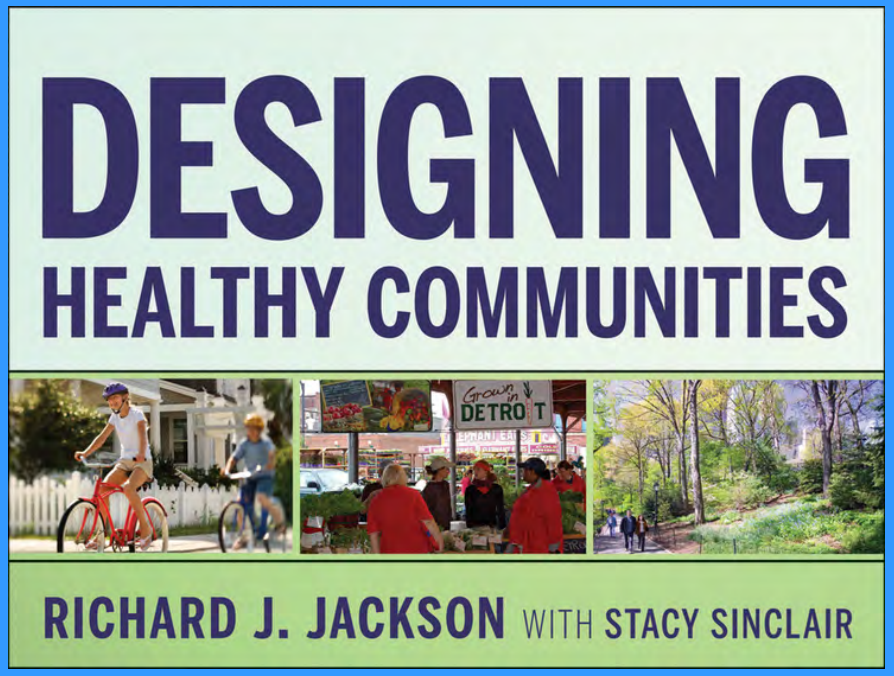


Green Infrastructure: Benefits for personal and Community Health

Tucson, 21 May 2015

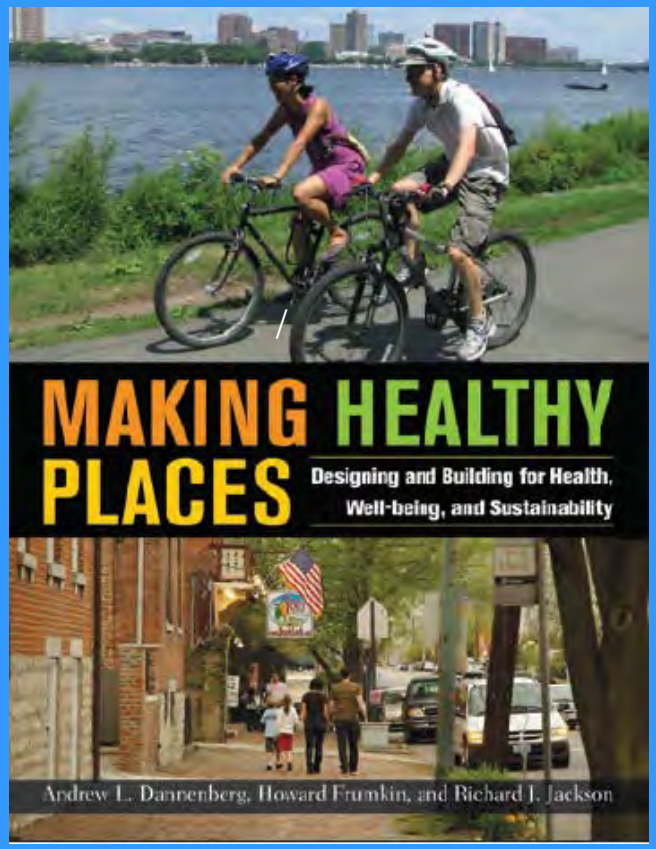
Richard J Jackson

MD MPH

HonAIA HonFASLA

dickjackson@ucla.edu

UCLA Fielding School of Public Health



Border Green Infrastructure Forum

Resiliency and competitiveness for border cities between México-United States

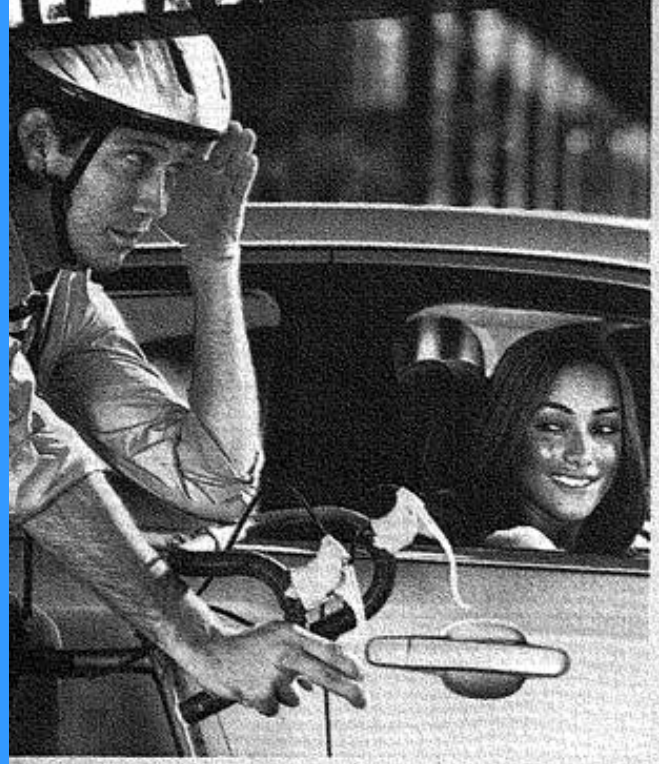
University of Arizona
Tucson, AZ

May 20 and 21, 2015

OBJECTIVE

Build capacities on local authorities, private consultants and professionals' interest in the strategies, technologies and approaches for Green Infrastructure, with the purpose of incorporating these concepts into the urban development public and private projects.

REALITY SUCKS



LUCKILY THE GM COLLEGE DISCOUNT DOESN'T.

GM COLLEGE DISCOUNT

In fact, it's the best college discount from any car company,[1] and can save you hundreds — even thousands — on an eligible, new Chevrolet,[2] Buick or GMC. If you're in college, a grad program or even a recent grad...take advantage today and get a great deal on a new ride to call your own!

2012 Chevrolet Sonic
(discount example)

Sonic 5-Door LS MSRP starting at	$ 15,395.00
MSRP of Sonic 5-Door 1LT as shown[3]	$ 16,495.00
Preferred Pricing[3]	$ 16,202.07
Your Discount	**$ 292.93**

2012 GMC Sierra 1500
(discount example)

Sierra 1500 Reg. Cab WT 2WD MSRP starting at	$ 22,940.00
MSRP of Sierra 1500 Extended Cab SLE 2WD with optional equipment as shown[3]	$ 32,840.00
Preferred Pricing[3]	$ 31,026.26
Your Discount	**$ 1,813.74**

To save even more, combine your discount with most current incentives.

Stop pedaling...start driving.
Visit gmcollegediscount.com/save

GMC

The 20th Century is So Over

It was about Big, about Quantity

Big Food, and Large Distant Food Production

USDA subsidies for farms in United States totaled $143,835,000,000 from 1995 through 2004.

Farms decline for seventh year

■ The nation's largest agricultural state continues to lose ground to housing

By Douglas Fischer
STAFF WRITER

San Joaquin County Supervisor Steve Gutierrez has a fear:

That someday all the new tract homes and malls that have sprung up in the fertile bottomlands around Stockton and Tracy will be knocked down and the concrete hauled off to get to the prime soils underneath to feed the populace.

"People laugh at me when I say this," he says.

But a new report released this week by the U.S. Department of Agriculture suggests he has a point.

California, the nation's leading farm state, lost 500 farms and 300,000 acres in 2005, much of that to urban development.

The closures represent less than 1 percent of the state's remaining 76,500 farms and by themselves won't make much of a dent in the $32 billion farmers pulled off the land in 2004, according to the state Department of Food and Agriculture.

But it represents the seventh straight year of decline in the number

Please see **FARMS,** News 11

A TRACTOR sits in front of a new development on Tracy's Chrisman Road. A new report found the state lost 500 farms and 300,000 acres of farmland in 2005.

