

**First Dinosaurs and then Cars Ruled the World, and
Neither Was Very Good For Our Health:
A Case Study of the Interaction of Transportation & Health**

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April 1, 2016

Question: Why might transportation be one of the most important health issues of the 21st century?

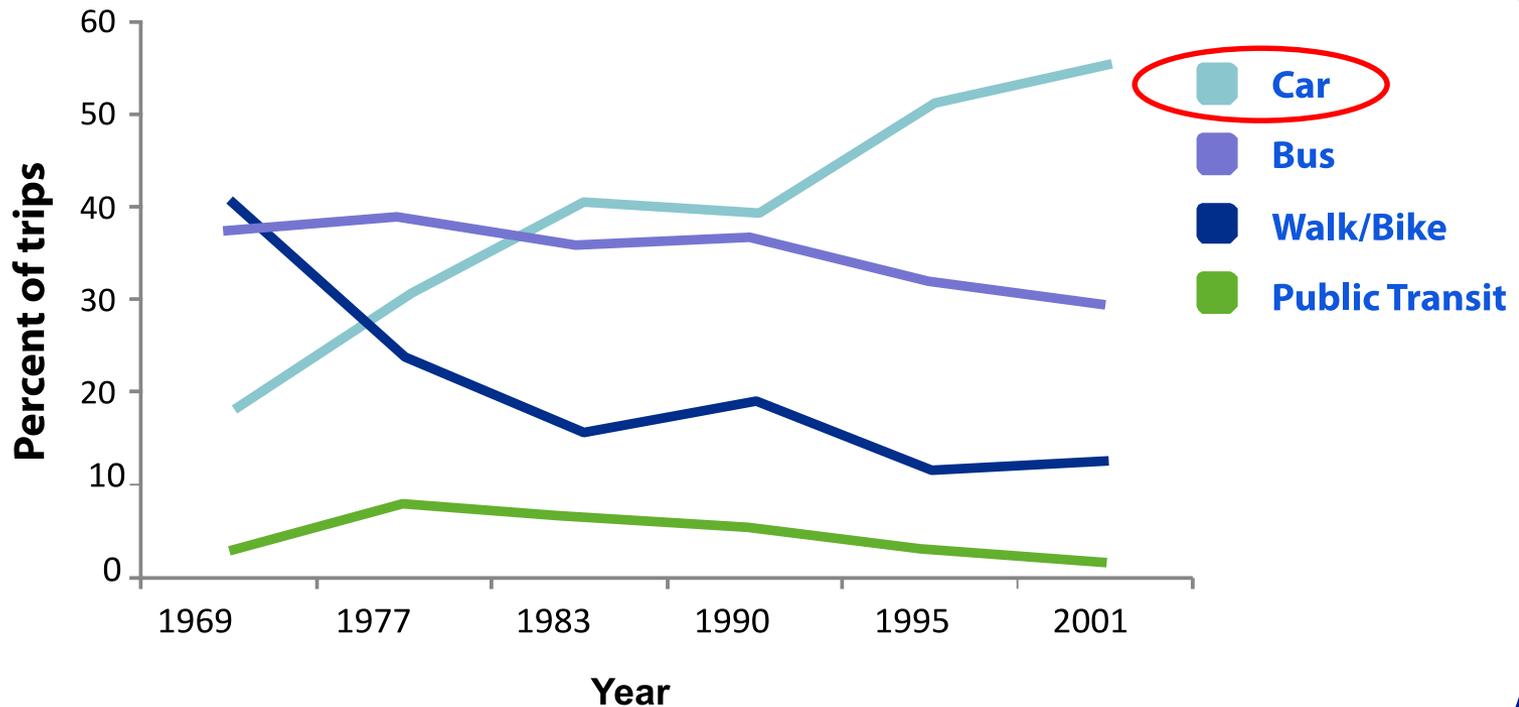
Some Possible Answers

- ❑ Sedentary Lifestyles Causing Obesity, Cardiovascular Disease, Cancer, etc.**
- ❑ Transportation Related Injuries**
- ❑ Mobile-Source Air Pollution Causing and/or Exacerbating Respiratory and Cardiovascular Diseases**
- ❑ Mobile-Source Air Pollution Adding to Greenhouse Gasses and Potential Climate Change Risks**

Do We Have Evidence-Based Interventions?

