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What Is “Too Cold?”

Recess and Physical Education Weather Policies in Maine Elementary Schools

by Lauren E. Jacobs, Anush Y. Hansen,
Christopher J. Nightingale, and Robert A. Lehnhard

Abstract

This research investigated weather policies concerning outdoor recess and physical education in Maine elementary schools. Data were gathered through a statewide survey of Maine elementary school principals, interviews, and an analysis of existing policies and 10 years of historic weather data. Survey data revealed a significant correlation between geographic location and minimum cutoff temperature for outdoor recess. No relationship was found between minimum cutoff temperatures and poverty levels. There were substantial differences between the reported number of missed outdoor recess days and the estimated weather data numbers. The findings of this research are important for three reasons. First, it uncovered the vast differences in weather policies for outdoor recess and physical education in Maine. Second, there appears to be a gap in understanding about the actual number of missed outdoor recess days per year. Third, these findings may help administrators understand how changes to recess policies could increase outdoor time for students.

Outdoor play and exercise are often considered ubiquitous parts of childhood, found in every environment in which children move: playing in the backyard at home, riding a bicycle around a neighborhood, swinging at a playground at school, building forts in the woods. It seems to be innately understood, though perhaps not always fully respected: children need to move and play outside. This study explored some of the policy barriers and facilitators that affect students’ outdoor time in Maine elementary schools. Before we launch into the findings and implications of that study, we will set the stage with background about the benefits of and affordances for outdoor physical activity in youth in the United States.

BACKGROUND—GO OUTSIDE AND PLAY!

Adults often lament that “kids these days do not go out and play enough.” Although these refrains may be colored by nostalgia, they are unfortunately backed

up by research. Indeed, kids these days are *not* active enough. Even though the benefits of adequate physical activity are well understood, only 42 percent of 6- to 11-year-old children in the United States meet the recommended daily levels of physical activity (Troiano et al. 2008). The causes of this population-level insufficiency in physical activity levels are complex. A variety of influences including environmental factors (Skala et al. 2012), school policies (Turner, Chriqui, and Chaloupka 2013), geography (Turner, Chaloupka, and Slater 2012), and social relationships (Stanley, Boshoff, and Dollman

2012) have all been correlated with rates of daily physical activity in US children. It is clear that there are numerous barriers to sufficient daily physical activity in children despite its well-understood importance.

Since the benefits of physical activity are well established and concern about inadequate levels is prevalent, research has turned to the question of how to increase physical activity at both population and individual levels. In the fields of education and health, efforts that increase physical activity in children are considered an important, though not singular, component of addressing the issue of obesity in the United States. With this in mind, we shift focus slightly to consider the effects of environmental variables on activity levels.

Research has shown that youth who spend more time outdoors engage in more moderate and vigorous physical activity and are less likely to be overweight than their peers who spend less time outdoors (Cleland et al. 2008). Additionally, preschool and elementary school children engage in much more physical activity outdoors

than indoors (Cooper et al. 2010; Vanderloo et al. 2013). A 2015 review of existing research showed consistent correlations between children’s increased time outside and higher levels of physical activity and cardio-respiratory fitness (Gray et al. 2015).

Although it is possible that outdoor time is more often set aside specifically for physical activity and indoor time is more frequently used for sedentary activities, differences in physical activity levels have been found consistently between indoor and outdoor physical education classes, a context in which physical activity should be inherent no matter the location. A study of 211 elementary physical education (PE) classes in Texas demonstrated that students get more vigorous physical activity in outdoor PE settings than in indoor ones (Skala et al. 2012). In another study, elementary students who took part in more outdoor PE classes had significantly higher endurance performance than students who were in a control group (Pasek, Michalowska-Sawczyn, and Nowak-Zaleska 2014). Although questions remain about how environmental factors affect physical activity, the existing body of evidence points strongly towards a correlation between increased outdoor time and higher levels of physical activity.

Public schools play a unique and important role in providing youth with opportunities for physical activity.

PHYSICAL ACTIVITY AND THE SPECIAL ROLE OF SCHOOLS

Public schools play a unique and important role in providing youth with opportunities for physical activity. School is accessible to nearly all American children, and it is where children spend a large proportion of their waking time. Schools also have the opportunity to promote physical activity in a multipronged fashion. Before- and after-school activities, physical education (PE) classes, recess, in-school activity breaks, and summer programming can all be part of public school schedules and priorities.

