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Research Informing Policies & Practices
for Healthy Youth

State bans on sugary drinks and high-fat milks are associated with lower availability in secondary schools nationwide

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Session 4218, Strategies to Improve the Quality of Foods Served in Schools
American Public Health Association Annual Meeting
Boston, MA
November 5, 2013

Presenter Disclosures: Jamie Chriqui

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

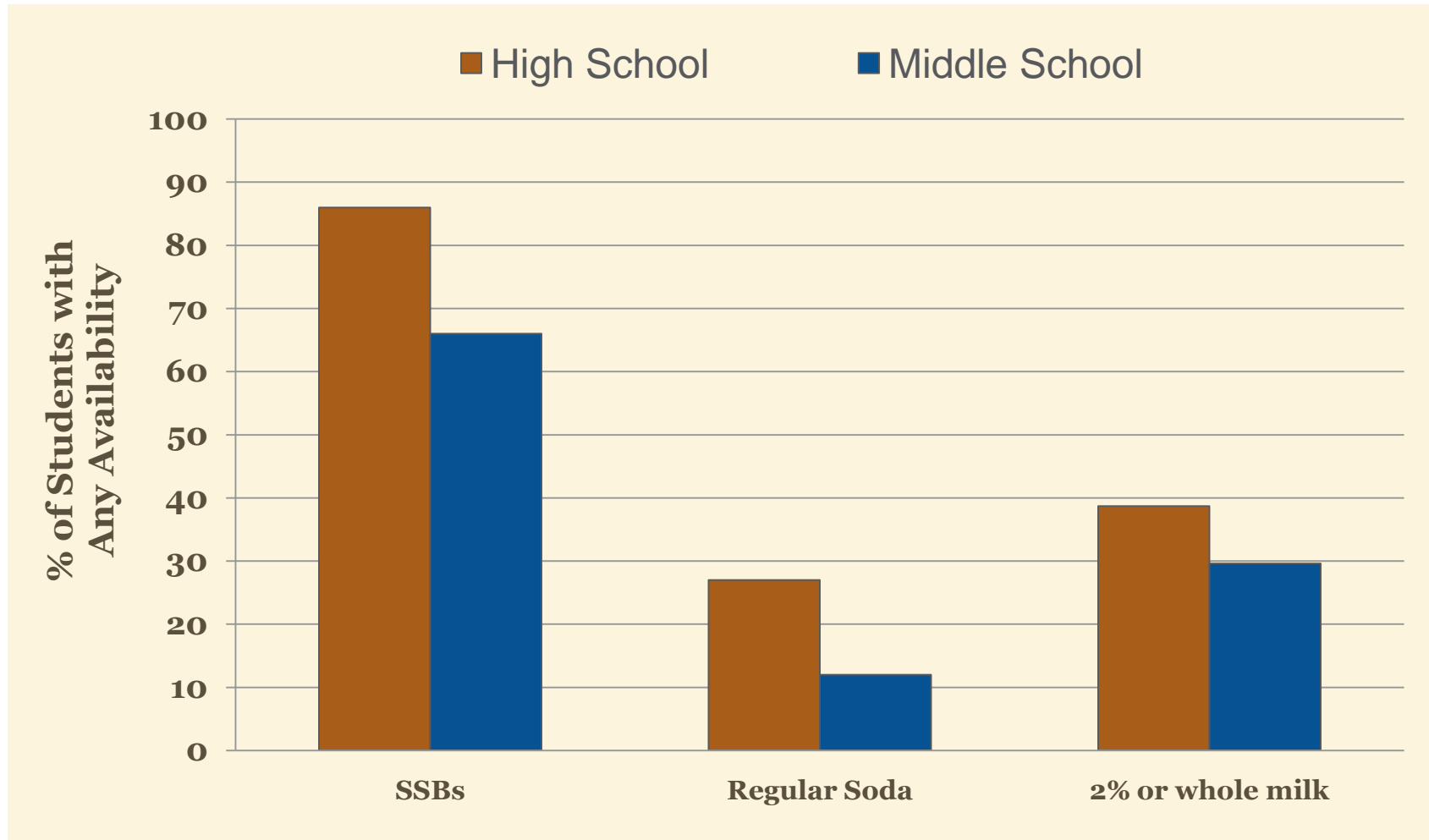
- No relationships to disclose.