Active Transportation by Youth has Decreased

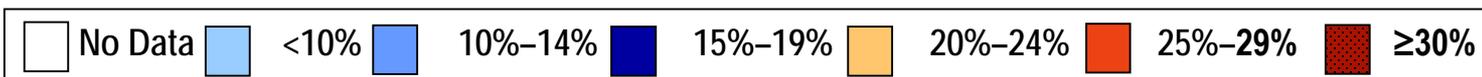
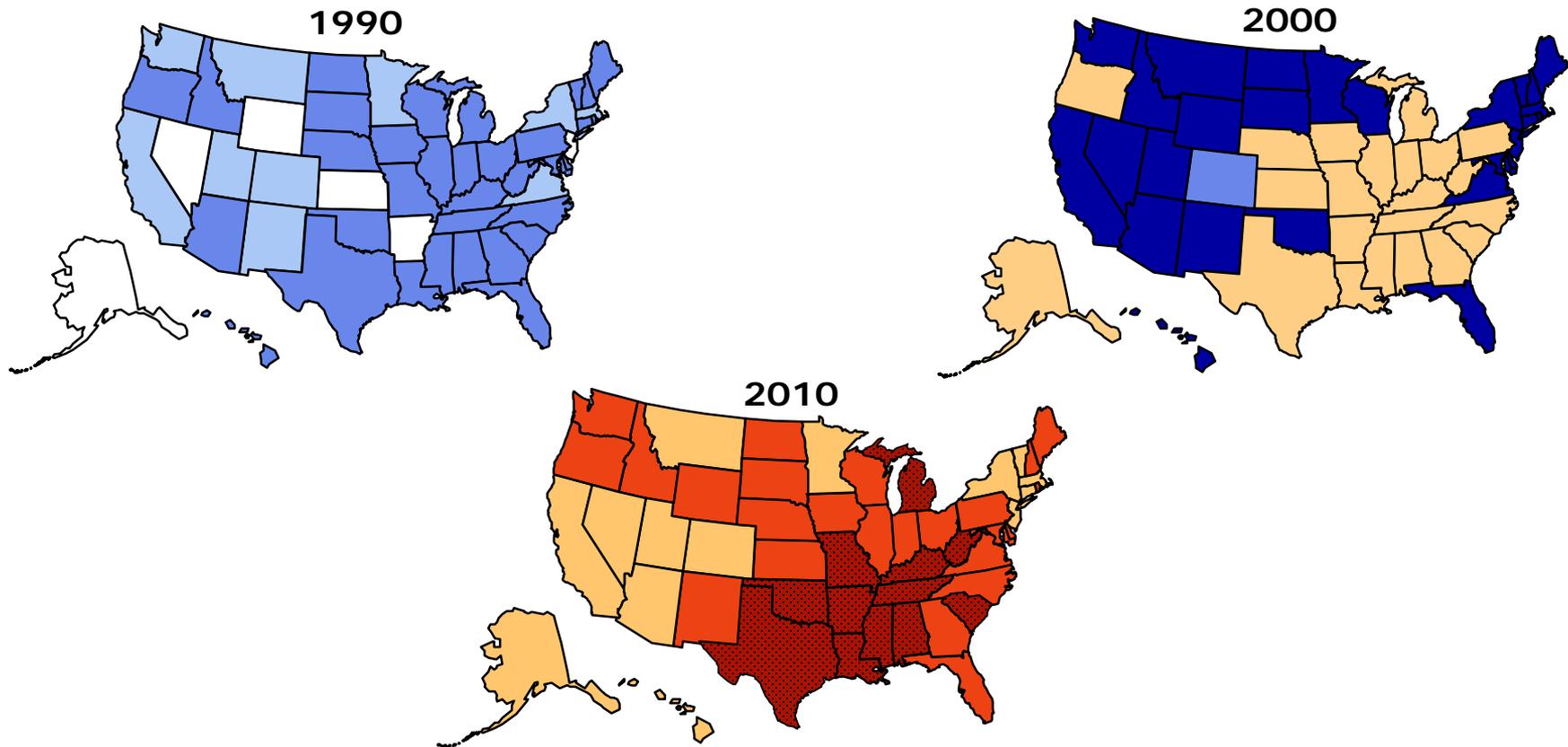
Mode for Trips to School – National Personal Transportation Survey