In the United States, school-based outdoor active time often takes the form of recess. (Though PE classes also provide opportunities for outdoor activity.) Recess, traditionally defined as unstructured but supervised free-play time, is a unique opportunity for physical activity during the school day. It is often the only time in school that children can choose exactly how they play, what they play, and with whom they play. It provides opportunities for students to independently gain and practice social skills and conflict resolution, as well as take part in physical activity (Pellegrini 2008).

However ubiquitous it may seem to most of us, daily outdoor recess is not a universal part of the school experience for all students in the United States. Differences in access to daily recess correspond with geography, socioeconomic status, grade level, and school size. Students enrolled in larger or urban schools typically have less recess time than do students in rural schools (Fernandes and Sturm 2010). Generally, schools with higher poverty rates schedule less recess time (Ramstetter, Murray, and Garner 2010).

Similarly, students attending public schools in the United States have unequal access to high-quality physical education. Only 20 percent of US schools meet SHAPE America’s recommendation of 150 minutes of physical education per week, a rate that is highly variable between geographic regions of the country (Turner, Chaloupka, and Slater 2012). A separate study showed a large range of allocated time for physical education, with a reported average of 62.5 minutes per week, but a standard deviation of 30.5 minutes (Lounsbury et al. 2013). The state of Maine, in which this study took place, mandates the offering of physical education, but does not have minimum time requirements. Clearly, both physical education and recess time allocations are highly variable.

There is a final point about the important role schools play in providing all students with physical activity opportunities: students living in rural areas often have limited opportunities for outdoor physical activity compared to their urban peers. This may seem counterintuitive, but the longer distances between services in rural areas often means that students cannot walk or bike reasonably or safely to schools and other locations of interest. Research on this issue in Maine found that students consistently reported accessing most of their regular opportunities for physical activity at school through recess, organized sports, and PE classes. The authors suggested, “finding ways to increase

opportunities for physical activity at schools should continue to be a top priority for rural school administrators, policy makers, and researchers” (Yousefian et al. 2009: 229).

BUT, IT’S COLD OUTSIDE!

Despite the existence of considerable research into many of the barriers and facilitators to physical activity, weather policies related to outdoor recess and PE classes have not been well studied. In colder climates, including northern states such as Maine, it is common practice to cancel outdoor recess or outdoor PE classes due to weather conditions. But what weather conditions typically lead school officials to cancel outdoor recess? Who decides and what information do they use to design these recess-cancellation policies? If outdoor recess is cancelled, are kids still able to engage in physical activity indoors? Moreover, are PE classes held to the same weather policies as recess? In Maine, these policies—if they exist at all—are entirely under local control, leading to wide variation around the state.

The study that we discuss in the remainder of this article investigated Maine elementary school weather policies as they pertain to outdoor recess and PE classes. Using a statewide survey of elementary school principals and semistructured interviews, we explored the existence and in-practice implementation of these policies. In addition, using historical weather data and the school weather policies in six geographically representative schools in Maine, we estimated how many days per school year, on average, students are kept inside for recess or physical education.

The target population of the research included all Maine public elementary schools that serve students in any grades kindergarten through 5, chosen because elementary schools are most likely to incorporate daily recess in the school day. According to Maine Department of Education data, at the time of this research there were 395 schools that met inclusion criteria.

WHAT’S HAPPENING IN MAINE SCHOOLS

The survey encouraged respondents to explain the content of their school’s outdoor recess policies in an open-ended question. A common theme in these responses was having a minimum cutoff temperature under which outdoor recess would be cancelled. We used this data to create five cutoff categories that were

used for statistical analyses: 0°F, between 1°F and 10°F, between 11°F and 19°F, 20°F, and no cutoff provided (but some other policy explained).

Principals representing 105 Maine elementary schools responded to the survey. For analysis purposes, we categorized school geographic locations into one of three Maine climate regions as determined by the National Oceanic and Atmospheric Administration. Reported free-and-reduced-lunch (FRL) rates were used as a representation of school population socioeconomic status. The mean FRL rate of responding schools was 52.35 percent (SD 19.67); the lowest rate was 3 percent, and the highest 100 percent. According to the Maine Department of Education, the 2017 Maine state FRL was 48 percent.¹

Ninety-nine respondents (94.3 percent) indicated that all of their students have a daily scheduled recess. Some schools explained that certain grade levels have daily recess while others do not. It is worth highlighting that according to data from this survey, not all fifth grade students in Maine are provided with daily recess.