Presentation Overview

- Review availability of high fat milks and sugar-sweetened beverages in secondary schools
- Describe state laws governing beverage availability in competitive food venues in secondary schools
- Examine the relationship between state laws and secondary school beverage availability
- Discuss implications for forthcoming implementation of USDA standards

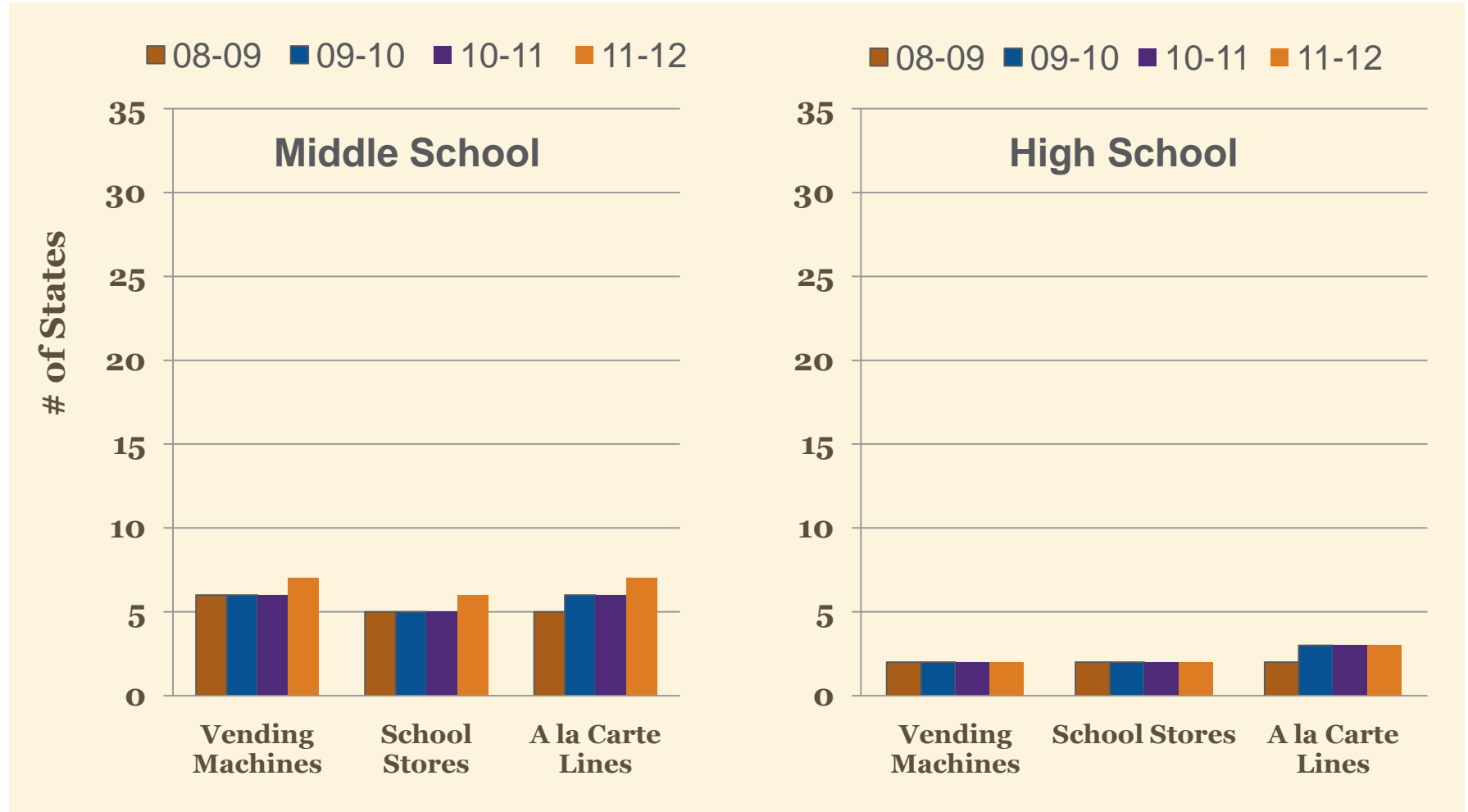
Availability of High-Fat Milks and Sugar-Sweetened Beverages in US Secondary Schools

Availability of SSBs, Regular Soda, and High-Fat Milks in US Secondary Schools, SY 2011-12

