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## Serving Breakfast Free to All Students and Type of Breakfast Serving Model are Associated with Participation in the School Breakfast Program

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### Abstract

**Background**—Many students experience challenges participating in the School Breakfast Program (SBP) when breakfast is served before school in the cafeteria. Serving breakfast free to all students and/or offering innovative breakfast serving models, such as breakfast in the classroom (BIC), grab n' go, or second chance breakfast, may encourage higher SBP participation rates.

**Objective**—To examine the association between offering breakfast free to all students as well as breakfast serving model with student participation in the SBP in October 2017 among public schools in North Carolina (NC)

**Design**—Cross-sectional study using data from the NC Department of Public Instruction.

**Participants/setting**—This study included data from 2,285 NC public schools who served breakfast in October 2017 with 1,445,287 students.

**Main outcome measures**—The main outcome measures are the odds of a student participating in the SBP among students overall, students eligible for free or reduced-price (FRP) meals, and students not eligible for FRP meals.

**Statistical analyses performed**—Multiple logistic regression assessed the association between offering breakfast free to all students and breakfast serving model with the probability of

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Author Contributions

JS analyzed the data and wrote the first draft. AA reviewed and provided revisions for the manuscript. All authors reviewed and commented on subsequent drafts of the manuscript.

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participating in the SBP (number of students participating/number of students enrolled) for students overall, eligible for FRP meals, and not eligible for FRP meals. Statistical models were stratified by school type (elementary, middle, and high).

**Results**—Breakfast serving models positively associated with SBP participation were BIC and BIC plus grab n’ go for elementary and high school students and grab n’ go and second chance for middle and high school students ( $p < .05$ ). Serving breakfast free to all students was positively associated with SBP participation alone and in combination with BIC, second chance, and BIC plus grab n’ go ( $p < .05$ ).

**Conclusions**—Serving breakfast free to all students and breakfast serving model were associated with SBP participation, and different relationships existed for different school levels.

### Keywords

School Breakfast; School Meals; Food Policy; Children; Adolescents

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### Introduction

The School Breakfast Program (SBP) is a federally-funded nutrition program administered by the United States Department of Agriculture.<sup>1</sup> Schools serving breakfasts meeting federal nutrition guidelines and offering free or reduced-price (FRP) breakfasts to eligible children are able to receive reimbursements through the SBP.<sup>1</sup> The SBP has been associated with numerous benefits, including higher dietary quality,<sup>2-4</sup> lower levels of food insecurity,<sup>5</sup> and higher academic performance.<sup>6,7</sup> Despite these benefits, the SBP is underutilized compared with the National School Lunch Program, with only 56.7 FRP students participating in the SBP for every 100 who participated in the National School Lunch Program during the 2016–17 school year.<sup>8</sup> Schools have traditionally served breakfast in the cafeteria prior to the start of the school day, which makes it challenging and sometime stigmatizing for many students to participate. One of the barriers to eating breakfast is time.<sup>9-11</sup> Once children arrive at school, they may not have enough time to go to the cafeteria to purchase and eat breakfast prior to starting class. The cafeteria may also be in an inconvenient location that is not near their classroom. Some students are not hungry when they first arrive at school in the morning.<sup>9-11</sup> Another barrier associated with participation in the SBP is stigma.<sup>12</sup> The SBP is often viewed as a program for “poor students,” which can discourage students from participating.

A variety of strategies can address these barriers and potentially increase SBP participation. Offering breakfast free to all students may help reduce the stigma of participating as all students, regardless of family income, can receive free breakfast. It also benefits students who do not qualify for free school meals, but whose families would still have challenges paying the cost of breakfast or finding the time to prepare/provide it. Elementary and middle schools that began offering breakfast free to all students have seen increases in SBP participation rates.<sup>7,13,14</sup> A variety of options allow schools to offer breakfast free to all students. The community eligibility provision (CEP) allows schools in low-income areas to offer free breakfast and lunch to all students without requiring household applications.<sup>15</sup> Data matching identifies students eligible for other means-tested federal programs, such as