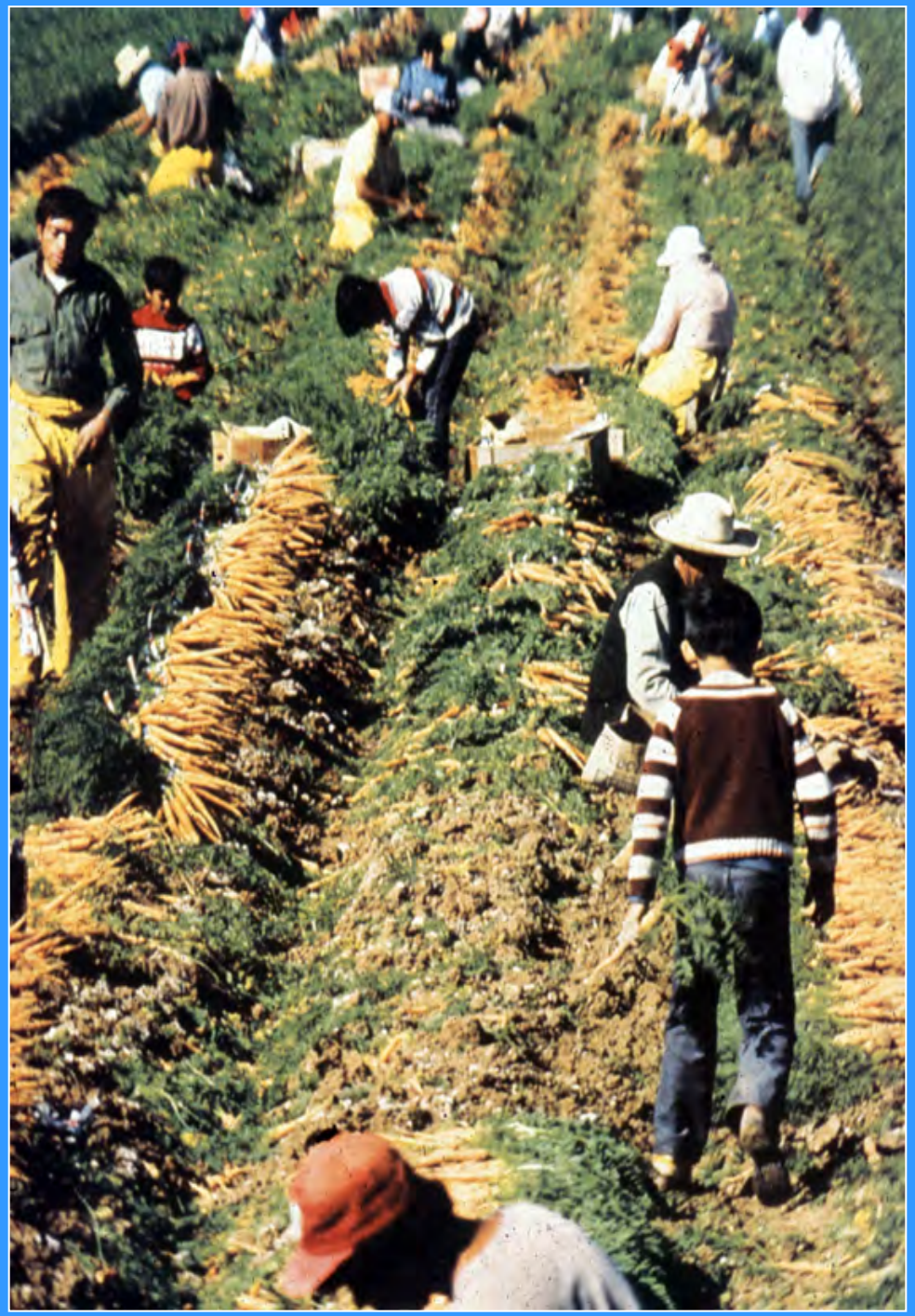
GINA HILFERTY — Staff

- "…California lost 500 farms and 300,000 acres in 2005, much of that to urban development."
- Oakland Tribune: February 4, 2006

Workers pick strawberries near Camarillo.

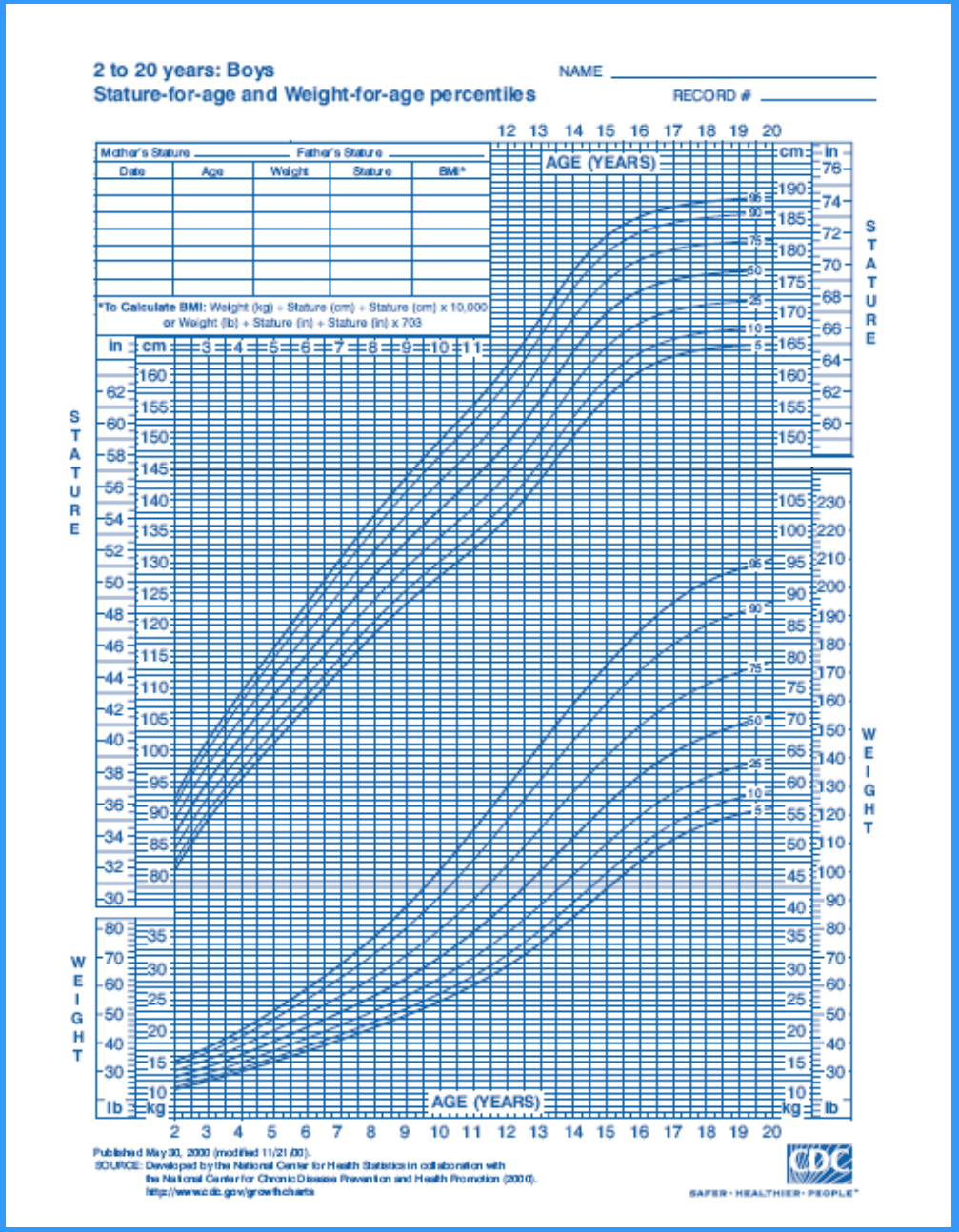
State cracks down on poisonous gases that are injected into fields.