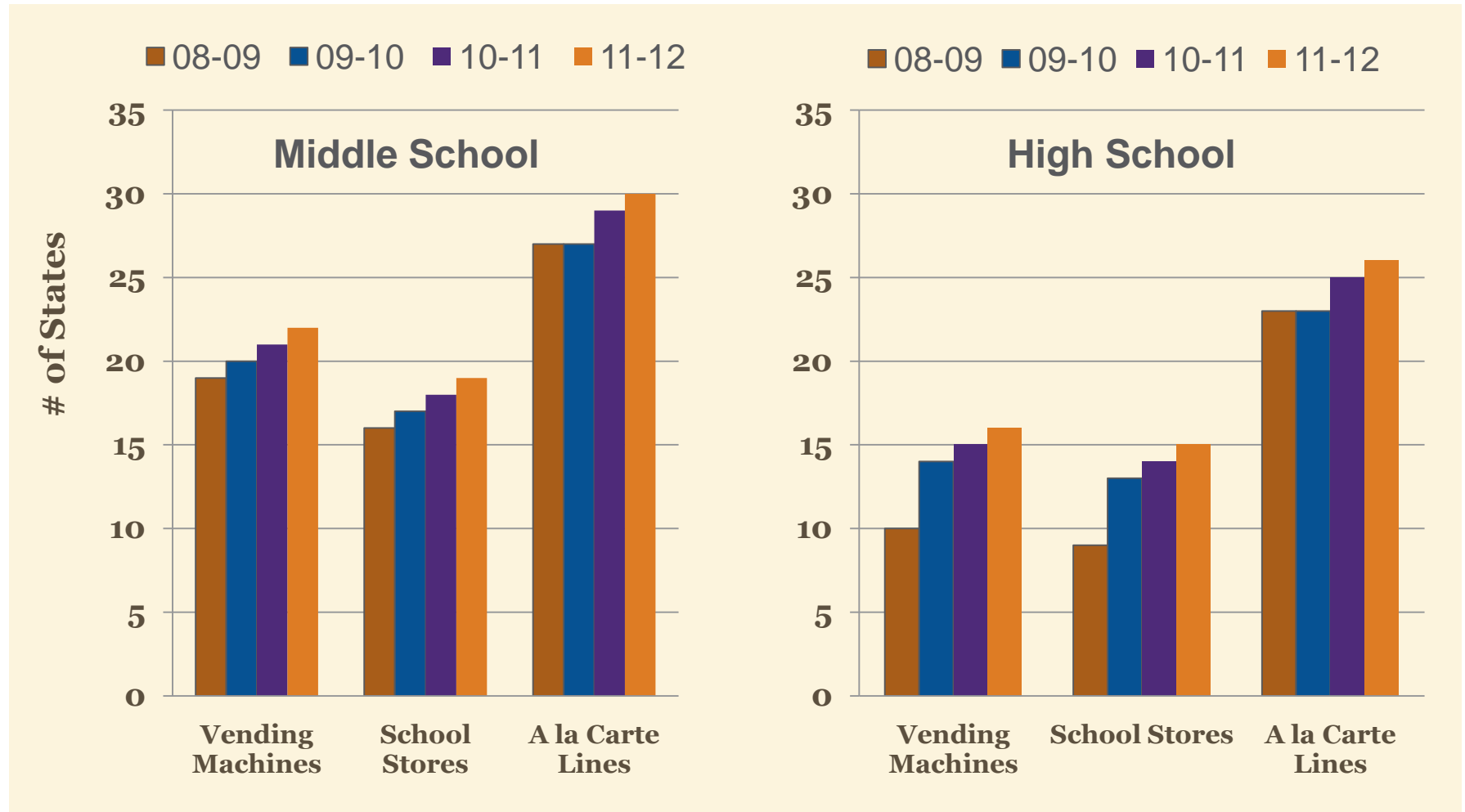


Understanding the State Policy Landscape Regarding Secondary School Beverage Availability

State Laws Banning SSBs at the Middle and High School Levels, SY 2008-09 through 2011-12



