Previous research suggests that inadequate time to eat discourages students from purchasing and eating complete lunches. Waiting in line is the most commonly reported factor contributing to student dissatisfaction with lunches. When they do not have enough time to buy and eat lunch, students report buying snacks instead, buying lunch and throwing away a large portion, or skipping lunch entirely. On average, the last student in the lunch line at schools in this study had 13 minutes to eat, with a range of 7 to 25 minutes.
Summary of Findings

- Thirty-four percent of schools included in this study provided the last student in the lunch line with only 10 minutes or less to eat his or her lunch.

- The average time between the last student in line receiving his or her lunch and the end of the lunch period was 13 minutes. This did not vary significantly by level of school.

- As opportunity time to eat decreased, students, cafeteria staff, and lunch monitors were significantly more likely to report that students had insufficient time to buy and eat their lunches.

- When asked what they did when they did not have enough time to buy and eat lunch, students reported buying à la carte snacks, eating from vending machines, bringing lunch from home, skipping lunch entirely, or buying lunch and throwing away a large portion.

- In order to accommodate the entire student body, some large schools scheduled as many as seven lunch periods, and these lunches started as early as 9:25 a.m. Fifty percent of the middle and high schools included in this study scheduled the first lunch period before 11:00 a.m., despite national recommendations that school lunches not begin before this hour.1

- Providing students with constructive activities at the end of lunch can allow for longer lunch periods without increasing behavioral problems.

- Decreasing wait in line by adding extra serving lines or overlapping lunch waves can allow more students to be served more quickly and can reduce the discrepancy in opportunity time to eat between the first student in line and the last.
The State of Nutrition and Physical Activity in Our Schools

I. School Lunch Periods

Lengths of lunch periods in the schools included in this study ranged from 19 to 44 minutes, with an average length of 26 minutes. Maximum length of time spent in the lunch line ("wait in line") ranged from 7 to 23 minutes, and averaged 13 minutes. "Opportunity time to eat" is defined as the difference between these two quantities, the time between a student's receipt of his or her lunch and the end of the lunch period. On average, schools in this study provided the last student in the lunch line with an opportunity time to eat of 13 minutes, with a range of 7 to 25 minutes. Table 1 lists the lengths of lunch periods, wait time, and minimum opportunity time to eat (that of the last student in line) by school level.

<table>
<thead>
<tr>
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<th>Elementary (n=23)</th>
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<td>Lunch period length</td>
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<td>Range</td>
<td>8–20</td>
<td>7–20</td>
<td>7–25</td>
</tr>
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</table>

a The five K–8 schools participating in this study were included in both the "Elementary" and "Middle" school categories.
Thirty-four percent of schools provided the last student in line with 10 minutes or less to eat his or her lunch. Figure 1 shows the minimum opportunity time to eat at schools included in this study.

In each school, both a member of the cafeteria staff and a lunch monitor, defined as either a lunchroom aide or a teacher on lunch duty, were asked whether or not they felt the students at their school had enough time to buy and eat lunch. They were asked to rank their answer on a scale of 1–5, with 1 indicating an answer of “definitely not” and 5 indicating “definitely.” The responses of both the cafeteria staff and the lunch monitors were significantly correlated with the minimum opportunity time to eat.
Teachers on lunch duty who reported bringing lunch from home were asked why they did not purchase lunch in the cafeteria. The second most common answer given was that there was not enough time for them to buy and eat their lunches during the lunch periods.

As that time decreased, the likelihood of a lower rating by the staff increased. The responses of the cafeteria staff and lunch monitors were also significantly correlated with each other, though lunch monitors were more likely to say that students had enough time to eat than were cafeteria staff.

In each school, the lunch monitor was also asked whether he or she brought his or her lunch from home or purchased lunch from the cafeteria. Teachers on lunch duty who reported bringing lunch from home were asked why they did not purchase lunch in the cafeteria. While the most common response had to do with dietary choices, the second most common answer was that there was not enough time for them to buy and eat their lunches during the lunch periods.

Over the course of this study, 324 students were asked whether or not they felt they had enough time to buy and eat lunch during their lunch periods. Student responses were recorded as “no” = 1, “sometimes” = 2, and “yes” = 3. As minimum opportunity time to eat decreased, students were significantly more likely to report that they did not have enough time to buy and eat lunch. When asked what they did when they did not have enough time to buy and eat lunch, students reported buying à la carte snacks, eating from vending machines, bringing lunch from home, skipping lunch entirely, or buying lunch and throwing away a large portion.

Previous research has shown that students who participate in the National School Lunch Program (NSLP) have better nutrient intakes than students who make other choices, such as purchasing lunch from vending machines, bringing lunch from
home, or eating off campus. Given the results of the current research, this finding suggests that not giving students enough time to buy and eat lunch will negatively impact their nutrient intake.

The preceding analysis focuses on opportunity time to eat for the last student in line. However, students who are near the front of line have very different opportunity times to eat than students who are near the end of line. This can present a challenge to schools that consider simply increasing lunch period lengths as a means of increasing opportunity time to eat. What are the students who have finished eating to do while other students have lunch? In some schools this problem is dramatic; in a cafeteria where the maximum wait time was 23 minutes, some students were completely finished eating while others were still waiting in line.