By Marla Cone and Gregory W. Griggs, Los Angeles Times January 25, 2008



The Check Up

10 year old boy



“Problem” List

- Physical exam unremarkable
- Ht 54” (50%)
- Wt 115# (95%)
- BP 140/90
- Blood glucose elevated, urine normal
- Cholesterol 220
- Signs of Depression

Treatment Plan

- Referral to “overweight” clinic
- Weight loss program
- TV out of the bedroom; no soft drinks in the house
- Exercise program; Encourage sports

Two Months Later…

- Lost One pound
- Can’t change the food at school
- Day is already too full
- No Time for exercise; “not good at sports”
- No place to Walk

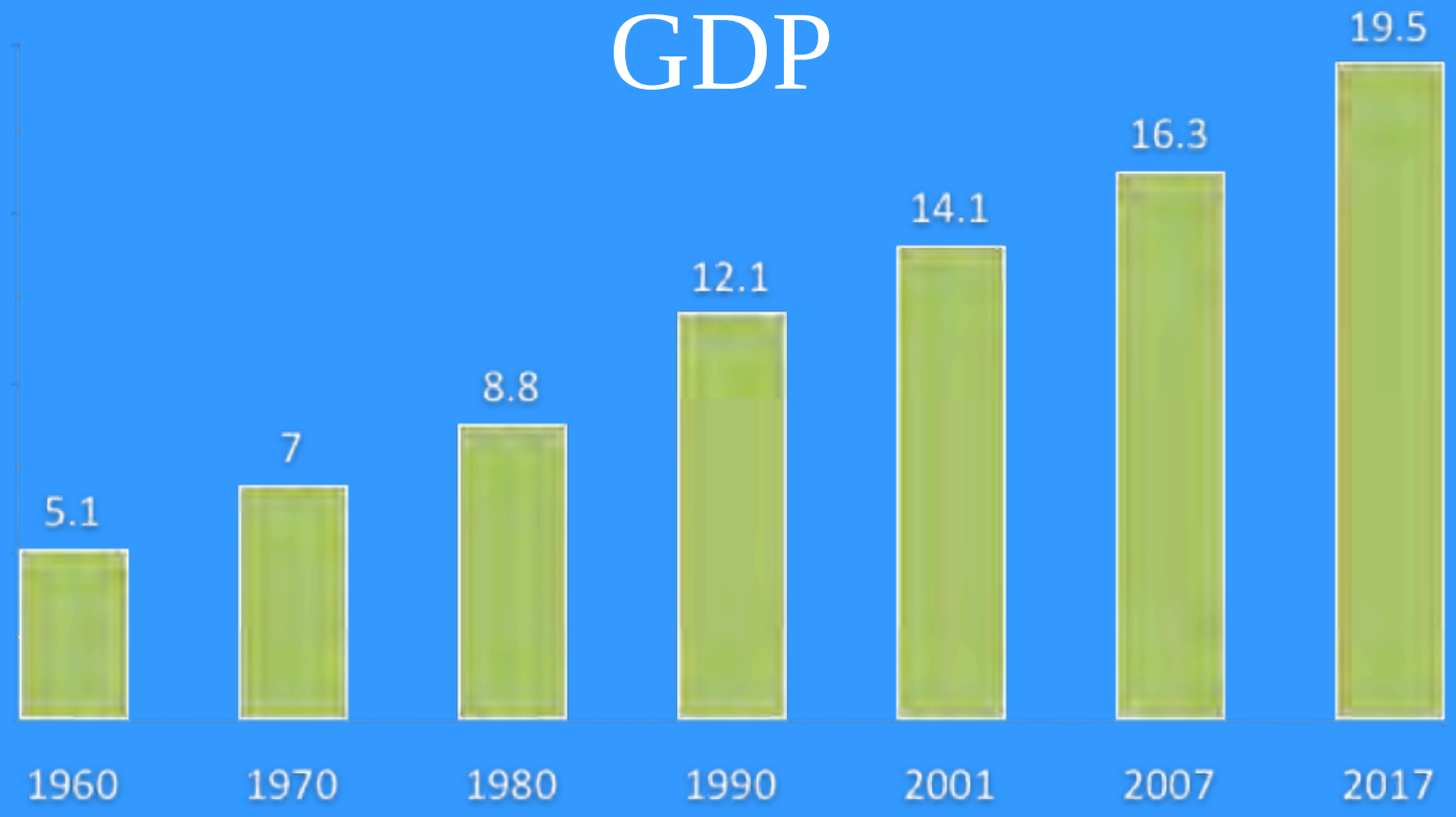
2 months later the patient is taking:

- Antihypertensive medication
- Oral Hypoglycemic agent
- Antidepressant
- Cholesterol lowering agent

- Monthly medication costs:
  - $385

- The “environment” is rigged against the child…
- And the nurse and doctor,
- And the rest of US.

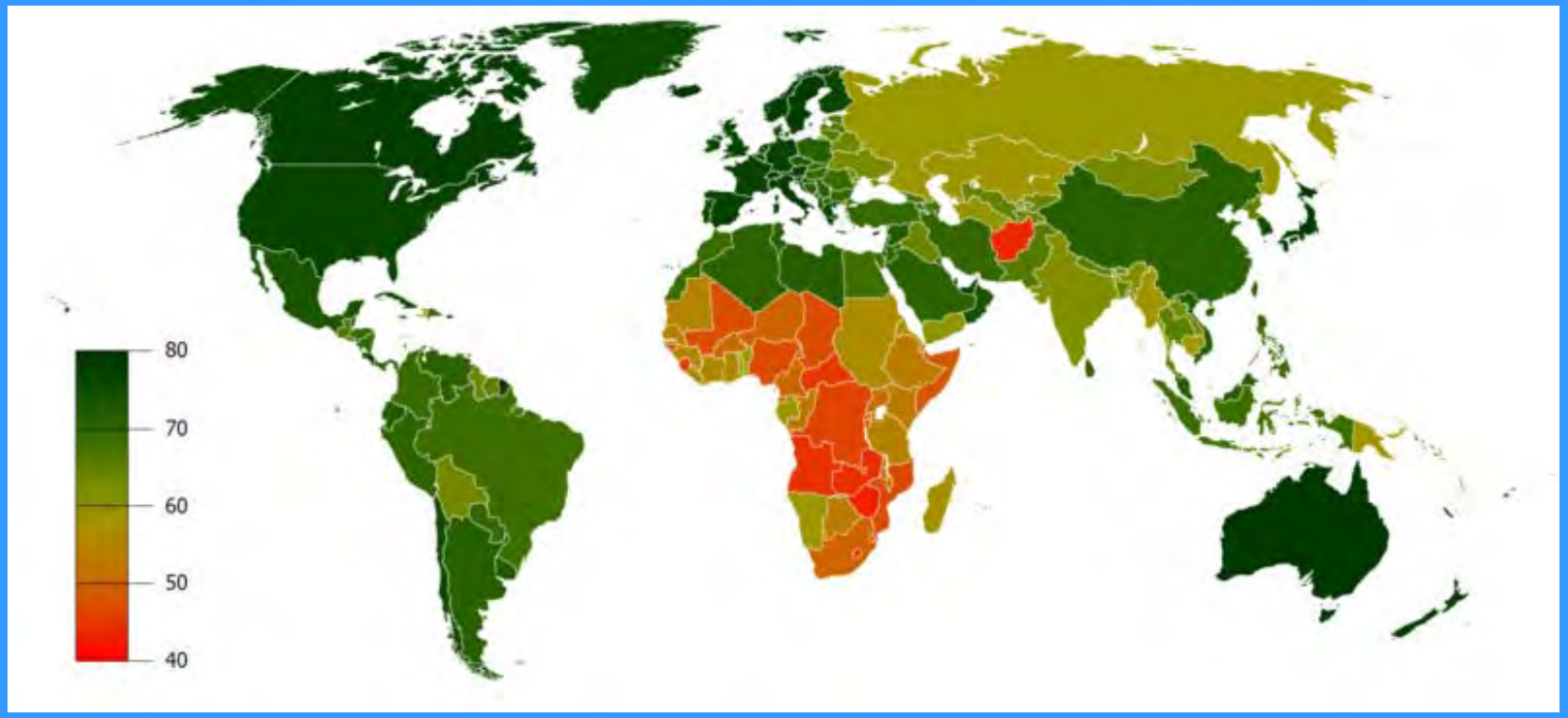
U.S. “Health” Care Expenditures as Percent of GDP



Keehan et al: *Health Affairs*
March/April 2008 27: 145-155

Life Expectancy by Country

Male



US Life Expectancy is #49 Worldwide – CIA Chartbook

- “Even under the most optimistic estimates, of the 30 years of increased life expectancy achieved between the 1890s and 1990s, only 5 years can be attributed to medical care.”