Obesity Trends* Among U.S. Adults

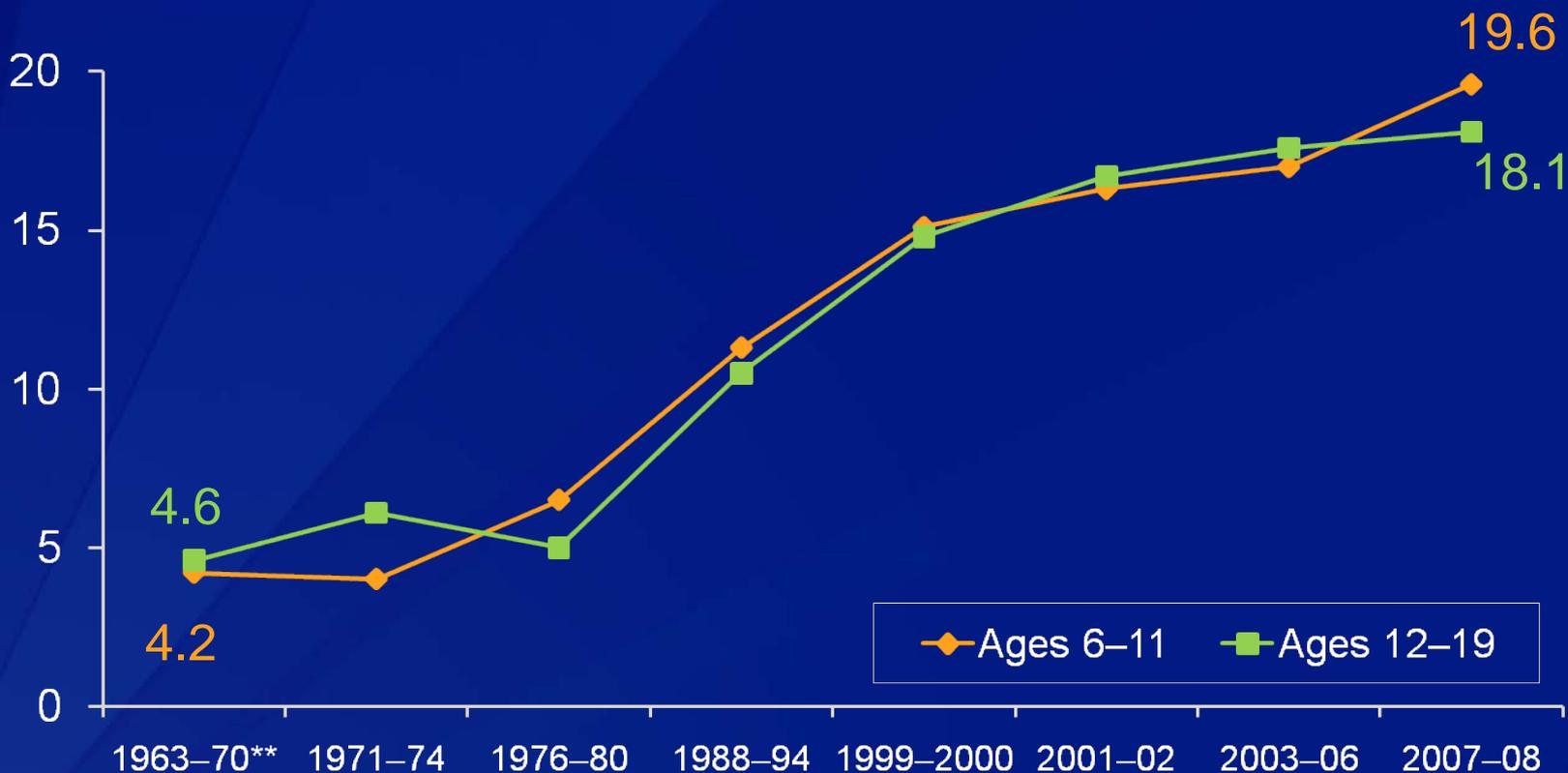
BRFSS, 1990, 2000, 2010

(*BMI ≥ 30 , or about 30 lbs. overweight for 5'4" person)



Source: Behavioral Risk Factor Surveillance System, CDC.