the Supplemental Nutrition Assistance Program, and schools, districts or groups of schools with at least 40 percent “identified students” are eligible to participate.<sup>15</sup> The number of “identified students” is multiplied by 1.6 to serve as a proxy for the number of FRP eligible students and the percent of meals reimbursed at the free rate. During the 2016–17 school year, 20,721 schools across the United States (nearly 55% of those eligible) participated in CEP.<sup>15</sup> Through Provision 2 of the National School Lunch Act, schools collect household applications during a “base year” and federal reimbursements for the following years in the four-year cycle are based on those data.<sup>16</sup> Schools can serve free breakfast and/or lunch to all students without collecting household applications for the remainder of the cycle.<sup>16</sup> Some schools choose to offer breakfast free to all students without participating in CEP or Provision 2 and instead receive federal reimbursements based on each child’s FRP status. Through each of these methods, schools in high-poverty areas may be able to cover all of their costs through federal reimbursements. Schools not able to cover all of their costs through federal reimbursements can use sources other than federal funds to cover the remaining costs.

Breakfast in the classroom (BIC) is an innovative breakfast serving model where breakfast is served in the classroom and incorporated into instructional time. It has been associated with increased breakfast participation in elementary and middle schools.<sup>17,18</sup> Grab n’ go breakfast allows students to pick up breakfast items in high traffic areas and take them to eat in other locations at the school. Schools offering second chance breakfast serve breakfast after first period or later in the morning at another scheduled time. Grab n’ go breakfast and second chance breakfast have been shown to reduce perceived barriers to eating breakfast<sup>19</sup> and increase participation in the SBP among high school students.<sup>11,20,21</sup> There has been some concern around innovative school breakfast models such as BIC leading to an increase in the number of students eating more than one breakfast and contributing to an increased energy consumption and weight gain,<sup>22,23</sup> however multiple studies have found this not to be a concern.<sup>17,24,25</sup>

Many prior studies looking at offering breakfast free to all students and breakfast serving models have focused on a limited number of schools and geographic areas. They also typically focused on only one serving model and/or school level (elementary, middle, or high). The objective of this study was to examine the association between offering breakfast free to all students and type of breakfast serving model with student participation in the SBP in October 2017 among public elementary, middle, and high schools in North Carolina. It was hypothesized that students attending schools offering breakfast free to all students and/or utilizing an innovative breakfast serving model would have a higher odds of participating in the SBP compared with students attending schools not offering these options.

## Methods

This study conducted a cross-sectional analysis using October 2017 meal claims data<sup>26</sup> from the North Carolina (NC) Department of Public Instruction (DPI) for public schools in the 115 traditional school districts in NC. The NC DPI Educational Directory and Demographical Exchange System was used to obtain variables related to school

characteristics, including grade levels.<sup>27</sup> Grade levels were used to categorize schools into elementary (6<sup>th</sup> grade and under or up to 8<sup>th</sup> grade if includes grades below 4<sup>th</sup>), middle (8<sup>th</sup> grade and under with a lowest grade of at least 4<sup>th</sup>), high (lowest grade of at least 8<sup>th</sup> grade and higher), or other (larger grade ranges, such as kindergarden-12<sup>th</sup> or 6<sup>th</sup>-12<sup>th</sup> grade).

In order to be included in the study, a school must have been an elementary, middle, or high school in one of the 115 traditional school districts with SBP claims for October 2017. Schools were excluded from the analysis if they had meal claims data indicating they had over 100% of students participating in the SBP (1 school), were an “other” school type (85 schools) were an alternative school (19 schools), or were for children with disabilities (5 schools).

