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Research Informing Policies & Practices for Healthy Youth

The Impact of State Safe Routes to School-related Laws on Elementary School Walking and Biking Policies and Practices

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Presentation at the Active Living Research Annual Meeting
San Diego, California February 23, 2011

Presentation Overview

- Setting the context
  - Physical activity guidelines for children
  - Review trends in walking/biking to school
  - Key barriers and facilitators of walking/biking to school
  - Policy actions and recommendations focused on walking/biking to school
- Study overview
- Key results
- Policy implications

Setting the Context

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National Guidelines: Children should get 60 or more minutes of physical activity daily

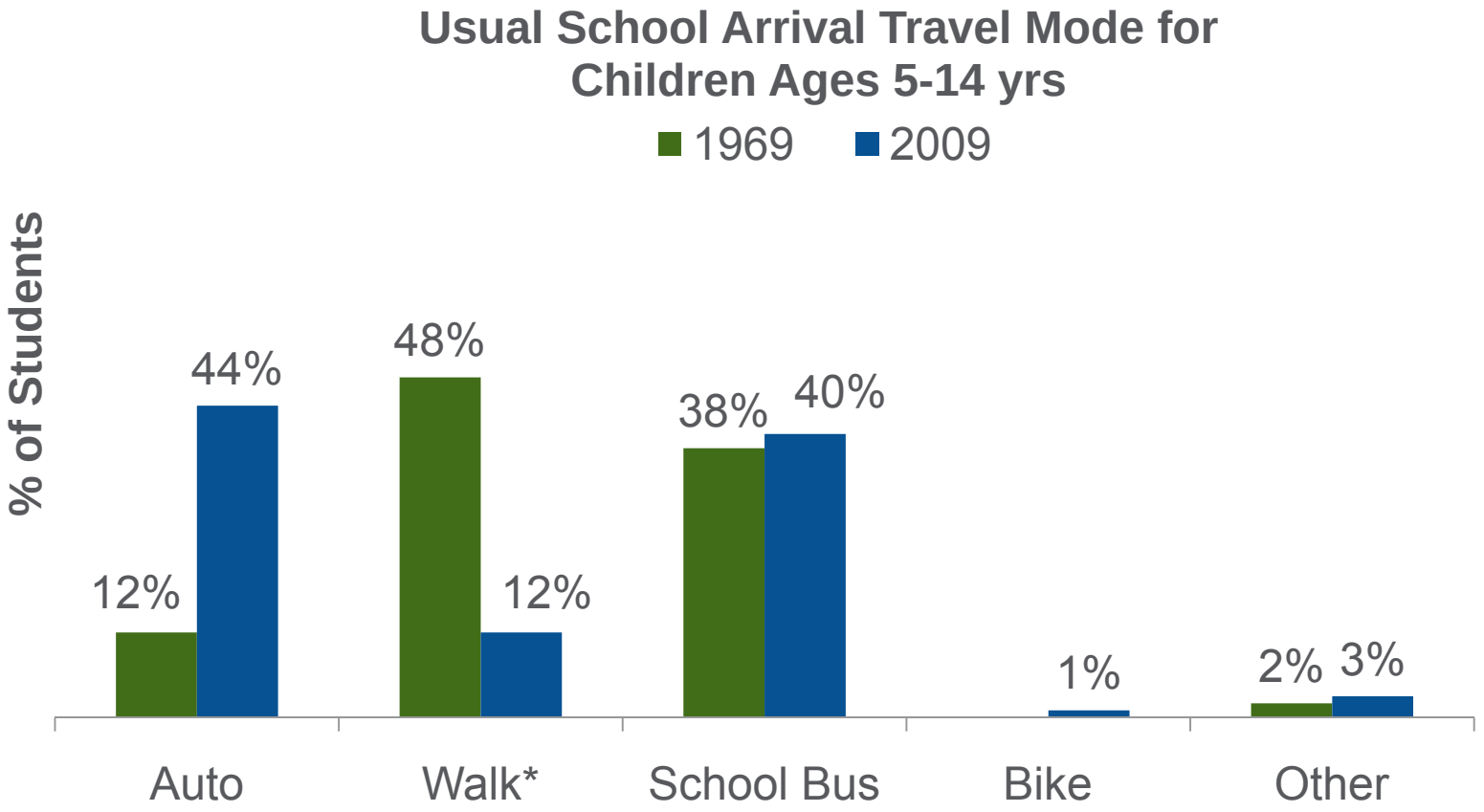
- Through aerobic, muscle-strengthening and bone-strengthening exercises

- Aerobic activity should be through moderate-to-vigorous activity including bicycle riding and brisk walking