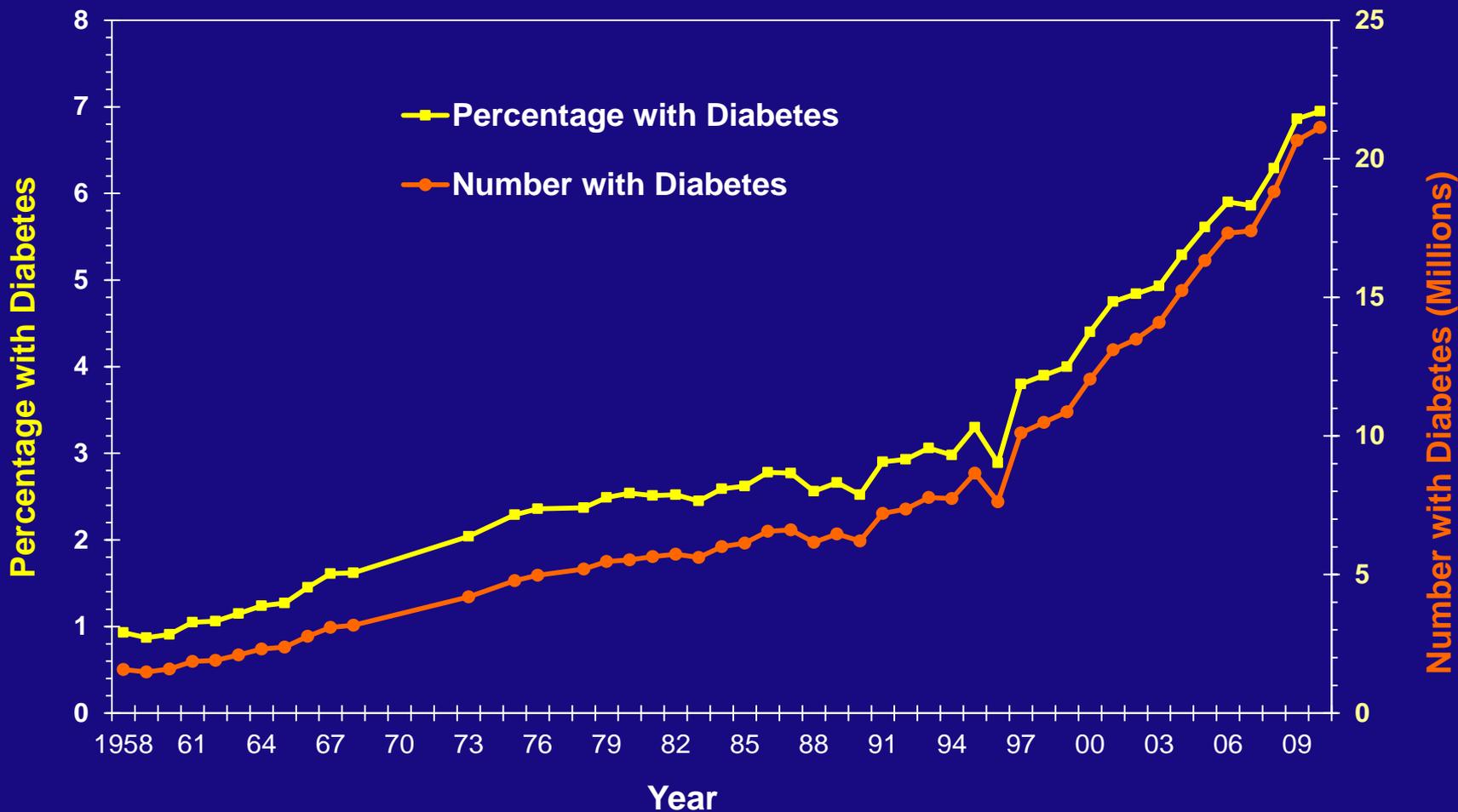
Percentage of U.S. Children and Adolescents Classified as Obese, 1963–2008*



* \geq 95th percentile for BMI by age and sex based on 2000 CDC BMI-for-age growth charts.

**1963–1970 data are from 1963–1965 for children 6–11 years of age and from 1966–1970 for adolescents 12–17 years of age.