The NC DPI 2017–18 school year site application<sup>28</sup> includes information on breakfast serving models. The School Nutrition Administrator or their designee complete the site application annually, typically in April or May of the prior school year. It asks whether schools will offer traditional breakfast (breakfast served before school in cafeteria), BIC (breakfast served in classroom), second chance breakfast (breakfast served after first period or another scheduled time later in morning for students who miss breakfast before school), breakfast break (breakfast served after first period or another scheduled time later in morning), satellite breakfast/breakfast kiosk (breakfast served away from cafeteria in high traffic location), breakfast on the bus (breakfast served and eaten on the bus), grab n’ go (students pick-up conveniently packaged breakfast items that can be eaten at other locations in the school), universal free breakfast (breakfast served free to all students regardless of income) and/or other breakfast model. For this study, second chance breakfast and breakfast break were combined and are referred to as second chance breakfast.<sup>28</sup> Satellite breakfast/breakfast kiosk and grab n’ go were also combined and are referred to as grab n’ go in this paper. Sites that responded as only serving BIC during end of grade testing or to a specific group of students (i.e. pre-kindergarten or students with disabilities) were not included as offering BIC. Only three schools indicated offering breakfast on the bus, so this model was not included in the analysis. Some schools reported more than one innovative serving model, but each school was placed into one category for the analysis. Schools offering both second chance and grab n’ go breakfast were considered as having second chance breakfast. A category was created for schools reporting a combination of BIC and grab n’ go. With this combination of models, many schools have schools pick up their breakfast from a grab n’ go location and take it to the classroom to eat. Schools reporting other combinations of models were excluded from the analyses due to small sample sizes. Schools that indicated offering universal free breakfast on the site application and/or were listed as participating in CEP on the meal claims data were considered as offering breakfast free to all students.

The October 2017 meal claims data reports information on meals claimed by School Food Authorities to NC DPI for federal reimbursement during October 2017.<sup>26</sup> It reports information by school and meal type (i.e. breakfast, lunch, snack), including school district, whether the school participated in CEP, number of days meals were served, and number of students enrolled and meals served by reimbursement category (i.e. free, reduced, paid).<sup>26</sup> To estimate the number of students participating in the SBP, number of breakfast meals served for the month was divided by the number of serving days for overall, paid, and FRP

students. This study was deemed exempt under federal regulation 45 CFR 46.101 (3) (1) because it used only school-level data reported in aggregate.

The odds of a school offering breakfast free to all students if they used an innovative breakfast serving model was assessed using multiple logistic regression. Multiple logistic regression assessed the association between offering breakfast free to all students and breakfast serving model with the probability of participating in the SBP for all students, paid students, and FRP students. The outcome was modeled using events/trials syntax (number of students participating/number of students enrolled). Interaction terms were included for serving breakfast free to all students and type of serving model to test whether the association between serving breakfast free to all students and SBP participation differs depending on how breakfast is served. Results are presented as odds ratios with the traditional breakfast serving model as the reference group and are presented for all schools and by school type (elementary, middle, and high). Statistical models accounted for clustering of schools within school districts. School-level covariates included in the models were percentage of FRP students and whether the school was rural. All analyses were conducted using SAS version 9.4.<sup>29</sup> Statistical significance was considered  $p < .05$ .

## Results

A total of 2,285 schools were included in the analyses. Of these schools, 53% served breakfast free to all students and 42% used at least one innovative breakfast serving model. In October 2017, 1,445,287 students attended the schools included in the analyses, with 61% of these students eligible for FRP meals. Table 1 shows the characteristics of the schools by school level.

Overall, 75% of schools using an innovative breakfast serving model also served breakfast free to all students compared with 37% of schools not using an innovative breakfast serving model. Table 1 shows the percentage of schools using each type of model that serve breakfast free to all students by school level. Table 2 shows the adjusted odds of offering breakfast free to all students for each type of innovative breakfast serving model by school level.

Table 3 shows the results of the adjusted multiple logistic regression assessing the association of SBP participation and offering breakfast free to all students and breakfast serving model. Serving breakfast free to all students was associated with an increased odds of a student participating in the SBP for all school levels except for FRP students in high schools. Breakfast in the classroom alone and combined with grab n' go was associated with a higher odds of participation for elementary and high school students. Grab n' go was associated with a higher odds of participation for middle and high schools. Second chance breakfast was associated with a higher odds of participation in all models tested except FRP students and students overall in elementary schools. Serving breakfast free to all students in combination with BIC, second chance, or BIC plus grab n' go were associated with a significant increase in the odds of participation. Table 3 shows the results for the interaction terms for each model.