Behavioral problems were a concern of lunch monitors, especially from those students who had finished eating lunch. Lunch monitors were asked if they thought that increasing the length of the lunch period would lead to an increase in behavioral problems. They were again asked to rank their answers on a scale of 1–5, with 1 indicating an answer of “definitely not” and 5 indicating “definitely.” Sixty-seven percent of the lunch monitors responded with a 4 or 5, indicating that they thought that extending lunch periods would lead to increased behavioral problems. This result did not vary by school level. The lunch monitors’ answers were consistent with the fact that in many cafeterias, the noise level increased as the end of lunch approached.

One problem leading to long wait times, and subsequently short opportunity time to eat, is overcrowding in cafeterias. An
apparent solution to this problem is to increase the number of lunch periods, thus reducing the number of students per period. However, there is only so much time in a school day.

To accommodate entire student populations, some schools already schedule as many as seven lunch periods. School days at the high and middle school level often begin around 7:30 a.m., and one school lunch period began as early as 9:25 a.m., despite the national recommendations that school lunches not start before 11:00 a.m. In fact, 50 percent of the middle and high schools included in this study began serving lunch before 11:00 a.m. Elementary schools tended to begin the day later than middle or high schools, and only 13 percent of elementary schools had lunches starting before 11:00 a.m. No elementary schools had lunches starting before 10:30 a.m.

Challenges to balancing lunch length, behavior, and school schedules

Students need time to buy and eat their lunches, and to socialize during their lunch period. Without adequate time, they may throw away portions of lunch, not eat at all, or eat unhealthy snacks instead of a complete, nutritious meals. However, providing lunch for hundreds, or even thousands, of students in short periods of time can be a challenge. Students who get their lunches first may be bored or unruly by the end of the period, and strategies to simply increase the number of lunch periods may not be practical in some schools due to scheduling limitations. However, several schools in the study found ingenious ways to approach this problem.
Examples of effective strategies to improve school lunch periods

- One mid-sized elementary school, with a student population of 500, decided to increase opportunity time to eat by decreasing wait time with overlapping lunch waves. In that school, each of 21 classes entered the cafeteria three minutes apart. Lunch periods were 25 minutes long, and after eating, students left the cafeteria by classroom every three minutes, providing the table space for the next incoming class. The wait in line time for this school was just seven minutes, which allowed even the last student in line 18 minutes to eat lunch.

- A small K–8 school, with a student population of 300, approached the problem in a similar way. This school had seven lunch waves lasting 30 minutes each, and each wave overlapped by 15 minutes. For example, Group 1 came in at 11:15 and Group 2 at 11:30. At 11:45, Group 1 left and Group 3 came in, and so forth. This way, lines were relatively short, and opportunity time to eat was a full 20 minutes, even for the last students in line.

- The cafeteria staff at a large high school, with a student population of 1,850, added a third serving line and found that wait time was significantly decreased. Opportunity time to eat therefore increased without increasing the lunch length or the number of lunch periods.

- To reduce behavioral problems, some schools provided activities for students who had finished eating. At one K–8 school, students who had finished lunch played card games. At one elementary school, students were supplied with crayons and paper, and those who had finished eating were encouraged to draw pictures. At two other elementary schools, a teacher...
In another case, a large high school...combined its study hall with the lunch period, so that students who had finished eating could do homework, or access the computer center, which was adjacent to the cafeteria.

In another case, a large high school, with a student population of 900, combined its study hall with the lunch period so that students who had finished eating could do homework, or access the computer center, which was adjacent to the cafeteria.

One relatively small high school, with a student population of 325, had only one lunch period, but that period lasted for 40 minutes. During the lunch period, students had access not only to the cafeteria, but also to the gymnasium, the library, and the downstairs hallways. For example, students who were first in line could play a game of basketball after finishing their lunches. Students who realized that they would be in the back of the line could browse the library or talk with a friend, and know that they would still have time to eat. The teacher on lunch duty said that behavioral problems were scarce, and this was one of only two high schools where all students interviewed felt they had enough time to buy and eat lunch.

These examples demonstrate creative solutions to one of the challenges schools face in managing the lunch period. By adding serving lines, staggering cafeteria entry, and finding constructive activities for students who have finished eating, schools were able to provide students enough time to eat complete lunches without creating behavioral problems or starting lunch early in the morning.
I. Recommendations

- Schools should provide even the last student in line with enough time to buy and eat a complete lunch.

- Schools should work to reduce wait time or to extend lunch periods when lunch lengths are insufficient to provide all students appropriate opportunity time to eat. In schools where students who are first in line have excess time, constructive activities should be provided for those students.

- Administrators should work with lunch monitors and cafeteria staff to determine the length of their students' opportunity time to eat and, based on their school's unique characteristics, create a strategy that will ensure sufficient time. Due to differences between schools in size, number of lunch periods, and cafeteria and food service structure, the length of time allotted to school lunches does not easily lend itself to regulation.