Of the schools that had written recess or physical education weather policies, 26 schools (24.8 percent) used policies from their district, and 44 (41.9 percent) had a policy at the school level. The remaining 35 schools (33.3 percent) did not have a formal or written policy, but did have some sort of practice they used to make this determination. Nearly half of the responding schools used the same weather policies for recess as for PE classes.

Respondents described a variety of procedures and considerations the school relied upon when considering the weather and outdoor PE classes. At 16 schools, the teacher makes the decision, while at two schools, the teacher and principal collaborate on the decision. Respondents listed a number of other variables including the nature of the planned activity, muddy fields, general safety concerns, as well as specific concerns including the presence of loose dogs and bees. A consideration for one large southern Maine school was access to adequate space outdoors, “due to the size of our school, outdoor play spaces are typically used for recess during all parts of the school day and PE classes are [held] in the gymnasium. Occasionally PE classes are on the [outdoor] track.”

The content of PE classes in winter also varied widely. According to a respondent from a central Maine school, “Winter classes do not go outside. September or June classes might stay in if the PE teacher determines

that it is too warm.” A respondent from a Downeast school said, “We do indoor skills during winter months.” Some schools reported access to equipment that facilitates outdoor activities in the winter months. For example, a respondent from a southern Maine school wrote, “Our PTO [Parent Teacher Organization] purchased cross-country skis and snowshoes for our kids, so we love going out.” In another instance, “We do a unit on [cross-country] skiing, so that is dependent upon snow conditions rather than weather.” At a PK–8 school in western Maine, “The curriculum drives the outdoor activity and includes Nordic [cross-country] skiing, snowshoeing, and ice skating.” These activity-based decisions are left to the physical education teacher.

The majority (86.7 percent) of reporting schools provided some sort of minimum temperature cutoff as part of their outdoor recess or PE policy or practice. Nearly all temperature cutoffs included windchill, relative outdoor temperature, or Accuweather.com’s “RealFeel” index (<https://www.accuweather.com/en/weather-news/realfeel-temperatures/7615006>). For the purposes of statistical analysis, we used the lowest reported temperature cutoff no matter what additional index or factor was considered. These schools were placed in five categories based on temperature cutoff (Table 1), which were used in two statistical analyses.

We found no statistical relationship between temperature category and FRL rates. A quick look at the raw data shows why. There are a number of high-needs schools (with 100 percent FRL rates) that have a 0°F cutoff, while some low-needs schools in southern Maine have the highest minimum temperature cutoff of 20°F.

The second analysis found a significant correlation between temperature category and geographical location. This relationship is quite visible when the schools are categorized by temperature category and plotted on a map of the state (Figure 1).

HISTORICAL WEATHER DATA— ESTIMATING LOST OUTDOOR TIME

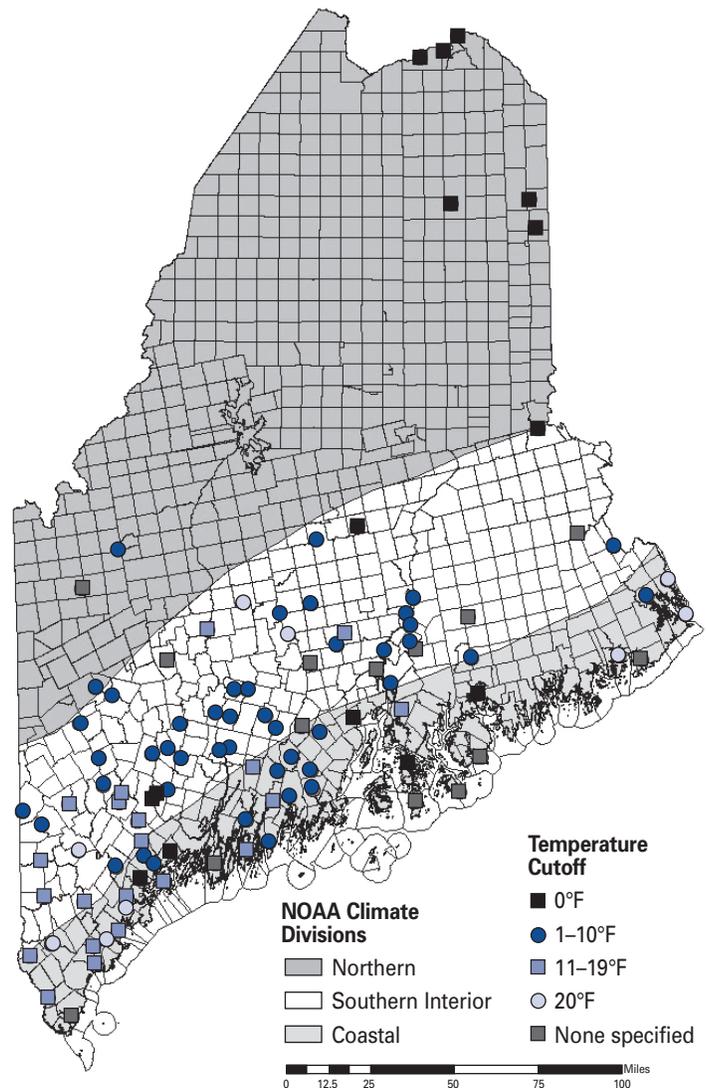
In an effort to gauge how many outdoor recess days Maine students miss per school year, we asked survey participants to estimate the average number of days per year that outdoor recess or PE classes were cancelled due to weather. There was a

