical conditions, including obesity, diabetes and metabolic dysfunction
- substance abuse and eating disorders
- sports injuries
- drowsy driving accidents and fatalities (particularly in teens, as new drivers)

Furthermore, insufficient sleep decreases:

- learning, concentration and memory
- academic achievement, particularly for those students at the lower end of the academic spectrum

Adequate sleep, however, is like a miracle drug, a “panacea for well-being and resilience”\*. Later school start times --which allow for adequate sleep-- are linked to fewer of the problems noted above, and in short, produce happier children who are in a better position to learn, both in and out of school. (For a selection of articles and research about sleep, please see Appendix A).

In August 2014, the American Academy of Pediatrics (“AAP”) stated "**chronic sleep loss in children and adolescents is one of the most common, and easily fixable, public health issues in the U.S. today**". The AAP recommends that middle and high schools start at 8:30 am or later in order to optimize student health and learning (see AAP Policy Abstract and press release in Appendix B). This recommendation was based on numerous studies documenting that the average adolescent is chronically sleep deprived. Teenagers need 8.5 to 9.5 hours of sleep each night to function optimally: physically, emotionally and academically. During puberty,

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\*Katherine Dahlsgaard, lead psychologist, Anxiety Behaviors Clinic, Children’s Hospital of Philadelphia. “On How We Can Dramatically Increase the Resiliency and Mental Health of Today’s Youth with Two Simple Ingredients”, keynote presentation at Pennsylvania Association of School Nurses and Practitioners Conference, March 28, 2015)

teenagers' circadian rhythms shift and the production of melatonin (an essential hormone to regulate and aid in sleep) is delayed; the result is that many teenagers are unable to fall asleep until about 11:00 pm. This does not take into account the extra time for homework, extracurriculars, and electronics, which cause many teenagers to stay up even later. Even if teens actually fall asleep by 11:00 pm, they would need to sleep until about 8:00 am in order to get the medically recommended 8.5 to 9.5 hours of sleep.

The most recent data from the *Youth Risk Behavior Surveillance* shows that approximately 70% of American high school students are sleep-deprived (defined as under 8 hours of sleep on school nights). Specifically, the data shows that while 60% of high school freshmen are sleep-deprived, this statistic rises to 77% for high school seniors (Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, p. 42, June 13, 2014, Vol. 63, No. 4). The average high school student gets 7 hours of sleep (National Sleep Foundation poll, 2006), with 25% falling asleep in school at least once a week, and 14% arriving late or missing school at least once a week. Of 11-17 year olds, 20% report less than 6 hours of sleep nightly (2011 study, Roberts, Roberts and Xing, referenced in Dahlsgaard report).

*"It takes a sleepy student 5 hours to do 3 hours of homework"* - Judith Owens, M.D., leading pediatric sleep researcher

### **LMSD STRATEGIC PLAN SUPPORTS CHANGE TO BENEFIT STUDENTS**

LMSD's Strategic Plan, as part of "Redefining Success", emphasizes the need for high levels of student social, emotional and physical well-being. However, LMSD's high school start time of 7:30 am conflicts with this holistic goal. Teens awaken around 6:00 am to catch the bus (initial bus pickups begin at 6:30 am); as a result many only get a maximum of about 7 hours of sleep, creating a deficit of 2 hours nightly. Sadly, many high schoolers get significantly less than 7 hours sleep, due to a variety of factors (homework, extracurricular activities, after-school jobs, electronics use close to bedtime, poor time management, emotional and medical issues, etc.). High school counselors and nurses report that many students often sleep only 3 to 5 hours nightly.

To comply with the AAP guidelines, a LMSD high school student would need to be *asleep* (not simply in bed) by 9:00 pm, which the research shows occurs in only a minority of high schoolers due to circadian rhythm shifts at puberty.