Number and Percentage of U.S. Population with Diagnosed Diabetes, 1958–2010

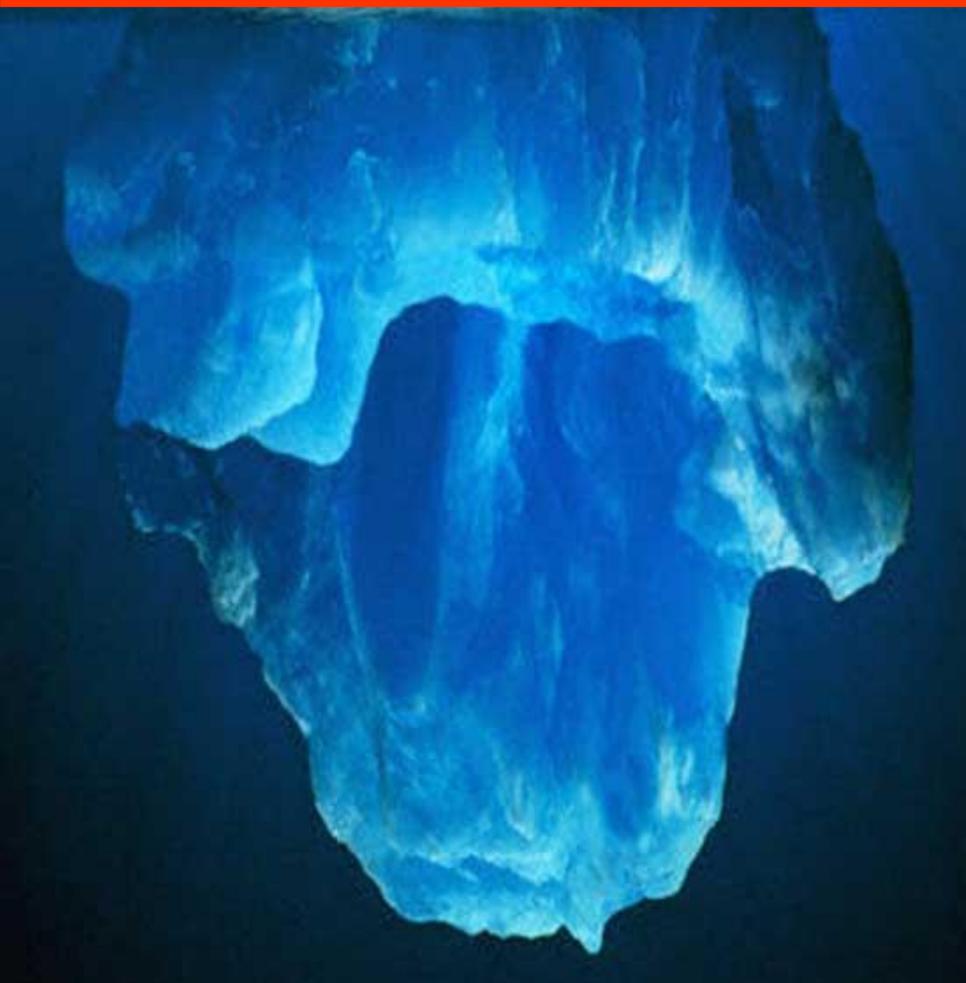


CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at <http://www.cdc.gov/diabetes/statistics>