TABLE 1: **Criteria and Sample Size for Temperature Categories**

Category	Minimum cutoff	No. of schools in category (%)
1	0°F	15 (14.3)
2	1–10°F	46 (43.8)
3	11–19°F	22 (21.0)
4	20°F	8 (7.6)
5	Other*	14 (13.3)

* = Policy or practice did not include temperature; not included in analysis

FIGURE 1: **Temperature with Windchill Policies for Outdoor Recess in Maine Elementary Schools with Climate Divisions Indicated**



large range of estimates from those who answered the question (from 3 to 40 days), but many respondents wrote that they did not keep track of the number and could not give an accurate estimate.

Since this information was not available from the survey, we turned to actual weather data to create estimates by using 10 years of data from weather stations near six school locations. The locations were chosen because the local schools had explicit weather policies including temperature or windchill cutoffs, and they were within 7.5 miles of a weather station with accessible data. We used two locations from each of the three climate divisions.

We accessed weather data from 2007 to 2017 for the six chosen stations using the National Climatic Data Center’s (2017) online Surface Data Hourly Global archives. Daily weather observations at 12:00 p.m. between November and April during those years were included. This analysis produced an average probability that outdoor recess and PE classes would be cancelled due to cold according to five different temperature and windchill scenarios.

The data were first expressed as an approximate percentage of days in which outdoor recess would be cancelled between November and April. Unsurprisingly, there was considerable geographic variation. To better represent the cancelled outdoor recesses in terms of actual school days instead of percentages, we calculated the approximate number of cancelled outdoor recess days per week (Figure 2) between November and April. As shown, the four schools located in the southern interior and coastal climate division have nearly identical trend lines.

Finally, to facilitate a comparison between these findings and survey responses, we calculated the approximate total number of cancelled outdoor recess days per winter season in all six locations (Table 2). The calculations were based on 22 weeks of school between November and April, which takes into consideration typically planned vacations during those months. Note that even the lowest cutoff in Frenchville would still result in more than 30 cold-weather cancellations.

PRINCIPALS—IN THEIR OWN WORDS

While the survey responses created much interesting data, they did not allow for follow-up questions or more in-depth conversations. We wanted to dig a little deeper, especially regarding the genesis of some of

FIGURE 2: Estimated Number of Cancelled Days of Outdoor Recess per Five-Day School Week between November and April