Bunker cited in *Prescription for a Healthy Nation*

Farley and Cohn 2004

CDC Headquarters - Atlanta

July 6, 1999

Disease in the 21st Century

- Diseases and costs of care for Aging Populations.
- Overweight: Diabetes II, Heart Disease
- Mental Disorders: Depression, Anxiety, Developmental, Substance Abuse
- Macro-environment: Climate, Conflict

Creating A Healthy Environment:

The Impact of the Built Environment on Public Health

"In its broadest sense, environmental health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. This includes not only the study of the direct pathological effects of various chemical, physical, and biological agents, but also the effects on health of the broad physical and social environment, which includes housing, urban development, land-use and transportation, industry, and agriculture."

—Healthy People 2010, U.S. Department of Health and Human Services[1]

Richard J. Jackson, MD, MPH
Chris Kochtitzky, MSP

Centers for Disease Control and Prevention

SPRAWL WATCH CLEARINGHOUSE MONOGRAPH SERIES

90% of Americans believe that Americans …..

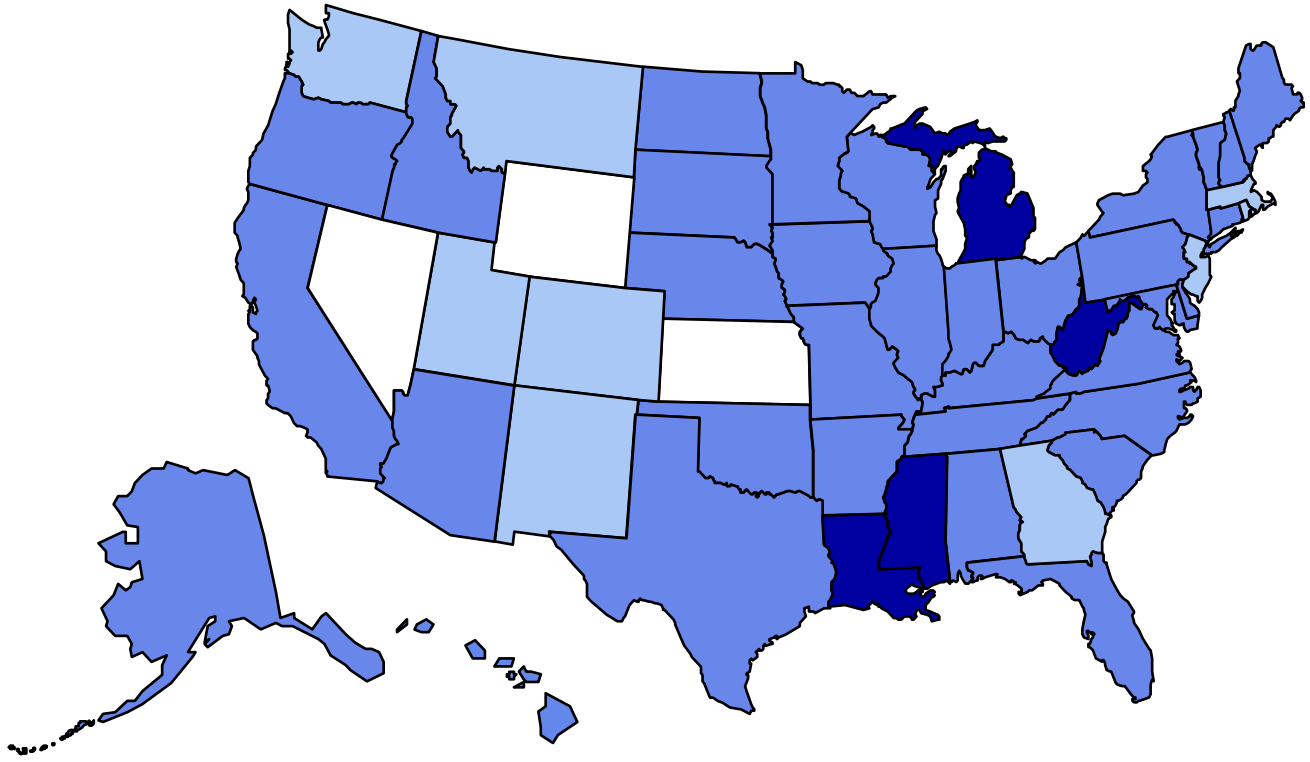
Are Too Fat

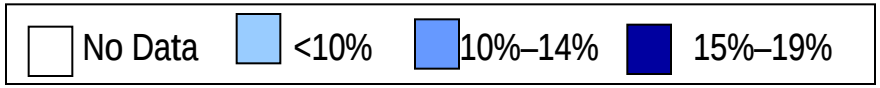
Los Angeles Times, 6/6/05

Obesity Trends* Among U.S. Adults

BRFSS, 1991

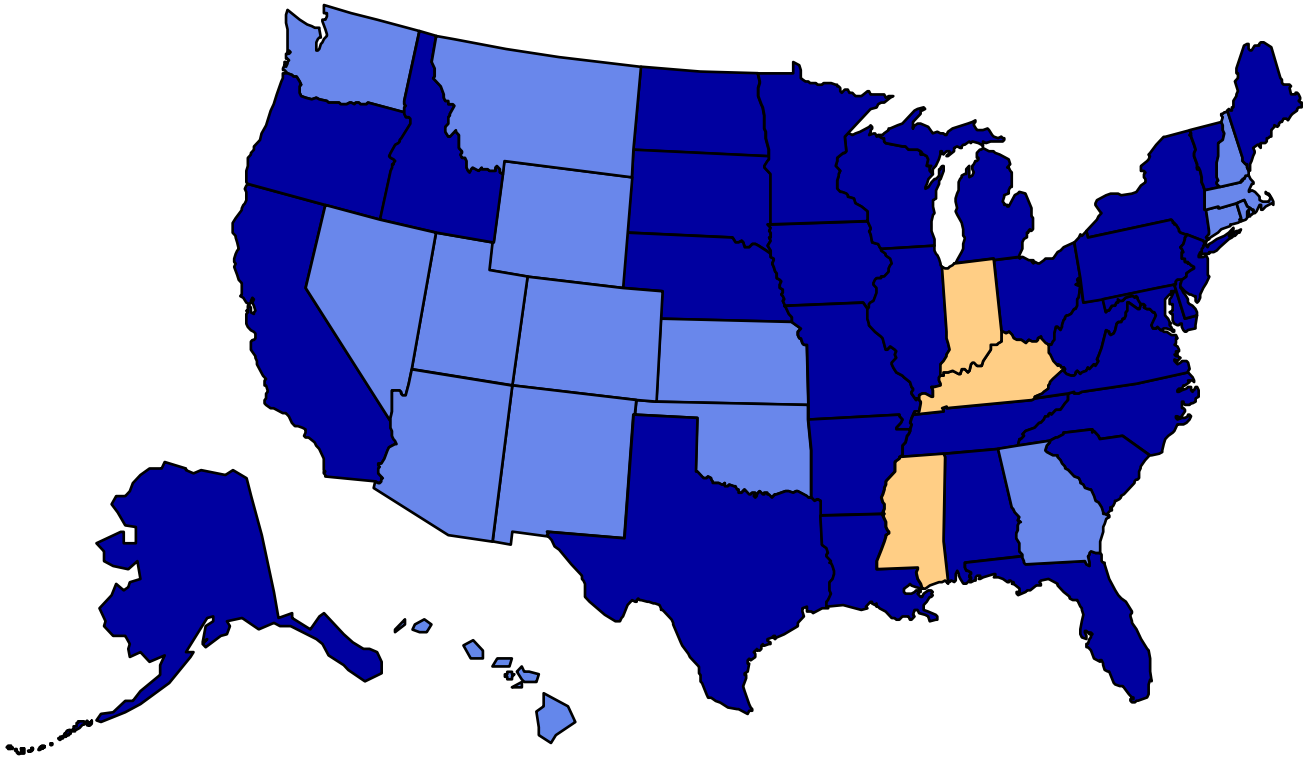
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)