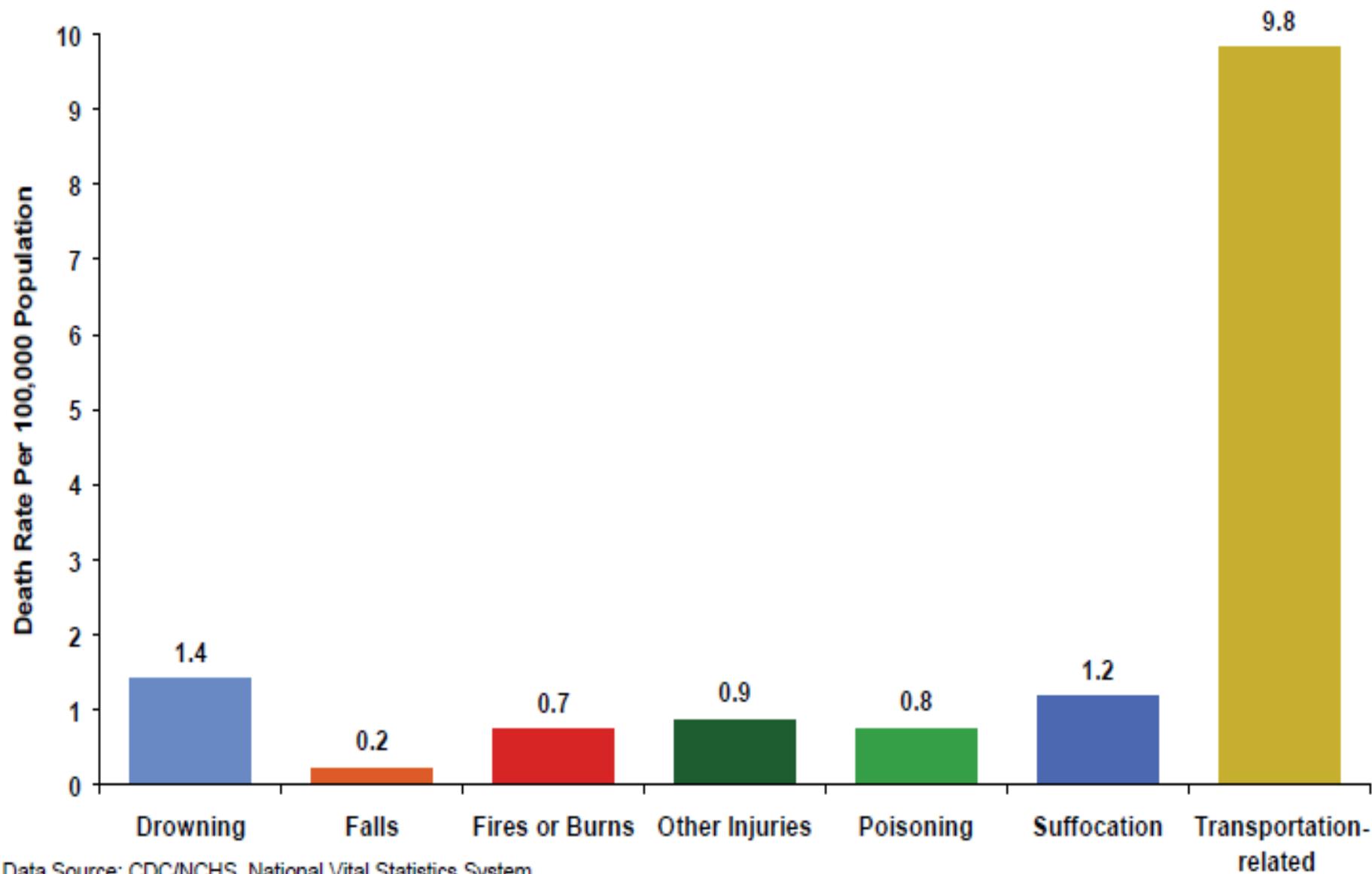


**26 million
with Diabetes**



**79 million
with Prediabetes**

Figure 6: Unintentional Injury Death Rates among Children 0 to 19 Years, by Cause, United States, 2000 - 2005



Data Source: CDC/NCHS, National Vital Statistics System

TABLE 2

THE COST OF TRANSPORTATION-RELATED HEALTH OUTCOMES

The consequences of inactivity, obesity, exposure to air pollution, and traffic crashes in the U.S. are staggering when viewed in terms of cost. Fortunately, with certain policy changes, these costs are largely preventable.

The National Health Costs of...	\$\$ (Billions)	Estimate Includes	Source
Obesity and overweight	\$142	<ul style="list-style-type: none"> Healthcare costs Lost wages due to illness & disability Future earnings lost by premature death 	<p>National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases. Statistics Related to Overweight and Obesity: The Economic Costs.</p> <p>Available at: http://win.niddk.nih.gov/statistics/index.htm</p>
Air pollution from traffic	\$50-80	<ul style="list-style-type: none"> Health care costs Premature death 	<p>Federal Highway Administration. 2000. Addendum to the 1997 Federal Highway Cost Allocation Study Final Report, May 2000.</p> <p>Available at: www.fhwa.dot.gov/policy/hcas/addendum.htm</p>
Traffic crashes	\$180	<ul style="list-style-type: none"> Healthcare costs Lost wages Property damage Travel delay Legal/administrative costs Pain & suffering Lost quality of life 	<p>AAA. Crashes vs. Congestion? What's the Cost to Society? Cambridge, MD: Cambridge Systematics, Inc.; 2008.</p> <p>Available at: www.aaanewsroom.net/assets/files/20083591910.crashesVscongestionfullreport2.28.08.pdf</p>

All cost estimates adjusted to 2008 dollars.

So, What Does The Data Tell Us?

What do we know?

- **Heath, G. W., Brownson, R. C., Kruger, J., Miles, R., Powell, K. E., & Ramsey, L. T. Services, TFOCP (2006) The effectiveness of urban design and land use and transport policies and practices to increase physical activity: a systematic review. *Journal of Physical Activity and Health*, 1, S55-S71.**
- **Bartholomew, K., & Ewing, R. (2008). Land use–transportation scenarios and future vehicle travel and land consumption: a meta-analysis. *Journal of the American Planning Association*, 75(1), 13-27.**
- **Pont, K., Ziviani, J., Wadley, D., Bennett, S., & Abbott, R. (2009). Environmental correlates of children's active transportation: a systematic literature review. *Health & Place*, 15(3), 849-862.**
- **Ewing, R., & Cervero, R. (2010). Travel and the built environment: a meta-analysis. *Journal of the American Planning Association*, 76(3), 265-294.**
- **Feng, J., Glass, T. A., Curriero, F. C., Stewart, W. F., & Schwartz, B. S. (2010). The built environment and obesity: a systematic review of the epidemiologic evidence. *Health & place*, 16(2), 175-190.**
- **DiMaggio, C. (2011). P2-386 A meta-analysis of built roadway environment and pedestrian injury. *Journal of Epidemiology and Community Health*, 65(Suppl 1), A329-A329.**
- **Durand, C. P., Andalib, M., Dunton, G. F., Wolch, J., & Pentz, M. A. (2011). A systematic review of built environment factors related to physical activity and obesity risk: implications for smart growth urban planning. *Obesity Reviews*, 12(5), e173-e182.**
- **Gim, T. H. T. (2013). The relationships between land use measures and travel behavior: a meta-analytic approach. *Transportation Planning and Technology*, 36(5), 413-434.**
- **Rothman, L., Buliung, R., Macarthur, C., To, T., & Howard, A. (2014). Walking and child pedestrian injury: a systematic review of built environment correlates of safe walking. *Injury prevention*, 20(1).**