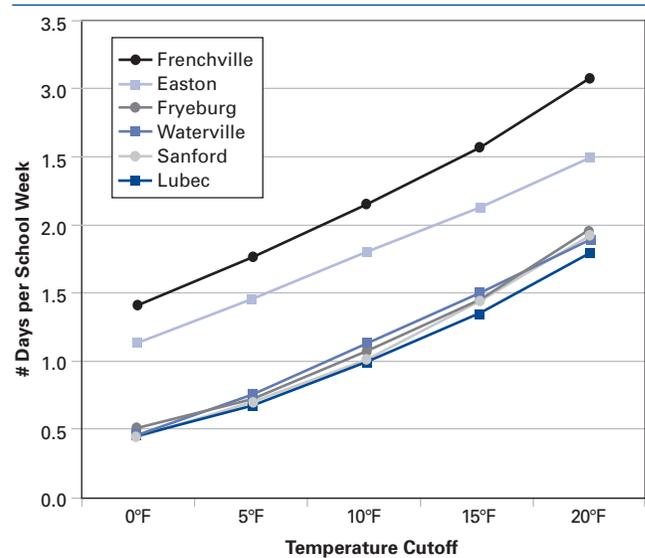


TABLE 2: Approximate Number of Cancelled Outdoor Recess Days per Winter Season*

	Cutoff				
	0°F	5°F	10°F	15°F	20°F
Sanford	10.1	15.6	22.2	31.5	42.3
Lubec	10.3	14.9	21.8	29.7	39.5
Fryeburg	11.7	16.2	23.5	31.7	43.0
Waterville	10.3	16.7	24.8	32.8	41.8
Easton	25.3	32.1	39.5	46.7	57.7
Frenchville	31.4	38.9	47.1	56.4	67.8

* assuming 22 weeks of school between November and April and accounting for typically scheduled school vacations in these months.

these weather policies. Therefore, three principals representing a reasonable breadth of target population diversity sat for in-depth interviews. (We use pseudonyms here in describing the principals, their schools, and in referencing their interviews.) Principal M was located at a small PK–6 school in Maine’s northern climate division. Principal B worked at two schools in central Maine in the southern interior climate division that, combined, covered grades PK–4. Principal X was a principal of two PK–5 schools in the midcoast area of Maine.

The interviews highlighted the variety of policy approaches that Maine elementary schools employ with reference to recess and physical education, reflecting a finding of the survey results. Principal B explained that the two schools use a stepwise temperature cutoff policy to make outdoor recess determinations. The entire recess is held outside if the temperature with windchill is 20°F or greater, recess is shortened to 10 minutes if the temperature with windchill is between 15°F and 20°F, and recess is held inside if it is below 15°F including windchill. This policy is from the school (not district) and provides clarity in making the indoor-outdoor recess decision centrally at the school office.

In contrast, Principal M described a recess policy that is just one aspect of an extensive district-level wellness policy. This wellness policy is comprehensive, addressing physical activity along with guidelines about allowable fundraising activities and rewards. The physical activity portion of the policy includes the prescription that recess is held indoors only if the temperature goes below 0°F, including windchill.

On the other hand, Principal X's schools do not have any formal policy related to weather and outdoor recess. As Principal X explained in the interview,

I think it's really difficult to put a temperature rating on. [T]he first week of January is going to be a lot colder than March, I mean in terms of the sun. So, it can be a nice sunny day in March and really, really cold, but that sun really does make a big difference. Putting something in the policy that is really definitive would be limiting.

Despite the varying approaches to policy, some consistent themes emerged from all three interviews: equipment, facilities, behavior, clothing, and staffing. Facility and behavior concerns are often closely related. Indoor recess restricts space available for movement, so behavioral issues sometimes arise.

Anytime we have indoor recess there are issues. There are kids that get hit, or something happens. So why not get them outside? It's better to get them wet than to have a kid that's getting hit.—Principal X

Some participants spoke about space issues they face with outdoor facilities. The challenges stem from having playground size restricted by rain (resulting in muddy fields) and/or snow piles in the winter.

We haven't actually been able to go on the field. And that just gets tricky, too, we want them to play but when kids are playing on the tar and balls are going up overhead, people get hurt.—Principal B

The limited space available for movement restricts the types of games and play students can engage in. Concerns about behavior arise when activities are restricted, whether those constraints occur indoors or out.

All three principals discussed how access to specific equipment, not just adequate facilities, has a direct impact on outdoor recess and PE offerings. One school has a full inventory of cross-country skis and boots, collected over many years by the PE teacher. Two schools have full sets of snowshoes for use during physical education in the winter. Indoor recess activities are also influenced by access to equipment and technology (such as Wii gaming), whether that recess is held in the gymnasium or in classrooms.

Behavior and clothing are also closely related. All interview participants explained that students regularly fail to bring clothing appropriate for the weather; Principal B described it as “always an issue.” (Of course, sometimes this happens when a student's family does not have access to the necessary cold-weather gear. Schools often work to provide students with any clothing they might not be able to bring from home.) Principal M explained that her students usually own the appropriate cold-weather clothing, but sometimes choose not to bring it to school:

I have kids crying, saying, “I don't want to go outside today.” It's not a choice; you have to go out today. You have to go out. And I've learned, when I go to Goodwill shops, I'll pick up ski pants because they'll play that, “Oh, I forgot my ski pants.” Hey! I've got a pair for you today! [N]o excuses...[but] most kids want to go outside.