- **Whenever possible, inactivity should be replaced with physical activity such as walking or biking to school**

Source: *Physical Activity Guidelines for Americans, 2008*

Yet....few children walk or bike to school today compared to 40 years ago



*The walk mode in 1969 included bicycle

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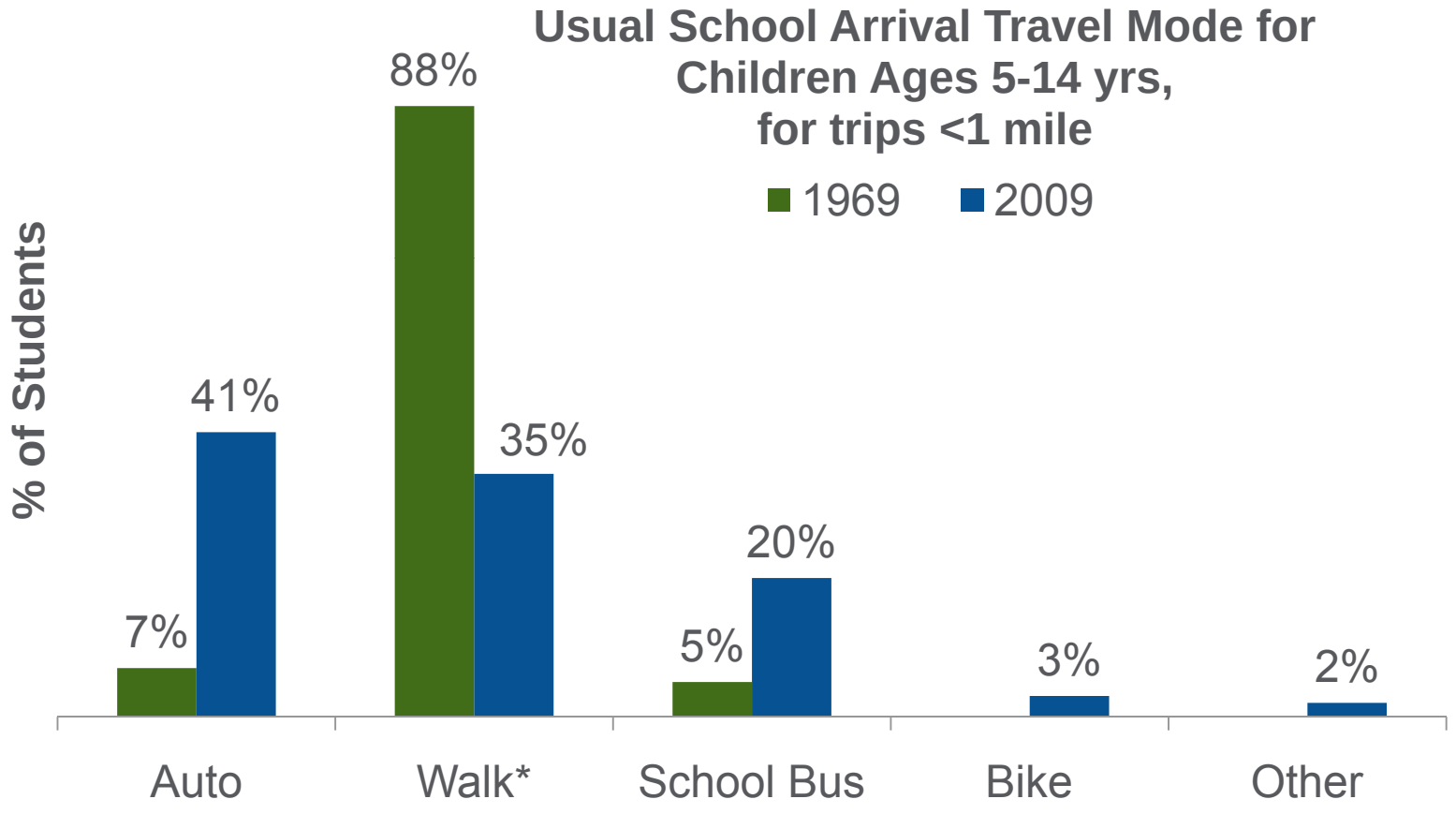
Source: National Center for Safe Routes to School, 2010

A little over 1/3 of children living within 1-mile of school walked or biked to school in 2009



*The walk mode in 1969 included bicycle

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Source: National Center for Safe Routes to School, 2010