THE NASHVILLE, TN CASE STUDY

<http://www.youtube.com/watch?v=SCFMRBrCMGc>

(first 1:05 minutes and then 18:30 to 22:39)

Discussion Questions

- **What are some key transportation-related health issues?**
- **What are some potential causal pathways from the transportation decisions to the health outcomes?**
- **Who might be key non-public health actors related to these conditions/outcomes?**
- **What are some potential public health actions that could leverage these non public health sector interventions?**

Metropolitan Area Transportation Planning for **Healthy Communities**

This white paper by the USDOT's Volpe National Transportation Systems Center for the Federal Highway Administration (FHWA) Office of Planning develops a framework for metropolitan planning organizations (MPOs) to use to successfully consider health throughout the transportation planning process. The report is a resource for transportation planners, their transportation partners, and new partners in the health field.

The report explores how health can effectively be incorporated in metropolitan transportation planning through four case studies:

- Nashville Area MPO
- Puget Sound Regional Council (PSRC)

A Holistic Approach



The research team applied a holistic approach to assess the different aspects of health that MPOs can include in explicit goals to improve community health. These include safety, air quality, physical activity, and access to health-related destinations. The report's framework will assist MPOs and partners to incorporate health considerations at each stage of the planning process (see diagram below-left).

health considerations

motivation

early actions and outreach

structural changes

transportation planning process

regional goals and vision

long-range transportation plan

project selection

performance monitoring

Nashville Area Metropolitan Planning Organization

2035

NASHVILLE AREA
Regional Transportation Plan



Nashville 2035 Regional Transportation Plan

- **Chapter 4. Evaluating the Existing Transportation System**
 - **Regional Travel Behaviors**, Congestion, **Safety**, Freight Movement and an Overview of Existing Roadways, **Transit, Walking & Bicycling Facilities**
- **Chapter 5. A Bold, New Vision for Mass Transit**
 - **Benefits of Transit**, Service Strategies and Options, Regional Vision, Transit Recommendations
- **Chapter 6. Active Transportation Choices & Walkable Communities**
 - Regional Objectives & Strategies, Long-term Vision, **Costs & Prioritization**, Funding Opportunities
- **Chapter 7. Preservation & Enhancement of Strategic Roadway Corridors**
 - **Complete Streets**, Congestion Management Strategies, Freight Movement, Safety & Security, Long-Term Needs

Discussion Questions

- **How should we go about creating these chapters?**



NASHVILLE AREA METROPOLITAN PLANNING ORGANIZATION

BICYCLE AND PEDESTRIAN STUDY

NOVEMBER 2009

PREPARED BY:

RPM TRANSPORTATION CONSULTANTS, LLC
HAWKINS PARTNERS, INC.
SPRINKLE CONSULTING, INC.
VARALLO PUBLIC RELATIONS



Middle Tennessee Transportation and Health Study, 2012

General Health Question Text	Response Options
During the last 7 days, how much time did you usually spend sitting on a weekday? (Please report in hours; for example: 8.5 hours)	Number of hours
Which of the following statements best describes how physically active you are in a typical week.	<ul style="list-style-type: none"> • I rarely or never do any physical activity • I do some light or moderate physical activities • I do some vigorous physical activities
In general, how healthy is your overall diet?	<ul style="list-style-type: none"> ○ excellent ○ very good ○ good ○ fair ○ poor
Would you say that, in general, your health is:	<ul style="list-style-type: none"> ○ excellent ○ very good ○ good ○ fair ○ poor
About how much do you weigh without shoes?	Open ended
About how tall are you without shoes?	Open ended