## Discussion

The majority of models tested found that students attending schools serving breakfast free to all students had a higher odds of participating in the SBP. To the authors' knowledge, this is the first study to assess the association between serving breakfast free to all students and SBP participation among high school students. Murphy et al found that among kindergarten through 8<sup>th</sup> grade students from one public school in Philadelphia, PA and two public schools in Baltimore, MD, SBP participation nearly doubled after the implementation of a universally free SBP.<sup>7</sup> Similarly, a randomized control trial of 153 elementary schools from six school districts found that schools randomized to receive universal free school breakfast significantly increased SBP participation compared with control schools.<sup>14</sup> Leos-Urbel et al conducted a longitudinal analysis using data from all New York City public elementary and middle schools to assess changes in SBP participation before and after New York City began offering free breakfast to all students in September 2003.<sup>13</sup> The results suggest that this policy change resulted in increases in SBP participation among both students who experienced a price change and students who were already eligible to receive free breakfast.<sup>13</sup> In the current study, paid elementary, middle, and high school students attending schools offering free breakfast to all students had higher odds of participating in the SBP in addition to FRP students in middle and high school. The increased odds of participation were higher for paid compared with FRP students. For most, but not all, of the innovative breakfast serving models tested, the increased odds of participation were also higher for paid compared with FRP students.

Breakfast in the classroom is a strategy for removing the stigma associated with the SBP. It also helps to make breakfast more accessible to students. In the current study, BIC, either alone or in combination with other models, was associated with a higher odds of an elementary or high student participating in the SBP. New York City elementary and middle schools that began offering BIC have seen increases in SBP participation rates.<sup>17</sup> A quasi-experimental study of 446 public elementary schools from one large urban school district found that breakfast in the classroom was associated with an increase in SBP participation.<sup>18</sup> To the authors' knowledge, this is the first study to examine the relationship between offering BIC and SBP participation among high school students.

Among middle and high schools, grab n' go and second chance breakfast were associated with a higher odds of participating in the SBP. Arriving to school early enough to have time to eat breakfast before school begins can be a challenge for many students. Students may also not be hungry when they first arrive at school in the morning. Offering breakfast later in the day can help to address these barriers. Sixth grade students at a middle school in Minneapolis, MN increased participation in the SBP after their school began offering grab n' go breakfast.<sup>20</sup> A study of rural Minnesota high schools found that implementing grab n' go breakfast was associated with increases in SBP participation among both students overall and FRP students.<sup>21</sup> SBP participation increased by 400% after a Midwestern high school began offering a second chance and grab n' go breakfast option.<sup>11</sup>

This study also found significant interactions between serving breakfast free to all students and breakfast serving model. For the majority of school levels and student types, serving

breakfast free to all students in combination with BIC, second chance, or BIC plus grab n' go was associated with a higher odds of a student participating in the SBP compared using only one of these strategies alone. This suggests that students may respond differently to a free breakfast program depending on where and when they are served the breakfast.

A major strength of this study is the large sample size. Stratification by school level is another strength as this study showed that the influence of breakfast serving model on the likelihood of a child participating in the SBP differs by school level. This study also looked at multiple different serving models simultaneously and included interaction terms for breakfast serving model and serving breakfast free to all students. Limitations of this study include the cross-sectional design, as this does not allow causality to be assessed. It is not clear whether using an innovative model and/or serving breakfast free to all students leads to an increase in SBP participation or if schools with higher participation rates choose to adopt these models. Another limitation is that breakfast serving model was reported on the 2017–18 school year site application, which was completed in April or May of the prior school year, by the School Nutrition Administrator or their designee. It is possible that some schools changed their serving models after the application was completed or that there were errors in reporting. This study included all public elementary, middle, and high schools in NC with selected breakfasts serving models and breakfast claims data for October 2017, however, it is unclear the applicability of the results to other school types, such as private and charter schools, and other states.