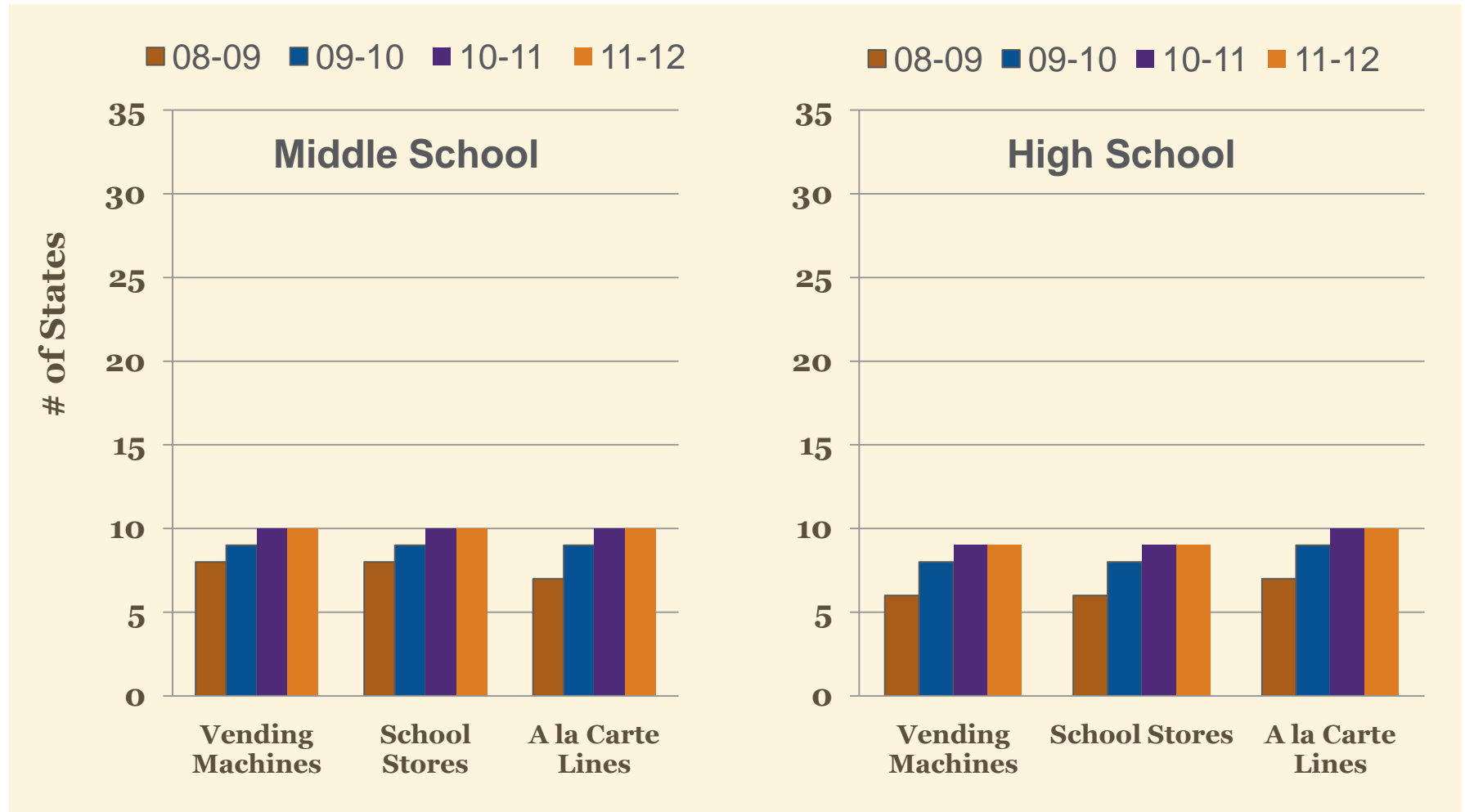
State Laws Banning Regular Sodas at the Middle and High School Levels, SY 2008-09 through 2011-12



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Source: Bridging the Gap, 2013

State Laws Banning 2%/Whole Milk at the Middle and High School Levels, SY 2008-09 through 2011-12



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Source: Bridging the Gap, 2013

Relationship between State Laws and Secondary School Soda and High-Fat Milk Availability

Methods: School Data

- Health Policies and Practices Schools:
 - Nationally representative annual surveys of school administrators in approximately 550 secondary schools (about 280 8th grade schools, 135 10th and 135 12th grade schools)
 - Each school participates up to 3 years (surveyed each year)
- Monitoring the Future (MTF) Schools:
 - Nationally representative annual surveys of school administrators in schools completing their second (and final) year of participation in the MTF study of 8th, 10th, and 12th grade student surveys (approximately 210 public and private secondary schools)
 - Administrators surveyed only once
- Years: Spring 2009, 2010, 2011, 2012

Methods: School-Level Outcomes

- **Venues:**

- À la carte cafeteria sales, school stores/snack bars/carts, vending machines, any competitive venue

- **Outcomes:**

- No availability of the following beverage types:
 - Soda: Regular soft drinks (such as Coke, Pepsi, or Dr. Pepper)
 - Non-soda SSBs: Sports drinks; fruit drinks that are not 100% fruit juice and that are high in calories
 - “Other Milks”: Anything other than non-fat or skim (1%) milk

Methods: State Law Data

- Primary legal research using state law databases in Westlaw and Lexis-Nexis
- Laws effective as of beginning of each school year (08-09 through 11-12) using day after Labor Day as proxy
- Laws analyzed for bans on the following beverages at each grade level – middle and high school respectively:
 - Regular Soda
 - Other SSBs
 - High-Fat (2%/whole) milks

Analytic Methods

- Combined Health Policies and Practices Schools and public MTF schools
- Linked with state law data using state FIPS codes
- Analyses conducted using Stata GLLAMM allowing random intercepts at both the school and state levels
- Controls:
 - State controls: %White, population density, obesity, region, year
 - School controls: student body racial/ethnic distribution and SES, total school enrollment, population density (grade also controlled for in high school models)
- Results weighted such that results represent the national percentage of students enrolled in schools with the specified state- and school-level characteristics.

