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Maria Libby, Superintendent
Five Towns CSD/MSAD 28
7 Lions Lane, Camden, ME 04843

Dear Superintendent Libby,

As pediatricians and parents, we of the department of pediatrics at Pen Bay Medical Center would like to offer our full support to moving the school start time for middle school and high school students back. We recognize that school start times are set as a balance between a large array of factors. This letter serves to highlight some of the research, taken from the American Academy of Pediatrics (AAP) 2014 published report on school start times, on the impact of later sleep times on middle and high school students.

1) Why do teens go to sleep later and how much sleep do they need?

Several studies have demonstrated that most teenagers need 8.5-9.5 hours of sleep per night. The time children fall asleep is the result of biologic processes and social obligations which minimize the opportunities for adolescents to sleep. With the onset of puberty most adolescents begin to shift fall asleep time by up to 2 hours. This "phase shift" occurs due to later nocturnal secretion of the hormone melatonin which plays a major role in sleep regulation. This results in a preference of falling asleep later. In addition an adolescent takes longer to feel tired, compared to prepubertal children, which also contributes to transition to sleep. In a poll performed by the National Sleep foundation 59% of sixth through 8th graders and 87% of high school students did not get the recommended amount of sleep.

2) Would students get more sleep if school times moved back or just go to bed later?

There is strong evidence that when middle and high schools delay start time students obtain more sleep. In the 1997-1998 school year the city of Minneapolis shifted high school start times from 7:15a to 8:40a. Bedtimes after the change did not shift after the change and students obtained nearly 1 additional hour of sleep on school nights. In another study when school start times were shifted 1 hour later the percentage of children getting greater than 8 hours of sleep increased from 37%-50%. A separate study looking at > 9000 student from 8 public high schools from 3

states demonstrated that the percentage of children sleeping greater than 8 hours was dramatically higher in schools with later start times (33% at 730a vs 66% at 855a).

3) What are the school based benefits of later start times?

A number of studies have clearly demonstrated the delaying start times has a significant positive effect on key outcomes. In the Minneapolis study the attendance rates of students in grades 9-11 improved. Another research group found that moving sleep back by one hour could have an impact on standardized test scores as much as reducing class size by one third. In the 3 state study referenced above 5 of the 6 schools involved showed a significant increase in grade point average in math, English, science, and social studies.

4) What are the impacts of overall health?

There is mounting evidence that increased sleep leads to reduced problems with mood. In a study of children with later sleep times the rate of self reported depression fell and motivation improved following the change in school start times. The rate of car accidents in 17-18 yr old students fell by 16.5% after delay in school start time. Whereas a study conducted for the same time, in location with early start times, saw a 7.8% increase in car accident rates.

Please feel free to contact any of us with questions.

Sincerely yours,

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