## Conclusions

Among students attending NC public schools in October 2017, many innovative breakfast serving models and/or serving breakfast free to all students were associated with a higher odds of students participating in the SBP. The odds of SBP participation differed among the different student types (i.e. paid, FRP) and school levels for some of the models, which suggests that certain strategies may have different relationships with SBP participation for different student types and school levels. Future studies should look longitudinally or conduct randomized control trials comparing multiple different breakfast serving models simultaneously to determine which models lead to the biggest increases in SBP participation among different school levels. The results of this study can be used to help select which models or combinations of models to test in future studies.

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### Research Snapshot

**Research Question:** Is offering breakfast free to all students and/or type of breakfast serving model associated with student participation in the School Breakfast Program (SBP)?

**Key Findings:** In this cross-sectional study, breakfast serving models positively associated with SBP participation were breakfast in the classroom (BIC) and BIC plus grab n' go breakfast for elementary and high school students and grab n' go and second chance breakfast for middle and high school students. Serving breakfast free to all students was positively associated with SBP participation alone and in combination with BIC, second chance, and BIC plus grab n' go breakfast.

**Table 1:**

Characteristics of North Carolina Public Elementary, Middle, and High Schools Participating in the School Breakfast Program in October 2017

	All Schools		Elementary Schools		Middle Schools		High Schools	
	n	%	n	%	n	%	n	%
<b>Schools</b>	2,285	100	1,372	60	461	20	452	20
<b>Free breakfast</b>								
CEP <sup>a</sup>	796	35	562	41	138	30	96	21
Other universal free	417	18	269	20	75	16	73	16
<b>Breakfast Serving Model</b>								
Traditional <sup>b</sup>	1316	58	711	52	312	68	293	65
Free to all students <sup>c</sup>	486	37	292	41	104	33	90	31
BIC <sup>d</sup>	338	15	286	21	37	8	15	3
Free to all students <sup>c</sup>	284	84	242	85	34	92	8	53
Grab n' go <sup>e</sup>	364	16	223	16	72	16	69	15
Free to all students <sup>c</sup>	262	72	175	78	50	69	37	54
Second chance <sup>f</sup>	81	4	8	1	13	3	60	13
Free to all students <sup>c</sup>	36	44	5	63	5	38	26	43
BIC <sup>c</sup> + grab n' go <sup>g</sup>	186	8	144	11	27	6	15	3
Free to all students <sup>c</sup>	145	78	117	81	20	74	8	53
<b>Rural</b>	1,188	52	681	50	247	54	260	58
<b>Total Students</b>	1,445,287	100	705,704	100	298,746	100	440,837	100
<b>Paid Students</b>	568,785	39	239,540	34	119,117	40	210,128	48
<b>FRP<sup>h</sup> students</b>	876,502	61	466,164	66	179,629	60	230,709	52
<b>Overall SBP<sup>i</sup> participation</b>	427,397	30	291,026	41	71,068	24	65,303	15
<b>Paid SBP<sup>i</sup> participation</b>	60,585	11	40,747	17	9,442	8	10,396	5
<b>FRP<sup>h</sup> SBP<sup>i</sup> participation</b>	366,812	42	250,279	54	61,626	34	54,907	24

<sup>a</sup>CEP=Community eligibility provision.

<sup>b</sup>Traditional breakfast refers to serving breakfast before school in the school cafeteria.

<sup>c</sup>Percentage of schools with indicated model serving breakfast free to all students.

<sup>d</sup>BIC=Breakfast in the classroom. BIC is where breakfast is served in the classroom.

<sup>e</sup>Grab n' go refers to schools indicating they have grab n' go breakfast (students pick-up conveniently packaged breakfast items that can be eaten at other locations in the school) and/or satellite breakfast/breakfast kiosk (breakfast served away from cafeteria in high traffic location).

<sup>f</sup>Second chance refers to schools indicating they have second chance breakfast (breakfast served after first period or another scheduled time later in morning for students who miss breakfast before school) or breakfast break (breakfast served after first period or another scheduled time later in morning).