A later high school start time would help the district realize the stated goals of the strategic plan. Already, LMSD has recognized that sleep is an issue. The high school class schedule was designed to mitigate the impact of students' decreased concentration and focus in the early morning and late afternoon by rotating the class times. Additionally, secondary administrators noted that they do not hold assemblies during first period, as students are likely to fall asleep. The high school nurses report students regularly drop in to take a nap, and while some of these students have diagnosed sleep disorders, others are simply catching up on sleep. The latter group tends to be the high achievers, often in the more demanding courses.

LMSD wants our teens to thrive, not just survive, during their high school years. Lack of sleep is a serious impairment. In order to prioritize student health, safety and academics, a later high school start time is essential.

*“To do nothing is really to do harm”*- Judith Owens, M.D., *Time: The Science of Sleep*, p. 35

## **SLEEP AND SCHOOL START TIME COMMITTEE**

In March 2014, LMSD and the ISC brought national sleep expert and pediatrician Dr. Judith Owens to speak to our school community on *Sleep and the Teenage Brain*. Since then, the ISC has hosted several discussions about sleep, and the AAP issued its policy statement last August. In response to the continued community interest, LMSD Acting Superintendent Dr. Wagner Marseille and School Board President Dr. Robin Vann Lynch authorized the ISC to conduct a short- term study on the issue of sleep and later start times for LMSD high schoolers. The ISC committee’s charge was to meet with a number of administrators to discuss the impact of a change in school start time, both in terms of opportunities presented, challenges, and logistical issues. In addition, through the conversations and discussion, the committee gathered feedback on attitudes and perceptions about start time changes. This report is a result of those interviews with 23 administrators and staff, in addition to school nurses from the LMSD Wellness Council, throughout the months of March and April 2015. Appendix C provides a list of the administrators and staff who were interviewed.

## **LOGISTICAL ISSUES SPECIFIC TO LMSD**

Research shows that starting high school at 7:30 am is not healthy or productive for most students, in terms of academic, physical and mental health, as well as safety. The answer is simple: start high school later. However, achieving this goal is complicated.

Most of the 80-plus school districts that have changed high school start times have encountered many of the same concerns: busing issues, extracurriculars (before and after school), athletic practices and games, before and after school childcare, student after-school employment, changes in teacher work schedules, changes in parent work schedules, children walking to bus stops or schools in the dark, and community use of facilities and fields. Dr. Mark Mahowald, Professor of Neurology and Director of the Minnesota Regional Sleep Disorders Center, notes that in response to objections about shifting school start times: “Not a single excuse we’ve heard relates to education. (...) We should send kids to high school in a condition that promotes learning rather interfering with it.” [http://www.socsd.org/pdfs/schoolstarttimes.pdf?hc\\_location=ufi](http://www.socsd.org/pdfs/schoolstarttimes.pdf?hc_location=ufi)

Should the district move forward with later start times for high school, and, for example, start elementary school first and middle school last, we will encounter these same logistical issues in working out a solution, including some unique issues to be addressed:

1. Busing schedule: LMSD has a three-tiered busing schedule, delivering high school students first (7:30 am start time), middle school students second (8:20 am start time), and elementary students third (9:00 am start time). Ideally, the transportation department would like

approximately 45 minutes between morning runs, and 30 minutes between afternoon runs. LMSD transports (as per state law) over 2000 district students to over 100 non-public schools, adding an additional layer of complexity. Without additional buses, there is limited flexibility in the current three-tiered busing schedule. In addition, Lower Merion Township has limited public transportation to serve student needs.