Key Barriers to Walking/Biking to School

- ***Distance***
- ***Student safety***
- Non-existent/discontinuous sidewalks
- *Lack of crossing guards*
- Road obstacles
- Lack of bicycle supports
- Weather and darkness
- Parental work schedules and car availability
- Time constraints
- *Bussing policies*
- *Traffic speeds*

Italicized items focus of this study

Sources: CDC, 2005; Ahlport et al., 2008; DiGuiseppi et al., 1998; Falkner et al., 2010; Greves et al., 2007; Kerr et al., 2006; Rodriguez & Vogt, 2008; Timperio et al, 2006; McMillan, 2007

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Key Facilitators for Walking/Biking to School

- *Shorter distance*
  - (<1-1.5 mi for walking & <2 mi for biking)
- *Sidewalks*
- *Presence of crossing guards*
- Bicycle parking
- Low parental concerns
- *Speed zones*
- Walkable neighborhoods
- Walking paths/trails
- Single-parent families
- Low-income/minorities

Italicized items focus of this study

Sources: Ahlport et al., 2008; Schlossberg et al, 2006; Yeung et al., 2008; Boarnet et al., 2005; Eyler et al., 2008; Evenson et al., 2008; Fesperman et al., 2008; DiGuiseppi et al., 1998; Falkner et al., 2010; Timperio et al, 2006; Kerr et al., 2006; Fulton et al., 2005; Carlin et al., 1997; Evenson et al., 2003; McDonald, 2008

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Existing federal policy and recommendations related to active transport to school

- *Safe,* Accountable*, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU, P.L., 109-59)
  - $621 million in federal funding to states for SRTS infrastructure and non-infrastucture projects at the K-8 level

- Task Force on Community Preventive Services
  - **Street-scale and community-scale urban design and land use policies** are **effective** in facilitating walking/biking, particularly in small geographic areas (such as those surrounding schools)

Federal Policy and Federal Recommendations-cont.

- *Healthy People 2020* included three development goals that focus on active travel to school:

  For children ages 5-15 years:

  - Goal PA-13: Increase the **proportion of walking trips to school of 1-mile or less**
  - Goal PA-14: Increase the **proportion of bicycling trips to school of 2-miles or less**

  Other goals that relate to walking/biking:

  - Goal PA-15: Increase legislative policies for the built environment that enhance access to availability of physical activity opportunities through street-scale, community-scale, and transportation policies

State and Local Policies Related to Walking/Biking to School

- Safe routes to school programs
- School siting policies
- Minimum bussing distance policies
- Requirements for:
  - Sidewalks around schools
  - Speed zones around schools
  - Traffic calming around schools
  - Crossing guards around schools
- **…But we know little about the impact of many of these policies on walking and biking to school**

Study Purpose and Overview

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Study Purpose

- To examine the relationship between existing state laws on walking and biking policies and practices at elementary schools nationwide

Data Sources

- State laws
  - Primary legal research by staff at The MayaTech Corporation and UIC using Westlaw and Lexis-Nexis state statutory and administrative law (regulatory) databases
  - Laws effective as of January 1 of each year, 2007-2009
  - Included all 50 states and DC
- Elementary school survey
  - Annual, mail-back surveys of school administrators at nationally representative samples of elementary schools in the spring of 2007, 2008, and 2009
    - Surveys conducted in 47 states (excludes AK, HI, WY and DC)
    - Response rates: 2007-54.6% (578 schools); 2008-70.6% (748 schools); 2009-61.8% (641 schools)

Analysis - overview

Policies of interest:

- Minimum bussing distance policies
- Sidewalk construction
- Employment of crossing guards
- Traffic control measures
- Speed zones

Outcomes:

- Barriers
  - Distance
  - Sidewalks
  - Lack of crossing guards
  - Traffic
- Allowing all students to walk/bike to school
- % of students who walk/bike to school

Statistical analysis

- Adjusted for region, locale, school size, county funding, and minimum bussing distance
- Weighted to represent schools nationwide
- Clustered on state
- Logistic regression used to model association between state laws and:
  - Barriers to walking/biking
  - Allowing all students to walk/bike to school

Statistical Analysis Continued

- Zero-inflated Poisson model
  - % of students who walk/bike to school was positively skewed, with 17.6% of schools reporting zero
    - Zero-inflated Poisson model was used to account for distribution (Vuong: $p<0.05$)
  - Two components of model:
    - Logistic: Model excess zeros
    - Poisson: Model % who walk/bike to school

Results

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Prevalence of state laws, 2007-09

Category of State Law	% of all states (N=51 includes DC)
Minimum bussing distance	
None	51.0%
≤1 mile	13.7%
>1-2 miles	27.5%
>2 miles	7.8%
Sidewalk construction (Required)	22.2%
Crossing guards (Required)	9.8%
Traffic control measures (Required)	38.6%
Speed zones (Required)	81.0%

School policies and practices, 2007-09

Policy/Practice	%/Mean
Barrier	
Lack of sidewalks (%; n=1807)	30.2
Lack of crossing guards (%; n=1770)	21.4
Traffic (%; n=1857)	53.7
Distances (%; n=1846)	46.2
Allow all students to walk* (%; n=620)	78.7
Allow all students to bike (%; n=1894)	53,6
% 3rd graders walking/biking to school on an average day (mean; n=1840)	21,5

*Asked in 2009 only.