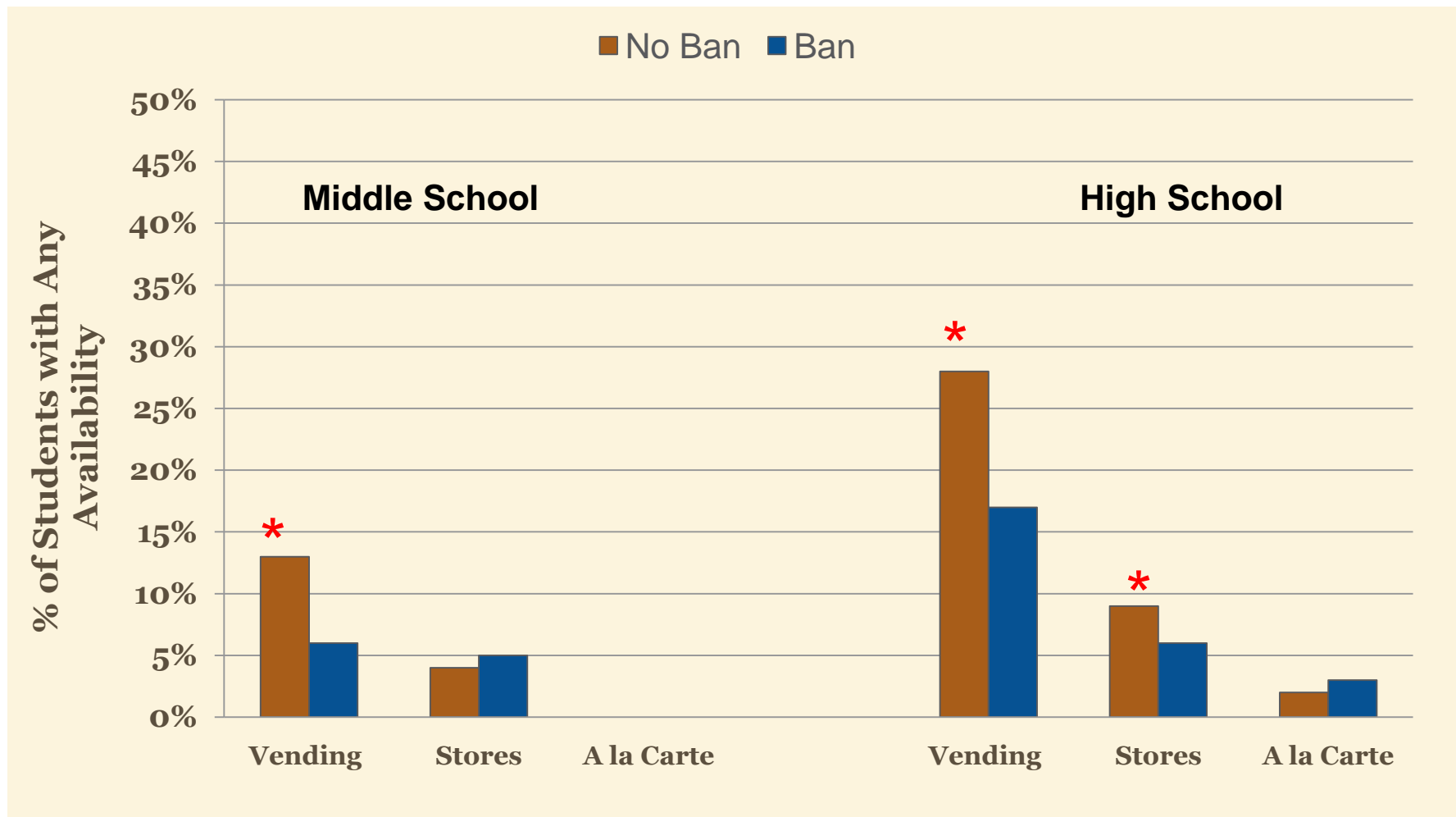
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Sample Characteristics