Obesity Trends* Among U.S. Adults
BRFSS, 1997

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person

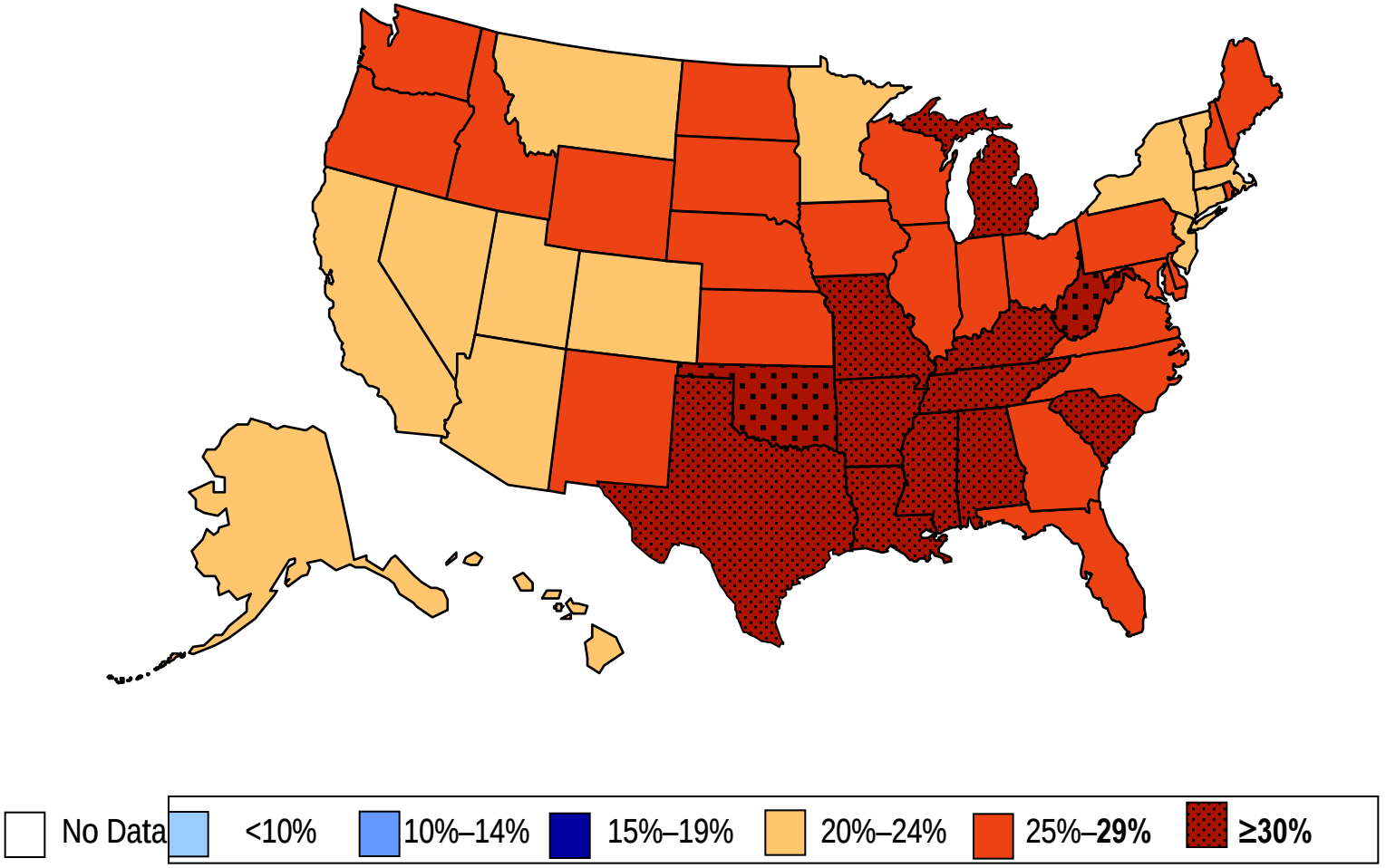


No Data | <10% | 10%–14% | 15%–19% | ≥20%

Obesity Trends* Among U.S. Adults

BRFSS, 2010

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)



Hardee's introduces new Mega-Calorie "Monster Thickburger"

- 1,420 calories
- 107 grams of fat
- 7.1 hours of moderate walking

Newsweek

TAX CUT SMACKDOWN

SAINTLY POPES

BEHIND CNBC

September 4, 2000 · $3.50

DIABE

It Strikes 16 Million Americans

Are You at Risk?

Computer drawing of a human insulin molecule

SOCIETY

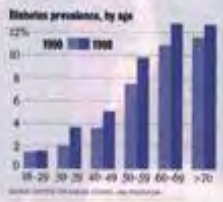
An American Epidemic

Diabetes

The silent killer: Scientific research shows a 'persistent explosion' of cases—especially among those in their prime

BY JERRY ADLER AND CLAUDIA KALB

SOMETHING TERRIBLE WAS HAPPENING TO YOLANDA BENITEZ'S eyes. They were being poisoned; the fragile capillaries of the retina attacked from within and were leaking blood. The first symptoms were red lines, appearing vertically across her field of vision; the lines multiplied and merged into a haze that shut out light entirely. "Her blood vessels inside her eye were popping," says her daughter, Jannette Roman, a Chicago college student. Benitez, who was in her late 40s when the problem began four years ago, was a cleaning woman, but she's had to stop working. After five surgeries, she has regained vision in one eye, but the other is completely useless. A few weeks ago, awakening one night in a hotel bedroom, she walked into a door, setting off a paroxysm of pain and nausea that hasn't let up yet. And what caused this catastrophe was nothing as exotic as pesticides or emerging viruses. What was poisoning Benitez was sugar.



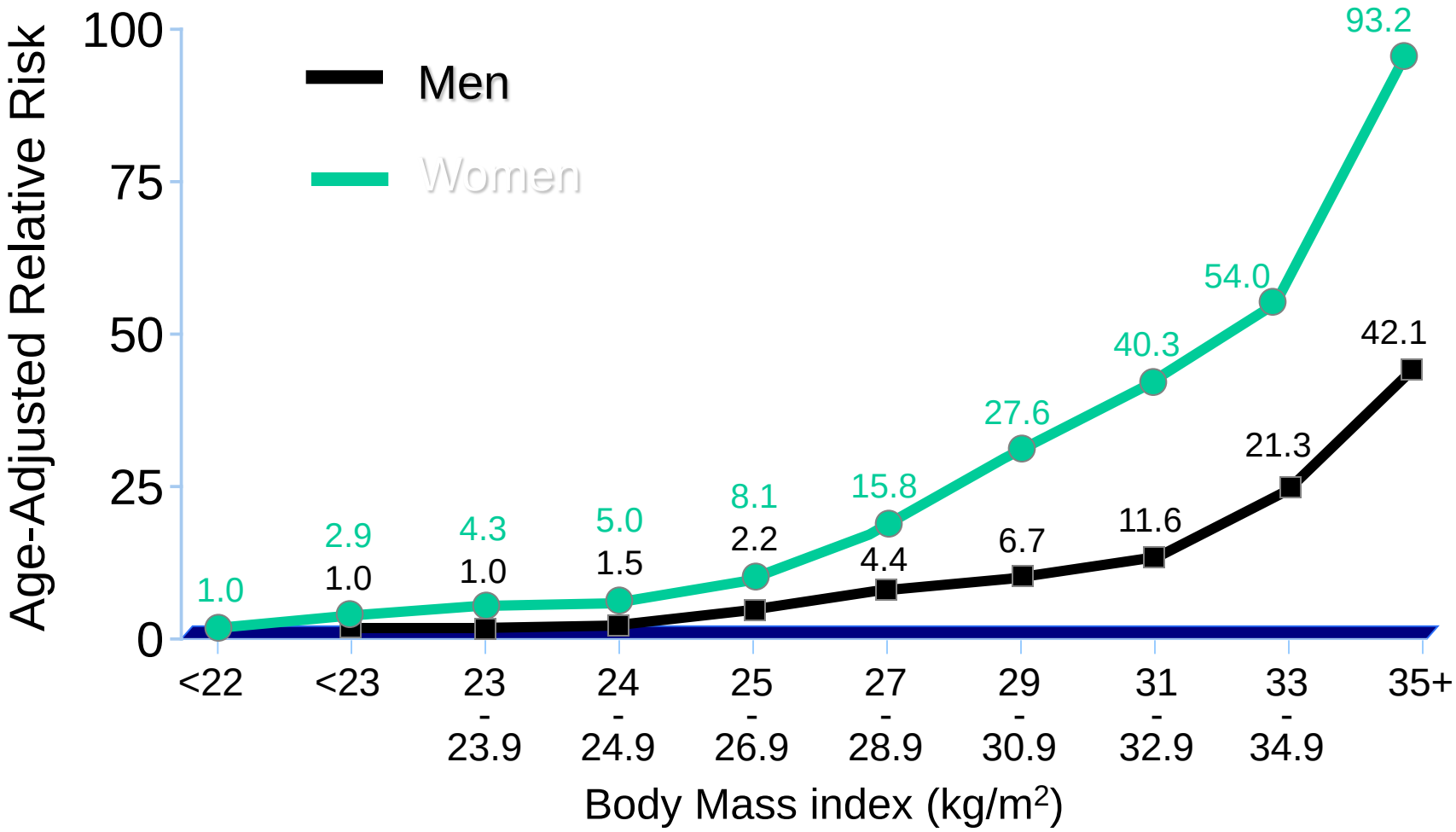
46 NEWSWEEK SEPTEMBER 4, 2000

Heredity

Genes help determine whether you'll get diabetes. In many families, multiple generations are struck. But heredity is not destiny—especially if you eat well and exercise.