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Barriers to walking/biking to school

State law	Barrier	Unadjusted OR	Unadjusted 95% CI	Adjusted OR	Adjusted 95% CI
Minimum bussing dist.	Distance				
≤1 mile		1.12	0.65, 1.94	1.31	0.74, 2.31
>1-2 miles		1.35	0.97, 1.70	1.21	0.88, 1.66
>2 miles		0.93	0.55,1.67	0.65	0.38, 1.13
Sidewalk construction	Sidewalks	0.55	0.40, 0.76	0.76	0.52, 1.11
Employ crossing guards	Crossing guards	0.47	0.28, 0.79	0.36	0.22, 0.58
Traffic control measures	Traffic	0.72	0.55, 0.95	0.71	0.53, 0.95
Speed zones	Traffic	0.81	0.59, 1.12	0.75	0.53, 1.08

p-val at least <.05

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Allowing all students to walk/bike to school

State Law	Walking* OR	Walking* 95% CI	Biking OR	Biking 95% CI
Minimum bussing distance				
≤ 1 mile	0.87	0.36, 21.0	1.12	0.61, 2.06
>1-2 miles	1.91	1.17, 3.13	1.27	0.91, 1.78
> 2 miles	3.75	0.81, 17.34	1.85	0.89, 3.87
Sidewalk construction	1.29	0.74, 2.28	0.76	0.51, 1.10
Employ crossing guards	1.23	0.56, 2.67	2.32	1.50, 3.58
Traffic control measures	1.27	0.78, 2.06	1.30	0.98, 1.74
Speed zones	1.16	0.66, 2.03	1.21	0.79, 1.86

p<.10 *p-val* at least <.05 *2009 only

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State laws are more likely to affect whether zero students walk/bike to school than to affect the proportion who do so

State Law	Logistic (Odds Zero Walk/Bike) OR	95% CI	Poisson (Proportion Walk/Bike) RR	95% CI
Minimum bussing distance				
≤ 1 mile	2.54	0.93, 6.95	0.57	0.39, 0.84
>1-2 miles	0.71	0.27, 1.86	0.94	0.74, 1.19
> 2 miles	1.06	0.25, 4.48	1.14	0.88, 1.46
Sidewalk construction	0.63	0.38, 1.08	1.12	0.92, 1.36
Employ crossing guards	0.37	0.20, 0.75	1.06	0.88, 1.27
Traffic control measures	0.58	0.39, 0.82	1.03	0.87, 1.20
Speed zones	0.49	0.37, 1.01	0.99	0.80, 1.22

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p<.10

p-val at least <.05

Summary

- Active travel school can provide an opportunity for elementary students to get some of the recommended daily physical activity; yet, few students do it
- Certain **state laws may facilitate walking/biking to school:**
  - Requirements for **sidewalks, crossing guards, and traffic safety** measures
- **Other** state **laws may serve as a barrier** to walking/biking:
  - B**ussing distance requirement of ≤ 1 mile *increases* the odds that *zero*** students **walk/bike** and ***reduces*** **proportion who walk/bike** to school

Policy implications

- State laws are associated with walking and biking policies and practices at public elementary schools in the U.S.
- Many of these laws focus on infrastructure issues that can be addressed not just through state policy but also local, school district policies and practices
- Given these tough economic times some small changes in policy might significantly increase the likelihood that more students engage in active travel to school on a regular basis

Acknowledgements

- This study was funded by the Robert Wood Johnson Foundation to the Bridging the Gap Program at the University of Illinois at Chicago (PI: Frank Chaloupka)
- Study co-authors: Dan Taber, Lindsey Turner, Sandy Slater, Kerri McGowan Lowrey, and Frank Chaloupka
- We are grateful to Camille Gourdet, Carissa Holmes, and Jennifer Folliard for their assistance with compiling the state law data; Anna Sandoval and numerous research assistants for their work on the school survey; and Angie Cradock at the Harvard Prevention Research Center for providing us with the county funding data.

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