	Middle School (Std Error of Mean)	High School –N=1440 (Std Error of Mean)
≥66% White	44% (1.8%)	52% (1.7%)
≥40% Eligible for FRPL	61.7% (1.8%)	50% (1.7%)
Up to 500 students	27.0% (1.7%)	16.9% (1.3%)
501-1001 students	52.8% (1.9%)	23.1% (1.5%)
1001+ students	20.2% (1.5%)	60% (1.8%)
Urban	27.6% (1.8%)	26.0% (1.7%)
Suburban	50.2% (2.0%)	49.9% (1.8%)
Rural	22.2% (1.6%)	24.1% (1.5%)
% White state popn.	80.0% (24.5%)	80.2% (22.1%)
Pop density: per sq mi (in 100s)	2.2 (18.4)	2.6 (1.9)
% Obese	16.5% (10.1%)	16.4% (8.9%)
Northeast	16.4% (1.2%)	17.8% (1.1%)
Midwest	22.5% (1.4%)	23.9% (1.2%)
West	22.9% (1.3%)	23.6% (1.2%)
South	38.2% (1.6%)	34.6% (1.4%)

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Adjusted* Prevalence of Soda Availability based on State Law Status, 2009-12

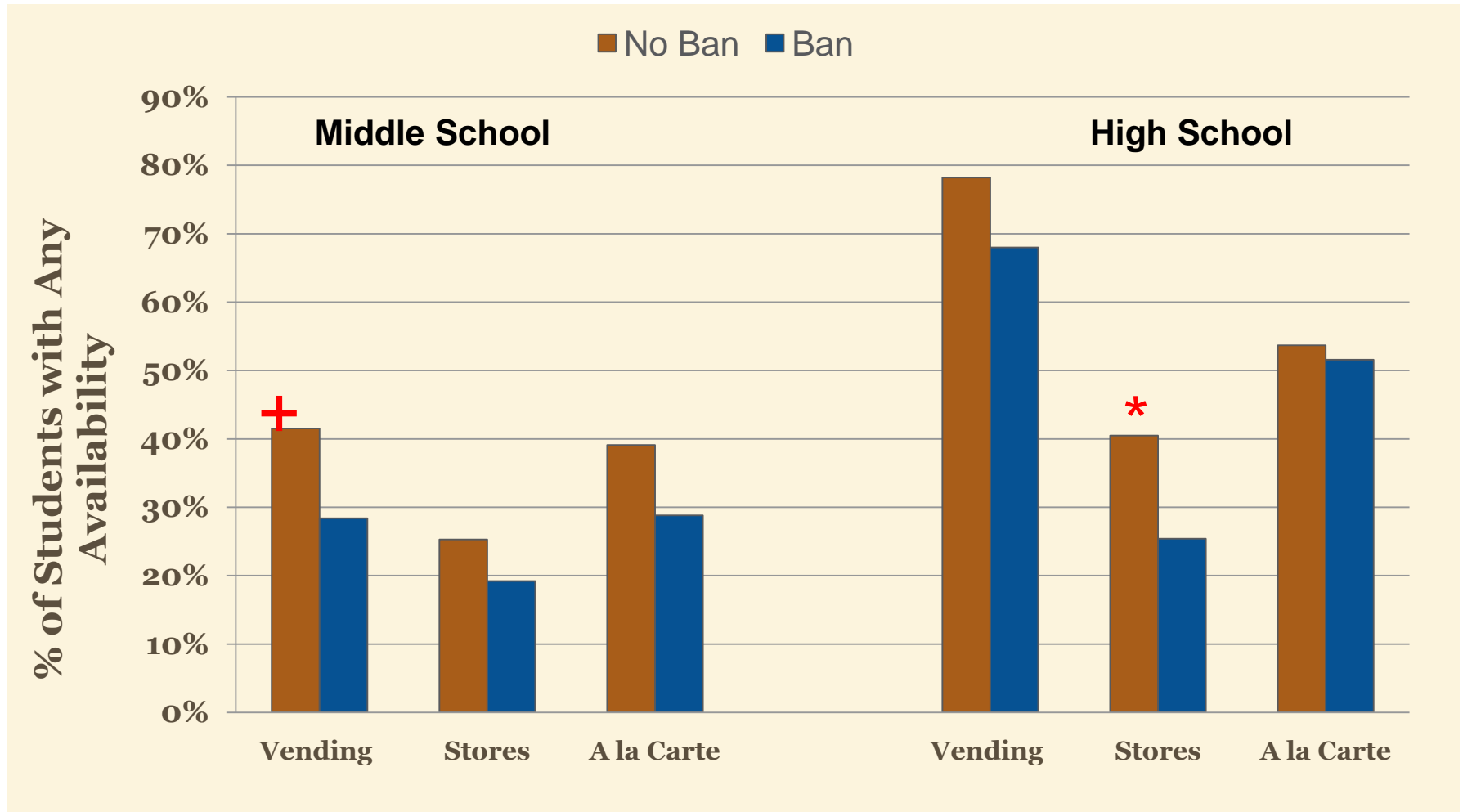


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*Multivariate GLAMM results adjusted for state and school level controls