All three principals contend with clothing concerns and subsequent calls from parents when children end up wet or cold. Survey participants often cited these issues as the main reason for not bringing children outside in the rain or mud.

Supervision by adults during outdoor recess is primarily the job of teachers although educational technicians or administrators sometimes fill the role. Administrators in some schools feel that finding staff for

supervision of outdoor recess is a burden, while others find it easy. For outdoor PE classes, the PE teacher is the primary supervisor and decision maker.

At the schools closer to the coast, Principal X explained, “What I found was that the kids really do like to go outside, no matter how bad the weather is. It’s the teachers that don’t want to go outside.” However, Principal M described teachers at this northern school in the following way, “They don’t mind. I have a good group of teachers, I really do.... I don’t have a lot of teachers that complain about going out. No, I don’t think I have one.” Finally, Principal B seeks to avoid potential conflicts by encouraging teams of teachers to come up with their own solutions for who takes recess duty and who fills other duty roles, saying, “I let them work it out amongst themselves.”

Principal X sees the attitude among some teachers as being a hindrance to getting students outside more frequently. Though the ideal was described as “just hiring all teachers who are of that mindset [that outdoor time is important for kids],” it remains a challenge. Principal B’s solution appears to mitigate this issue, and for Principal M, it is not perceived as an issue at all. The contrasting attitudes of staff members at different schools were present independent of the attitude of the building administrator, as all three principals indicated they placed a high value on recess and physical activity.

As mentioned previously, the wellness policy in place at the northern Maine school is comprehensive and covers the whole district. For Principal M, this policy represents the great value the district and school place on wellness. The policy is supported at multiple levels, from the school board to the superintendent to the parents, and is often used as a motivational tool to support student behavior. The value placed on recess is, for Principal B, also expressed at the institutional level: “I would say overwhelmingly here people believe kids should have recess, and...it’s not something to be taken away [for punishment].... I think that’s a pretty general belief here.” Unlike the school in northern Maine, however, these values are not articulated in broader policy. Similarly, Principal X believes in the importance of outdoor activities, but that personal belief is not supported by policy.

Temperature, wind, and precipitation are the basic variables in this question of when should students stay inside for recess and PE classes. However, creating a

temperature or windchill cutoff is the easy part of this complex process. The interviews exposed hidden and nuanced aspects of this seemingly simple question including issues of culture, expectations, and values.

WHERE TO LOOK NEXT

Although research participants stated nearly universally that rain was an automatic reason to cancel outdoor recess and PE classes, this research did not include a rainy-day analysis of actual weather data for two reasons. First, precipitation data from some weather stations are incomplete and not reported as uniformly as temperature and wind speed. Second, the way precipitation data is reported makes it challenging to differentiate between heavy and light rain, an important distinction in this context because many schools send kids outside in light rain or mist, but not in heavy rain. Future research could explore the available precipitation data further to find the approximate number of days outdoor recess might be cancelled due to rain in different locations around the state. Or, researchers could track actual cancelled outdoor recess days at schools employing different policies, which would provide real on-the-ground data of policy impacts on outdoor time.

As climate change continues to affect Maine, current school weather policies and practices may need to be reviewed and reconsidered. Slippery, icy conditions caused by inconsistently snowy winters may become more of an issue. There is certainly the potential for heat to be an increased factor in deciding outdoor activity policies for Maine students. Only one survey respondent mentioned heat as a current contributing factor to decision making, but it would be reasonable to expect that this issue will become more prevalent in the future. As point of fact, in the month that this research was coming to an end (June 2017), the Augusta school district opted to send elementary students home early one day because of heat. According to a story in the *Kennebec Journal*, this was the first time the superintendent of that district could recall that happening (“Record-breaking Heat Sends Younger Schoolchildren Home Early in Augusta,” Betty Adams, June 12, 2017).

Another issue closely related to climate change is the impact of ticks on outdoor policies and practices. The current research did not explore this issue; however, one interview participant raised the topic:

Recently [ticks have] been more of a concern. My wife started bringing it up, “How can you have [students] go work on the trails?” It’s interesting that my own wife is questioning what I’m doing because of the ticks. She wouldn’t question it because of the weather, but she would because of the ticks.—Principal X

The survey was completed during the winter months, so it is not surprising that the presence of ticks and risk of tick-borne diseases were not mentioned by respondents. We conducted the interviews in the spring, however, when concerns about tick are greater. The impact of ticks on outdoor recess and PE classes would be an important line of inquiry for further research.