<sup>g</sup>BIC + grab n' go refers to schools indicating they use both BIC and grab n' go. With this combination of models, many schools have schools pick up their breakfast from a grab n' go location and take it to the classroom to eat.

<sup>h</sup>FRP=Free and reduced-price.

<sup>i</sup>SBP=School Breakfast Program

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**Table 2:**

Adjusted Odds Ratios of Offering Free Breakfast to All Students When Using an Innovative Breakfast Serving Model in October 2017 for North Carolina Public Elementary, Middle, and High Schools<sup>a</sup>

	Elementary Schools	Middle Schools	High Schools
	<i>Odds Ratio (95% Confidence Interval)</i>		
BIC <sup>b</sup>	4.39 (1.59, 12.10) **	5.89 (2.00, 17.35) **	0.40 (0.15, 1.02)
Grab n' go <sup>c</sup>	5.09 (1.94, 13.33) ***	4.96 (1.78, 13.81) **	3.26 (0.80, 13.36)
Second chance <sup>d</sup>	1.41 (0.31, 6.32)	1.80 (0.47, 6.95)	2.55 (0.83, 7.78)
BIC <sup>b</sup> + grab n' go <sup>e</sup>	3.36 (1.27, 8.93) *	3.57 (0.57, 22.34)	1.97 (0.78, 4.93)

<sup>a</sup>Multiple logistic regression models account for clustering of schools within school districts and adjust for the school-level covariates of percentage of students eligible for free and reduced-price meals and whether a school was rural.

<sup>b</sup>BIC=Breakfast in the classroom. BIC is where breakfast is served in the classroom.

<sup>c</sup>Grab n' go refers to schools indicating they have grab n' go breakfast (students pick-up conveniently packaged breakfast items that can be eaten at other locations in the school) and/or satellite breakfast/breakfast kiosk (breakfast served away from cafeteria in high traffic location).

<sup>d</sup>Second chance refers to schools indicating they have second chance breakfast (breakfast served after first period or another scheduled time later in morning for students who miss breakfast before school) or breakfast break (breakfast served after first period or another scheduled time later in morning).

<sup>e</sup>BIC + grab n' go refers to schools indicating they use both BIC and grab n' go. With this combination of models, many schools have schools pick up their breakfast from a grab n' go location and take it to the classroom to eat.

\* P<0.05.

\*\* P<0.01.

\*\*\* P<0.001.

**Table 3:**

Adjusted Odds Ratios of Participating in the School Breakfast Program in October 2017 for Students Attending North Carolina Public Elementary, Middle, and High Schools Offering Free Breakfast to All Students and Using Innovative Breakfast Serving Models<sup>a</sup>