2. Length of instructional day: Each of the three school levels (elementary, middle and high school) has a different duration for the student instructional day. Elementary school runs 6 hours and 35 minutes, middle school is 6 hours and 45 minutes, and high school is 7 hours and 10 minutes. (The teacher day, however, is the same at each school level: 7 hours, 20 minutes.) The different lengths of the instructional day, combined with limited flexibility in the busing schedule, add yet another level of complexity to rearranging start times.
3. Athletics: The two high schools play in the Central League, which includes 10 other school districts. Various districts may accommodate some game time modifications. LMSD students would continue to miss instructional time if game times were not changed, as it is unrealistic to think all 11 districts would change start times concurrently. This is an opportunity for LMSD to lead its peer districts in promoting student health and wellness, particularly as it affects athletes.
4. Extracurriculars (not including athletics): If high school starts later, extracurriculars will end later as well. However, most extracurriculars (except for competitions) occur on school grounds. On competition days (e.g. chess club, debate), just as with athletic games, an earlier start time likely means the students will miss more class time.
5. Facility issues: A later high school start time likely will affect facilities and community access to LMSD fields, gyms and pool. LMSD has predominantly afternoon games scheduled, limited field lighting, concurrent demands by multiple sports teams for use of the same and limited number of fields, and demand for use of the swimming pool. LMSD is cognizant of the need for our students to maintain a reasonable balance of academics and sports each school day, so late evenings for sporting activities are purposely limited.
6. Before and after school child care: MELC has a waitlist at each elementary school. An earlier elementary school start time may obviate the need for care before school, but likely will increase the need for care after school. Earlier elementary start and dismissal times would allow more opportunities for innovation in extracurricular after-school activities. A later start for middle school may create the need for before-school care (for example, an early morning homework club in the library).
7. Walking to school or the bus stop in dark: There is a safety concern for all students, regardless of age, walking to school or waiting for the bus in the dark.

All of these issues require further study and discussion. To ensure that LMSD meets its strategic goals, the district needs to commit to making a change that will be in the best interests of its students, even though such a change is complicated.

## RECOMMENDATIONS

**The research shows that the lack of sleep in teenagers has a tremendous detrimental effect on their mental and physical health and ability to learn, and the benefits derived by more sleep are both staggering and undeniable.** The feedback gleaned from our meetings with LMSD administrators and staff corroborates the medical research, and as a group, they expressed interest in continuing the dialogue. **In order to optimize student health and learning, as per the AAP Policy and stated goals of the LMSD Strategic Plan, all LMSD secondary students should begin their school day at or after 8:30 am.** To achieve this goal, a defined period of analysis and community discussion should be undertaken. After extensive conversations with over two dozen LMSD professionals, from counselors, psychologists, nurses, athletic and activities directors, and building and district level administrators, this committee recommends the following actions:

1. **LMSD should convene a Sleep and Start Times Steering Committee to develop options to address high school students' need for more sleep, and in particular, to consider adjustments to school start times.** Prior to the formation of this group, a Leadership Team should be formed to define the direction of this study and identify the Steering Committee members. Additionally, LMSD should appoint a consultant to guide the Steering Committee's work in this process. A change in start times may be logistically quite complex, and a professional consultant may be best equipped to work out the many details involved in such a change and to reach the optimal solution for all LMSD stakeholders.
2. **LMSD, along with its consultants, should educate the entire community (students, parents, teachers, administrators, coaches, school health and counseling professionals, community members, business representatives, local elected officials) on sleep and the consequences of sleep deprivation, as well as the academic, health and safety benefits of later high school start times.** In addition, they should establish ongoing community and key stakeholder discussions and allow for input, through online surveys and public meetings, in order to educate, listen, discuss, and foster support for any changes.
3. **LMSD should integrate sleep-related education into the curriculum** (e.g. in health and science classes, as well as in athletic meetings).

*Respectfully submitted,*

*ISC Committee on Sleep and Later Start Times  
May 1, 2015*

Amy Norr, Chair  
Juli Gruber-May  
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## **Appendix A --Select Current Literature and Research on Teenage Sleep and the Starting School Later Initiative**

<http://pediatrics.aappublications.org/content/early/2014/08/19/peds.2014-1696.full.pdf+html> DOI: 10.1542/peds.2014-1696 (*Insufficient Sleep in Adolescents and Young Adults: An Update on Causes and Consequences*, Judith Owens, Adolescent Sleep Working Group and Committee on Adolescents, Pediatrics, Official Journal of the American Academy of Pediatrics, originally published online August 25, 2014)