Middle Tennessee Transportation and Health Study, 2012

Selected Health Sub-Study Question Text	Response Options
In general, how safe do you feel walking in your neighborhood alone during the day?	<ul style="list-style-type: none"> • Very safe, • Somewhat safe, • Somewhat unsafe, or • Not at all safe
I would eat healthier if there was a grocery store closer to my house	<ul style="list-style-type: none"> ○ Strongly agree ○ Agree ○ Neither agree nor disagree ○ Disagree ○ Strongly disagree
In the past 12 months, did you or anyone else in your household not have enough food to eat?	<ul style="list-style-type: none"> • Yes • No
Now think only about the bicycling and walking you might have done... to go from place to place like to a store or a park. During the last 7 days, on how many days did you bicycle for at least 10 minutes at a time to go from place to place?	Number of days per week
How much time did you usually spend on one of those days to bicycle from place to place?	Number of hours and minutes
Have you ever been told by a doctor, nurse, or other health professional that you have had a heart attack also called a myocardial infarction?	<ul style="list-style-type: none"> ○ Yes ○ No ○ Don't know

Discussion Questions

- **Are there other questions you would have asked?**

Integrated Transportation and Health Impact Modelling (ITHIM) Tool

- **The Integrated Transportation and Health Impact Modelling (ITHIM) Tool advances active transportation health impact modelling beyond simply estimating the benefits of increased physical activity.**
- **For a given change in mode share (usually from automobiles to walking and bicycling), ITHIM also estimates the prevalence of bicycle and pedestrian accidents, impacts of reduced air pollution, and calculates age/sex specific effects on multiple chronic diseases. The net result of these calculations is presented as a summary score in disability-adjusted life years, deaths averted, or years of life lost.**

Running Head: HIA OF TRANSIT-ORIENTED DEVELOPMENT WITHIN
NASHVILLE'S NORTHEAST CORRIDOR

Laura Stamm

Final Master's Project – Vanderbilt University

Health Impact Assessment of Transit-Oriented Development within Nashville's
Northeast Corridor

March 25, 2011

Discussion Questions

- **What other HIA's might Nashville want to do?**

Active Transportation Program

Call-for-Projects, FYs 2014-2017

Project Schedule

- ★ Call for projects announced: March 19, 2014
- ★ Project abstract due: April 18, 2014
- ★ Deadline for Proposals: May 30, 2014
- ★ Review and Evaluation: June - August 2014
- ★ MPO TCC Meeting - Endorse Staff/BPAC Recommendations for Awards: October 1, 2014
- ★ MPO Board Meeting - Endorse Staff/BPAC Recommendations for Awards: October 15, 2014
- ★ MPO TCC Meeting - Endorse Proposed Amendments to TIP: November 5, 2014
- ★ MPO Annual Meeting - Endorse Proposed Amendments to TIP: November 19, 2014
- ★ MPO TCC Meeting - First Public Hearing for TIP Amendments: December 3, 2014
- ★ MPO Board Meeting - Second Public Hearing / Adopt TIP Amendments: December 10, 2014

Background

In the spring of 2014, the MPO will accept proposals from public agencies located within the MPO planning area to help advance regional initiatives to improve walking and bicycling infrastructure in Middle Tennessee.

Program Highlights:

- ★ The Active Transportation Program is authorized by the MPO's 2035 Regional Transportation Plan as a way to advance the region's policy initiative to support active transportation and the development of walkable communities.
- ★ The 2035 Regional Transportation Plan identifies approximately \$115 million in federal funds over the next 25 years for the program. Funding is awarded to specific projects through the region's Transportation Improvement Program in 4 or 5-year intervals. **The MPO has programmed \$12 million in federal funds for the current FYs 2014-2017 Transportation Improvement Program.**
- ★ Grant recipients are required to provide a non-federal match of at least 20 percent of the total project cost.

DOCUMENTS & DOWNLOADS

- ▶ Forms and Applications
- ▶ FYs 2011-2015 ATP Grant Awards

RELATED RESOURCES

- ▶ 2035 Regional Transportation Plan
- ▶ Transportation Improvement Program
- ▶ Mass Transit Program
- ▶ Regional ITS & Systems Operations Program

FOR MORE INFORMATION

Active Transportation Program Director
Leslie Meehan, AICP
Director of Healthy Communities
615-862-7211
meehan@nashvillempo.org

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Pre-Evaluation Assessments of Nutrition, Physical Activity, and Obesity Programs and Policies

Site Visit Summary Report: Nashville MPO

Site Visitors:

Nicola Dawkins

Elizabeth Kroupa

Dates of Visit:

June 5–8, 2011



INTERNATIONAL
Submitted by:

Macro International Inc.,
An ICF International Company

DISCUSSION

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