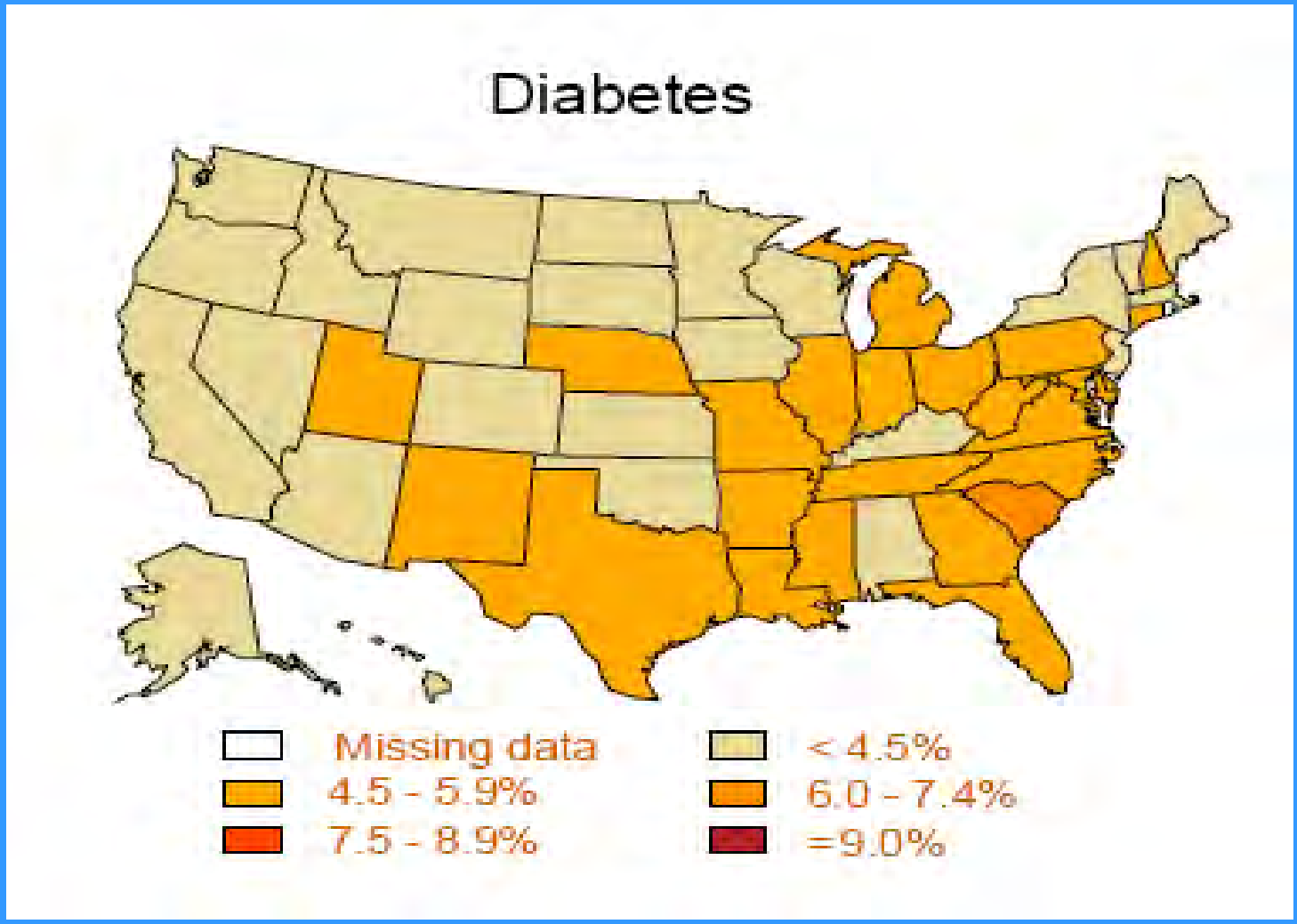
FAMILY PLAGUE: Benitez (left) and Ramon, Benitez's mother and two brothers died from complications of the disease.

Relationship Between BMI and Risk of Type 2 Diabetes

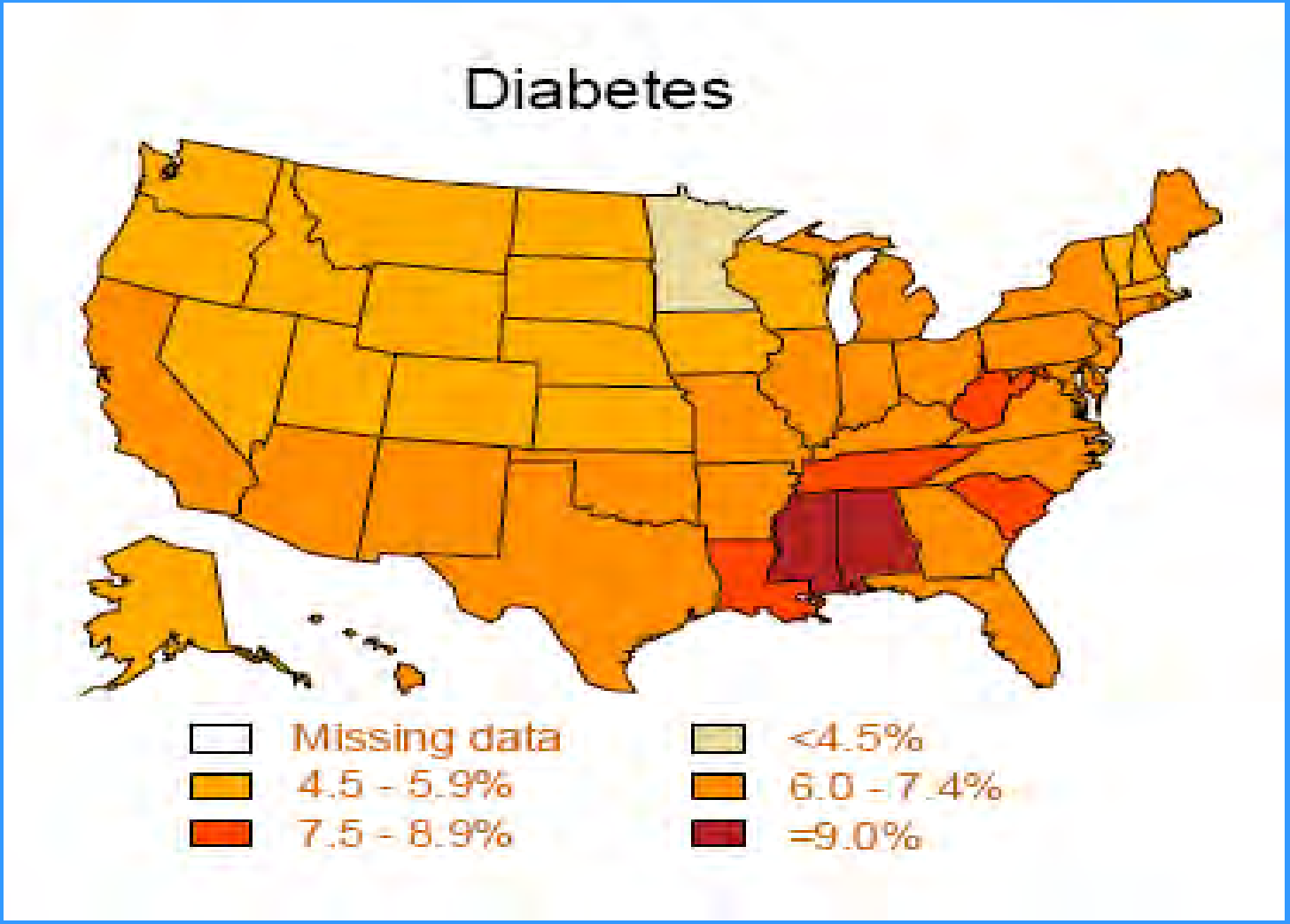


Chan J et al. *Diabetes Care* 1994;17:961.
Colditz G et al. *Ann Intern Med* 1995;122:481.