* p<.05; N of students=1292-1296 (MS) and N=1425-1431 (HS)

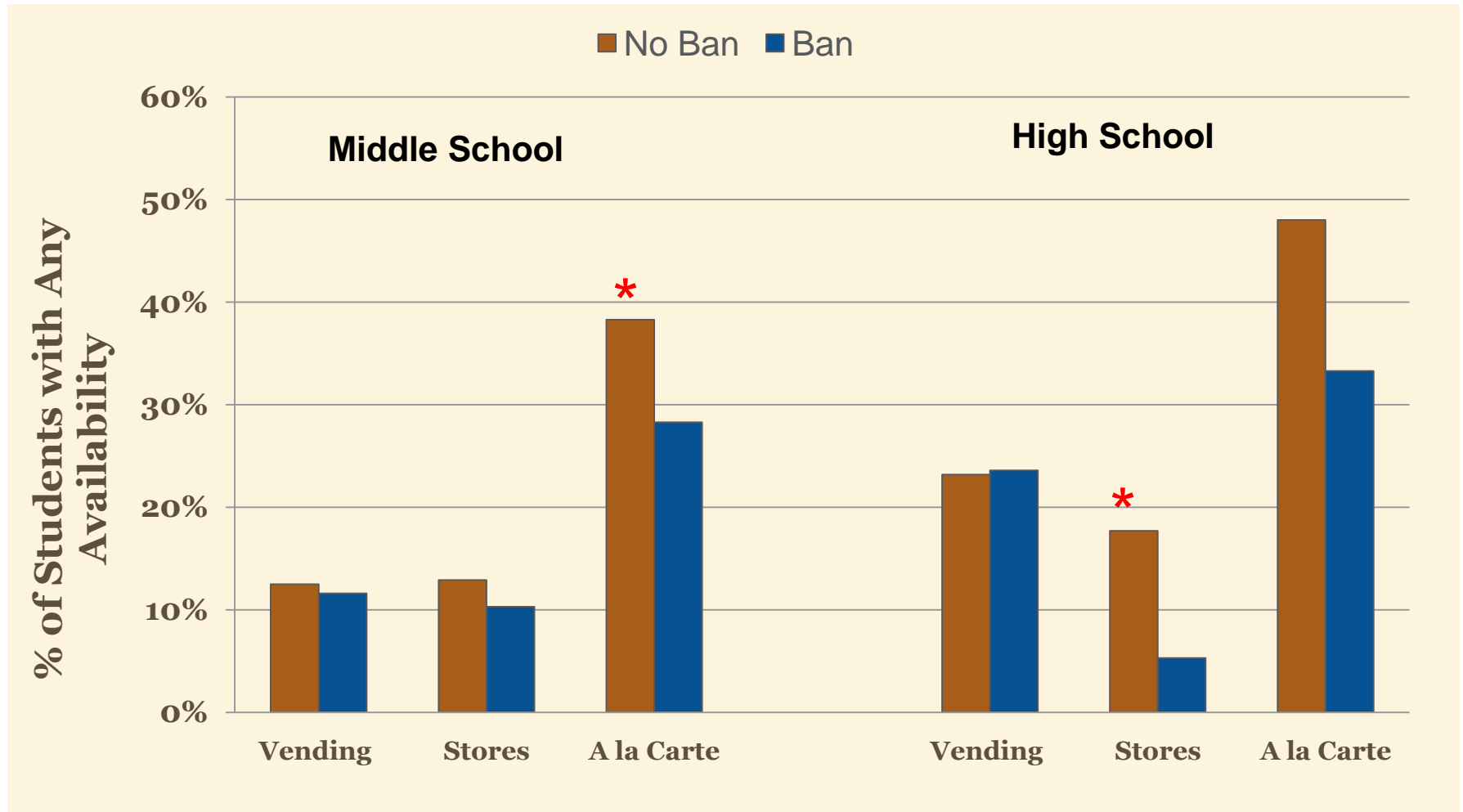
Adjusted* Prevalence of Non-Soda SSB Availability based on State Law Status, 2009-12



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*Multivariate GLAMM results adjusted for state and school level controls
 * p<.05 +p<.10; N of students=1290-1295 (MS) and N=1427-1431 (HS)