CONCLUSIONS—IMPLICATIONS FOR MAINE YOUTH

The planned purpose of the analysis of weather data was to supplement survey responses. However, we uncovered considerable differences between the survey responses and weather data estimates of cancelled outdoor recess days per year, which ended up shedding light on the real implications of varying policies.

It is important to note again that some survey participants did not know how many days of outdoor recess were cancelled at their school and were unable to offer a reasonable approximation. But those who did respond generally had very different estimates from what actual weather data suggested. More than 40 respondents estimated their schools cancelled 10 or fewer days of outdoor recess per year. Even a conservative weather analysis, however, showed none of the analyzed schools would have that few outdoor recess cancellations. This difference is particularly striking because the actual weather data estimates are only based on temperature and windchill and do not consider rain, which is a nearly universal predictor of indoor recess. Additionally, weather data were taken from noontime readings, which is probably slightly later in the day (and thus typically warmer) than when actual decision making about recess takes place.

The discrepancy here shows that these survey respondents were either underestimating cancellations or demonstrating that they do not always follow their own policies. We believe it is most likely the former. Without mechanisms for tracking in place,

administrators do not actually know the number of cancelled outdoor recess days per school year.

The main message of this analysis is important, and the results could help administrators adjust their policies to create more outdoor activity opportunities for their students. For example, schools in Sanford and Lubec reported a minimum temperature and windchill cutoff of 20°F. Both schools would reduce the number of days they cancelled outdoor recess by almost half if their minimum temperature was dropped to 10°F. A Waterville school reported a minimum as 10°F, but the average number of cancelled outdoor recess days would drop from nearly 25 to 10 if the school decreased the minimum temperature to 0°F. Even though all the responding schools from northern Maine reported minimum cutoffs of 0°F, it still results in an average of 25 or more days per year that outdoor recess was cancelled.

These research findings show a lack of awareness of how temperature and windchill policies actually affect the time Maine elementary students are able to spend outdoors during a school year. Administrators may not realize how many outdoor days students are actually missing, and they may not realize how even slight changes to policy could positively affect that number. We hope that this analysis brings increased attention to the issue and prompts Maine school administrators to review their policies and practices related to outdoor recess and PE classes. In a more general sense, this research may help remind educators about the importance of daily opportunities for physical activity during the school day. Perhaps it will encourage the use of technology or other tools to incorporate more opportunities for physical activity during the sometimes-inevitable indoor recesses.

Finally, these research findings demonstrate that cultural norms and values play a huge role in shaping school-based outdoor activity policies and practices. It takes much more than an enthusiastic, *outdoorsy* principal to create and implement policies that support increased outdoor time for students. Administrators, teachers, parents and guardians, the wider community, and students themselves all play a role. If limited access to facilities hinders the availability of outdoor opportunities, it will take many stakeholders (administrators, community organizations, taxpayers) working together to recognize the issue and effect change. If schools need proper equipment to increase outdoor activity during PE classes, acquiring it might mean fundraising efforts,

parent/community support, grant writing, and spearheading efforts from teachers.

School leaders should keep in mind that children are not inherently tougher or safer outdoors in any one part of the state. Certainly, having appropriate clothing is important, but cultural norms and expectations play a big role in the determination of what is “too cold.” Dressed appropriately, children in every corner of Maine can be safe during a recess in 0°F, especially considering how short most school recesses are. Indeed, the school district in Fairbanks, Alaska, does not cancel outdoor recess for elementary students until the temperature—not including windchill—drops below -20°F (<https://www.k12northstar.org/Page/2305>).

Valuing and prioritizing outdoor time in a school setting can help guarantee that all students have access to this important part of the day. Adjusting weather policies for recess and physical education is a relatively simple, positive intervention. Schools can support the health, wellness, and academic success of Maine children by ensuring students experience fewer days of indoor recess and participate in more outdoor sports during winter PE classes. 🐾

ENDNOTES

1. We used data from the US National Oceanic and Atmospheric Administration's, Index of climate divisions (<ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv>) and the Maine Department of Education's Free and Reduced Lunch Report for 2017 (<https://neo.maine.gov>).