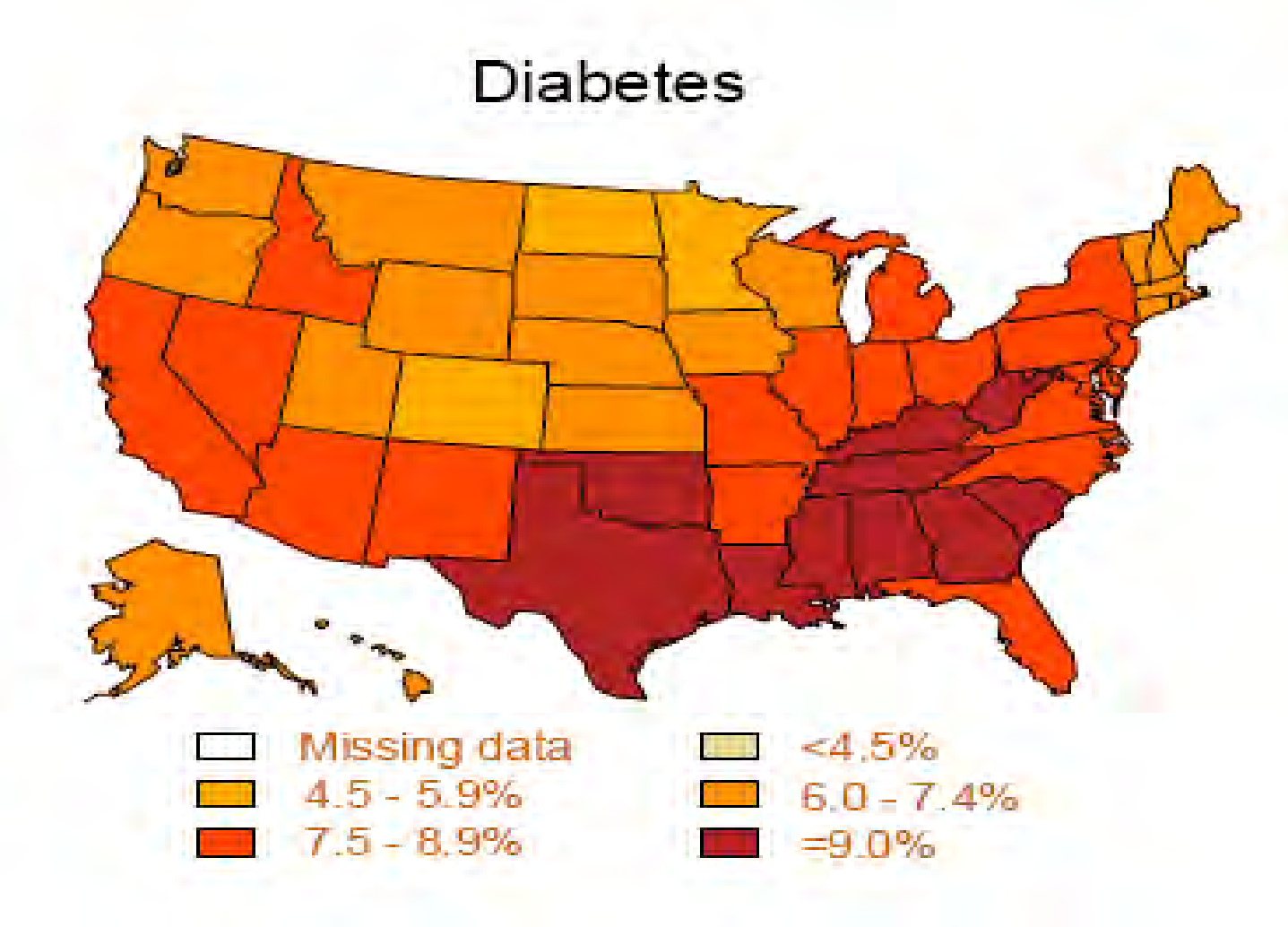
Percentage of US Adults with Diagnosed Diabetes - 1994

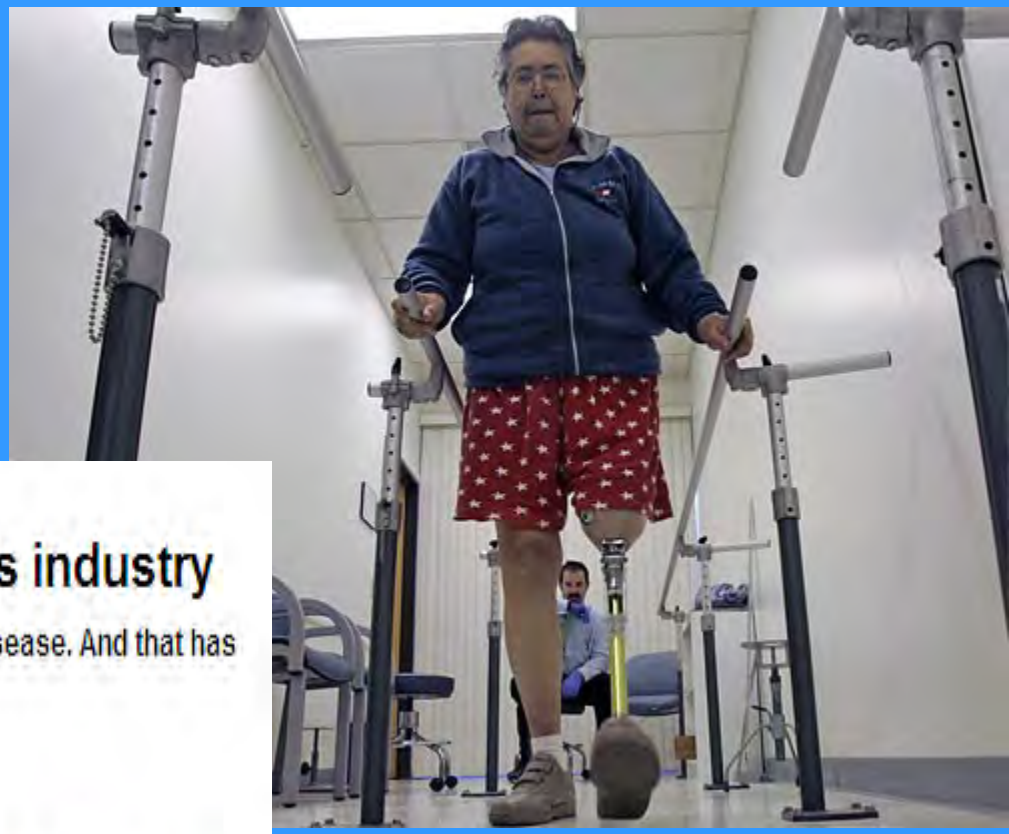


Percentage of US Adults with Diagnosed Diabetes - 2001



Percentage of US Adults with Diagnosed Diabetes - 2007





Soaring diabetes rates wake prosthetics industry

Business is booming largely because of amputations related to the disease. And that has led to advances.

By Daniel Costello, Times Staff Writer
July 4, 2007

PHOTO GALLERY
Prosthetic limbs

The waiting room in William Yule's office is full by the time he arrives each morning.

Throughout the day, Yule sees dozens of patients, bouncing between four sparsely decorated examining rooms on such a tight schedule that he often has no time for lunch.

But Yule is no doctor. He's a prosthetist who fits limbs on recent amputees, and business is booming for one reason: diabetes.

Los Angeles Times

Daniel Costello

July 4, 2007

“Supersizing” a fast-food meal – the real costs

- Paying 67 cents to supersize an order — 73% more calories for only 17% more money
- A Bargain!