Adjusted* Prevalence of “Other” (2%/Whole) Milk Availability based on State Law Status, 2009-12



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*Multivariate GLAMM results adjusted for state and school level controls
 P<.05; N of students=1284-1287 (MS) and N=1412-1420 (HS)

Implications and Next Steps

USDA Beverage Guidelines



•Plain water

- Carbonated or uncarbonated

•Milk

- 1% (unflavored) or
- Skim milk (including flavored)

•Juice

- 100% fruit or vegetable juices
OR
- 100% fruit or vegetable juices diluted with water or carbonated water

•Caffeine

- Elementary/Middle Schools: Caffeine-free
- High School: Allowed



USDA Other Beverage Guidelines

- **High School only:** Calorie-free, flavored and/or carbonated water and other calorie-free beverages
 - <5 calories/8 oz serving (or ≤ 10 calories/20 oz)
 - Maximum of 20 oz
- **Portion Sizes (except water)**
 - Elementary schools: 8 oz
 - Middle schools: 12 oz
 - High Schools: 12 oz (milk, juices)



Implications from the Current Study

- Strong policies (i.e., bans) do reduce availability of sugar-laden and high-fat beverages in secondary schools
- Having a law alone is NOT enough to ensure 100% compliance
- Key challenge will be on the implementation-side and identifying mechanisms to facilitate compliance with USDA, particularly in states that didn't already impose similar beverage restrictions
 - Training and technical assistance will be required
 - Changes to procurement contracts
 - Potential issue if vending machines are considered “fundraisers”

Next Steps

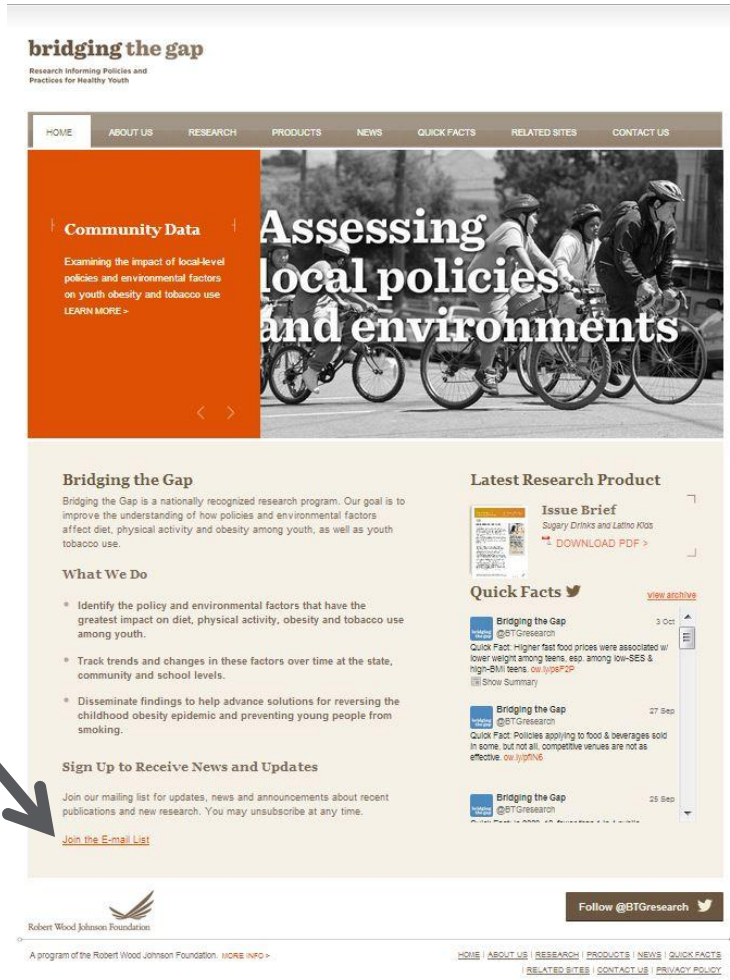
- Examining linkages to secondary school student consumption
 - Examining associations with district policies
- Examining the concomitant impact of the USDA standards on school beverage availability and student beverage consumption

Acknowledgements

- I would like to gratefully acknowledge my coauthors:
 - Yvonne Terry McElrath, MSA
 - Lloyd D. Johnston, PhD
 - Patrick M. O'Malley, PhD
 - Frank J. Chaloupka, PhD
- Support for this study was provided by the Robert Wood Johnson Foundation to the Bridging the Gap Program at the University of Illinois at Chicago (PI: Frank Chaloupka) and the YES/MTF Program at the University of Michigan Institute for Social Research (PI: Lloyd Johnston)

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