REFERENCES

- Cleland, V., D. Crawford, L.A. Baur, C. Hume, A. Timperio, and J.A. Salmon, 2008. “A Prospective Examination of Children's Time Spent Outdoors, Objectively Measured Physical Activity and Overweight.” *International Journal Obesity* 32(11): 1685–1693.
- Cooper, Ashley R., Angie S. Page, Benedict W. Wheeler, Melvyn Hillsdon, Pippa Griew, and Russell Jago. 2010. “Patterns of GPS Measured Time Outdoors after School and Objective Physical Activity in English Children: The PEACH Project.” *International Journal of Behavior Nutrition and Physical Activity* 7(1): 31–39. <https://doi.org/10.1186/1479-5868-7-31>
- Fernandes, Meenakshi, and Rolland Sturm. 2010. “Facility Provision in Elementary Schools: Correlates with Physical Education, Recess, and Obesity.” *Preventive Medicine* 50:S30–35. <https://doi.org/10.1016/j.ypmed.2009.09.022>
- Gray, Casey, Rebecca Gibbons, Richard Larouche, Ellen Beate Hansen Sandseter, Adam Bienenstock, Mariana Brussoni, Guylaine Chabot, et al. 2015. “What Is the Relationship between Outdoor Time and Physical Activity, Sedentary Behaviour, and Physical Fitness in Children? A Systematic Review.” *International Journal of Environmental Research and Public Health* 12:6455–6474. <https://doi.org/10.3390/ijerph120606455>
- Lounsbery, Monica A.F., Thomas L. McKenzie, James R. Morrow, Shannon M Monnat, and Kathryn A. Holt. 2013. “District and School Physical Education Policies: Implications for Physical Education and Recess Time.” *Annals of Behavioral Medicine* 45(1): S131–141. <https://doi.org/10.1007/s12160-012-9427-9>
- Pasek, Marcin, Monika Michalowska-Sawczyn, and Alicja Nowak-Zaleska. 2014. “Changes in Maximal Aerobic Fitness and Students' Attitude towards Physical Effort during Outdoor and Indoor School Lessons of Physical Education.” *Baltic Journal of Health and Physical Activity* 6(1): 24–33. http://psjd.icm.edu.pl/psjd/element/bwmeta1.element-psjd-doi-10_2478_bjha-2014-0003
- Pellegrini, Anthony D. 2005. *Recess: Its Role in Education and Development*. Mahwah, NJ: Erlbaum.
- Ramstetter, Catherine L., Robert Murray, and Andrew S. Garner. 2010. “The Crucial Role of Recess in Schools.” *Journal of School Health* 80(11): 517–526.
- Skala, Katharine A., Andrew E. Springer, Shreela V. Sharma, Deanna M. Hoelscher, and Steven H. Kelder. 2012. “Environmental Characteristics and Student Physical Activity in PE Class: Findings from Two Large Urban Areas of Texas.” *Journal of Physical Activity and Health* 9(4): 481–491.
- Stanley, Rebecca M., Kobie Boshoff, and James Dollman. 2012. “Voices in the Playground: A Qualitative Exploration of the Barriers and Facilitators of Lunchtime Play.” *Journal of Science and Medicine in Sport* 15(1): 44–51.
- Troiano, Richard P., David Berrigan, Kevin W. Dodd, Louise C. Mâsse, Timothy Tilert, and Margaret McDowell. 2008. “Physical Activity in the United States Measured by Accelerometer.” *Medical Science and Sports Exercise* 40(1): 181–188.
- Turner, Lindsey, James F. Chriqui, and Frank J. Chaloupka. 2013. “Withholding Recess from Elementary School Students: Policies Matter.” *Journal of School Health* 83(8): 533–541.
- Turner, Lindsey, Frank J. Chaloupka, and Sandy J. Slater. 2012. “Geographic Variations in Elementary School based Physical Activity Practices.” *Journal of School Health* 82(7): 307–310.

Vanderloo, Leigh M., Patricia Tucker, Andrew M. Johnson, and Jeffrey D. Holmes. 2013. "Physical Activity among Preschoolers during Indoor and Outdoor Childcare Play Periods." *Applied Physiology, Nutrition and Metabolism* 38:1173–1175. <https://doi.org/10.1139/apnm-2013-0137>

Yousefian, Anush, Erika Ziller, Jon Swartz, and David Hartley. 2009 "Active Living for Rural Youth: Addressing Physical Inactivity in Rural Communities." *Journal of Public Health Management and Practice* 15(3): 223–231.



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