“School Start Time Change: An In-Depth Examination of School Districts in the United States”, The Children’s National Medical Center’s Blueprint for Change Team, April 2014  
<http://www.fcps.edu/supt/update/1415/Blueprint-Change-School-Start-Time-Change-ReportFinal4-14-14.pdf>

Montgomery County, MD decision:

[http://www.washingtonpost.com/local/education/2015/02/10/ff045a2c-b11f-11e4-886b-c22184f27c35\\_story.html](http://www.washingtonpost.com/local/education/2015/02/10/ff045a2c-b11f-11e4-886b-c22184f27c35_story.html)

Montco. MD School Board report on Sleep and Start Times, Oct. 8, 2013

[http://www.boarddocs.com/mabe/mcpsmd/Board.nsf/files/9C2M2258FE43/\\$file/10.1%20Rpt%202013%20Bell%20Times%20Work%20Grp.pdf](http://www.boarddocs.com/mabe/mcpsmd/Board.nsf/files/9C2M2258FE43/$file/10.1%20Rpt%202013%20Bell%20Times%20Work%20Grp.pdf)

Montgomery County, MD, Bell Times -- Analysis of Additional Options, January 2015

<http://www.montgomeryschoolsmd.org/info/pdf/Bell%20Times%20Analysis%20Addl%20Options%20Jan2015.pdf>

Letter to editor: <http://www.eastgreenwichnews.com/letter-to-the-editor-thoughts-on-school-start-times/>

The Impact of School Start Times on Adolescent Health and Academic Performance <http://www.socsd.org/pdfs/schoolstarttimes.pdf> References and additional resources at <http://schoolstarttime.org/endnotes/> .

The newsletter and website of [StartSchoolLater.net](http://StartSchoolLater.net) is very informative on these issues, and includes regular updates on this subject.

## Appendix B --AAP Policy Statement

AAP report--press release--August 25, 2014: <https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/Let-Them-Sleep-AAP-Recommends-Delaying-Start-Times-of-Middle-and-High-Schools-to-Combat-Teen-Sleep-Deprivation.aspx>

### **American Academy of Pediatrics Policy Statement: School Start Times for Adolescents**

The American Academy of Pediatrics recognizes insufficient sleep in adolescents as an important public health issue that significantly affects the health and safety, as well as the academic success, of our nation's middle and high school students. Although a number of factors, including biological changes in sleep associated with puberty, lifestyle choices, and academic demands, negatively affect middle and high school students' ability to obtain sufficient sleep, the evidence strongly implicates earlier school start times (i.e., before 8:30 AM) as a key modifiable contributor to insufficient sleep, as well as circadian rhythm disruption, in this population. Furthermore, a substantial body of research has now demonstrated that delaying school start times is an effective countermeasure to chronic sleep loss and has a wide range of potential benefits to students with regard to physical and mental health, safety, and academic achievement. The American Academy of Pediatrics strongly supports the efforts of school districts to optimize sleep in students and urges high schools and middle schools to aim for start times that allow students the opportunity to achieve optimal levels of sleep (8.5–9.5 hours) and to improve physical (e.g., reduced obesity risk) and mental (e.g., lower rates of depression) health, safety (e.g., drowsy driving crashes), academic performance, and quality of life. <http://pediatrics.aappublications.org/content/early/2014/08/19/peds.2014-1697>

## Appendix C

The committee (or a subset thereof) met, in March and April 2015, with the following LMSD administration and staff:

- Principals at all 10 district schools (2 HS, 2 MS, 6 ES principals)
- Athletic and Activities Director at each high school
- Director of Secondary Education
- Assistant Principal for Scheduling at each high school
- Director of Elementary Education
- Director of Operations
- Supervisor of Transportation
- Safety Foreman, Transportation
- Supervisor of School Health Services
- Wellness Council Committee, including high school nurses
- School Psychologist, high school
- School Counselors, middle and elementary schools