	All Students	Paid Students	FRP <sup>b</sup> Students
	<i>Odds Ratio (95% Confidence Interval)</i>		
<b>Free to all students</b>			
Elementary Schools	1.54 (1.33, 1.78) ***	3.55 (2.88, 4.39) ***	1.23 (1.07, 1.40) **
Middle Schools	1.33 (1.12, 1.57) **	3.41 (2.78, 4.18) ***	1.17 (1.03, 1.33) *
High Schools	1.32 (1.04, 1.68) *	4.46 (3.32, 5.99) ***	1.04 (0.86, 1.27)
<b>BIC<sup>c</sup></b>			
Elementary Schools	1.49 (1.14, 1.93) **	1.81 (1.23, 2.67) **	1.35 (1.05, 1.75) *
Middle Schools	1.21 (0.80, 1.85)	1.07 (0.35, 2.27)	1.17 (0.83, 1.66)
High Schools	2.12 (1.20, 3.75) **	3.79 (1.58, 9.09) **	1.79 (1.10, 2.89) *
<b>Grab n' go<sup>d</sup></b>			
Elementary Schools	1.20 (0.95, 1.53)	1.19 (0.77, 1.83)	1.18 (0.99, 1.41)
Middle Schools	1.52 (1.01, 2.28) *	2.20 (1.14, 4.24) *	1.47 (1.09, 1.99) *
High Schools	1.35 (1.05, 1.72) *	1.46 (1.05, 2.03) *	1.37 (1.13, 1.66) **
<b>Second chance<sup>e</sup></b>			
Elementary Schools	1.72 (0.96, 3.10)	2.03 (1.10, 3.75) *	1.45 (0.79, 2.68)
Middle Schools	2.61 (1.68, 4.06) ***	4.88 (2.31, 10.30) ***	2.12 (1.54, 2.92) ***
High Schools	2.27 (1.66, 3.09) ***	2.79 (1.84, 4.23) ***	2.30 (1.61, 3.02) ***
<b>BIC<sup>c</sup> + grab n' go<sup>f</sup></b>			
Elementary Schools	1.59 (1.23, 2.04) ***	1.73 (1.11, 2.68) *	1.50 (1.22, 1.84) ***
Middle Schools	1.11 (0.96, 1.28)	1.25 (0.98, 1.59)	1.05 (0.96, 1.15)
High Schools	1.54 (1.29, 1.84) ***	1.69 (1.42, 2.00) ***	1.43 (1.23, 1.68) ***
<b>BIC<sup>c</sup> x free</b>			
Elementary Schools	2.66 (2.06, 3.44) ***	3.15 (2.24, 4.42) ***	2.48 (1.95, 3.16) ***
Middle Schools	2.47 (1.32, 4.61) **	4.79 (2.86, 8.02) ***	2.67 (1.45, 4.93) **
High Schools	7.42 (4.94, 11.16) ***	6.33 (4.28, 9.36) ***	8.78 (5.86, 13.15) ***
<b>Grab n' go<sup>d</sup> x free</b>			
Elementary Schools	1.21 (1.00, 1.47)	1.07 (0.80, 1.43)	1.17 (0.98, 1.41)
Middle Schools	1.15 (0.95, 1.40)	0.90 (0.63, 1.29)	1.15 (0.94, 1.41)
High Schools	1.07 (0.78, 1.48)	0.78 (0.45, 1.33)	1.09 (0.79, 1.51)
<b>Second chance<sup>e</sup> x free</b>			
Elementary Schools	2.14 (1.78, 2.57) ***	1.92 (1.29, 2.85) **	2.04 (1.75, 2.37) ***

	All Students	Paid Students	FRP <sup>b</sup> Students
Middle Schools	3.61 (2.47, 5.27) ***	4.02 (2.75, 5.86) ***	2.82 (1.87, 4.24) ***
High Schools	2.39 (1.73, 3.24) ***	2.72 (1.63, 4.53) ***	2.13 (1.64, 2.77) ***
<b>BIC<sup>c</sup> + grab n' go<sup>f</sup> x free</b>			
Elementary Schools	1.93 (1.46, 2.53) ***	2.50 (1.70, 3.66) ***	1.87 (1.51, 2.31) ***
Middle Schools	2.45 (1.07, 5.63) *	5.91 (1.90, 18.32) **	2.17 (1.17, 4.00) *
High Schools	1.69 (1.17, 2.45) **	2.16 (1.69, 2.75) ***	1.81 (1.36, 2.43) ***

<sup>a</sup>Multiple logistic regression models account for clustering of schools within school districts and adjust for the school-level covariates of percentage of students eligible for free and reduced-price meals and whether a school was rural.

<sup>b</sup>FRP=Free and reduced-price.

<sup>c</sup>BIC=Breakfast in the classroom. BIC is where breakfast is served in the classroom.

<sup>d</sup>Grab n' go refers to schools indicating they have grab n' go breakfast (students pick-up conveniently packaged breakfast items that can be eaten at other locations in the school) and/or satellite breakfast/breakfast kiosk (breakfast served away from cafeteria in high traffic location).

<sup>e</sup>Second chance refers to schools indicating they have second chance breakfast (breakfast served after first period or another scheduled time later in morning for students who miss breakfast before school) or breakfast break (breakfast served after first period or another scheduled time later in morning).

<sup>f</sup>BIC + grab n' go refers to schools indicating they use both BIC and grab n' go. With this combination of models, many schools have schools pick up their breakfast from a grab n' go location and take it to the classroom to eat.

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