University of Wisconsin-Madison, Rachel N. Close and Dale A. Schoeller

“Supersizing” a fast-food meal – the real costs

- Paying 67 cents to supersize an order — 73% more calories for 17% more money
- — adds an average of 36 grams of adipose tissue.
- The future medical costs for that “bargain” would be $6.64 for an obese man and $3.46 for an obese woman.

University of Wisconsin-Madison, Rachel N. Close and Dale A. Schoeller

BILLBOARDS VS. HEALTH: Considering the Impact of Billboards on Health *CASE STUDY: SUNSET BLVD (HOLLYWOOD)*

BILLBOARD TYPES

- ALCOHOL: 12
- ENTERTAINMENT: 26
- FOOD: 1
- PRODUCT: 16
- WEIGHTLOSS: 0
- OTHER: 10

TOTAL 65

Theresa Devine & Amy Vetal

BILLBOARDS VS. HEALTH: Considering the Impact of Billboards on Health

CASE STUDY: LA BREA HAWTHORNE)

BILLBOARD TYPES

- ALCOHOL: 17
- ENTERTAINMENT: 3
- FOOD: 4
- PRODUCT: 3
- WEIGHTLOSS: 4
- OTHER: 4

TOTAL 35

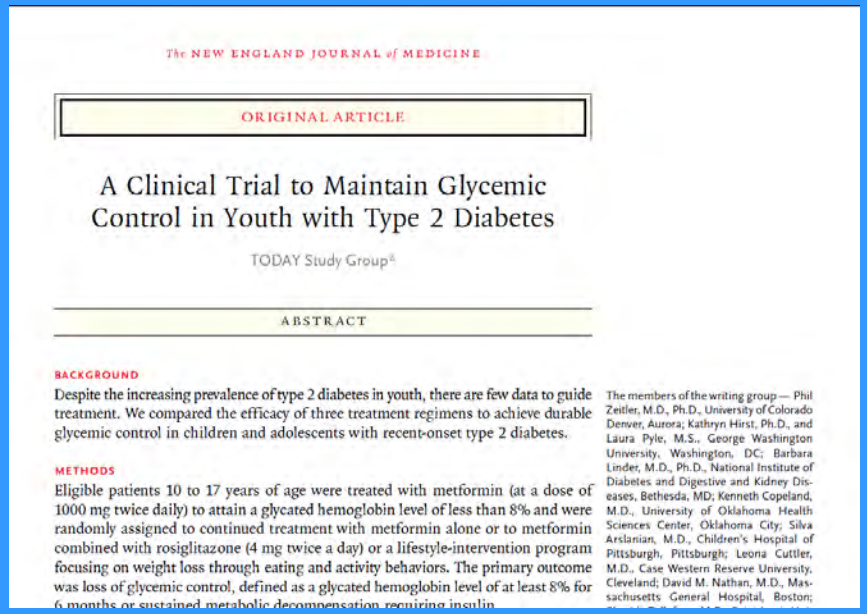
Theresa Devine & Amy Vetal

Food

High Fructose Corn Sugar

- US annual per capita consumption of HFCS
- 63 pounds

“[over 30 years in the Pediatric Diabetes Clinic] the percentage of new-onset type 2 diabetes in adolescence has increased from 3% to ~50% today”.



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

A Clinical Trial to Maintain Glycemic Control in Youth with Type 2 Diabetes

TODAY Study Group*

ABSTRACT

BACKGROUND

Despite the increasing prevalence of type 2 diabetes in youth, there are few data to guide treatment. We compared the efficacy of three treatment regimens to achieve durable glycemic control in children and adolescents with recent-onset type 2 diabetes.

METHODS

Eligible patients 10 to 17 years of age were treated with metformin (at a dose of 1000 mg twice daily) to attain a glycated hemoglobin level of less than 8% and were randomly assigned to continued treatment with metformin alone or to metformin combined with rosiglitazone (4 mg twice a day) or a lifestyle-intervention program focusing on weight loss through eating and activity behaviors. The primary outcome was loss of glycemic control, defined as a glycated hemoglobin level of at least 8% for 6 months or sustained metabolic decompensation requiring insulin

The members of the writing group — Phil Zeitler, M.D., Ph.D., University of Colorado Denver, Aurora; Kathryn Hirst, Ph.D., and Laura Pyle, M.S., George Washington University, Washington, DC; Barbara Linder, M.D., Ph.D., National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD; Kenneth Copeland, M.D., University of Oklahoma Health Sciences Center, Oklahoma City; Silva Arslanian, M.D., Children's Hospital of Pittsburgh, Pittsburgh; Leona Cuttler, M.D., Case Western Reserve University, Cleveland; David M. Nathan, M.D., Massachusetts General Hospital, Boston;

David B Allen MD

New England Journal of Medicine

April 29, 2012

"The Status of Baby Boomers' Health in the United States: The Healthiest Generation?"

JAMA Internal Medicine

February 4, 2013

RESEARCH LETTER

ONLINE FIRST

The Status of Baby Boomers' Health in the United States: The Healthiest Generation?

From 1946 through 1964, 78 million children ("baby boomers") were born in the United States. In 2010, baby boomers made up 26.1% of the US population.[1] Medicine has improved significantly during baby boomers' lifetimes. Although these advantages have led to a progressively increasing life expectancy,[2] previous studies have shown mixed results regarding whether baby boomers are healthier than prior generations.[3,4] The present study examined the health status of aging baby boomers relative to the previous generation to provide a vitally important context for health workforce and policy planning in the coming years.

Methods. We analyzed data from the National Health and Nutrition Examination Survey (NHANES), including NHANES III (1988-1994) (for previous generation) and the NHANES for 2007 to 2010 (for baby boomers). Focusing on respondents who were aged 46 to 64 years during either period. The 2 cohorts were compared with regard to health status, functional and work disability, healthy lifestyle characteristics, and presence of chronic disease. Further details of the methods can be found in the eAppendix (http://www.jamainternalmed.com).

Results. The demographic characteristics of the cohorts were very similar except for the proportions in each racial/ethnic group, with greater proportions of non-Hispanic blacks (11.3% vs 9.4%) and Hispanics (9.8% vs 3.7%) in the 2007-2010 group compared with the 1988-1994 group ($P<.001$). The mean (SD) ages were 54.1 (0.03) years in the 2007-2010 group and 54.3 (0.03) years in the 1988-1994 group; there was no difference in sex between the 2 cohorts (49.1% male [2007-2010 group] vs 47.3% male [1988-1994 group]). Overall health status was lower in baby boomers, with 13.2% reporting "excellent" health compared with 32% of individuals in the previous generation ($P<.001$). Of the sampled baby boomers, compared with the previous generation, 6.9% vs 3.3% used a walking assist device ($P<.001$), 13.8% vs 10.1% were limited in work ($P=.003$), and 13.3% vs 8.8% had a functional limitation ($P<.001$).

With regard to healthy lifestyle factors, obesity was more common among baby boomers (38.7% obese vs 29.4% [previous generation]; $P<.001$) (**Figure**), and regular exercise was significantly less frequent (33.0% vs 49.9% exercise >12 times per month; $P<.001$); more than half of baby boomers reported no regular physical activity (52.2% vs 17.4%; $P<.001$). Moderate drinking was higher in the baby boomer cohort compared with the previous generation (67.3% vs 37.2%; $P<.001$). There were fewer current smokers in the baby boomer cohort than in the previous generation (21.3% vs 27.6%; $P<.001$).

The percentage of individuals with hypertension (Figure) was more common among baby boomers than among individuals from the previous generation (43.0% vs 36.4%; $P<.001$), as was the percentage of individuals who take medication for hypertension (33.4% vs 23.2%; $P<.001$). Among baby boomers, hypercholesterolemia was more common (73.3% vs 33.8%; $P<.001$ [Figure]), and medication use for hypercholesterolemia was more than 10 times greater (25.9% vs 1.3%; $P<.001$). Baby boomers were also more likely to have diabetes (15.3% vs 12.0%; $P=.003$ [Figure]) and take medication for diabetes (11.3% vs 6.2%; $P<.001$). The slight trend toward higher prevalence of cancer in baby boomers vs the previous generation was not significant (10.6% vs 9.3%; $P=.23$). The frequency of emphysema decreased in the baby boomer generation (2.3%) relative to the previous generation (3.3%) ($P=.03$). Baby boomers were also less likely to have had a myocardial infarction (3.6%) compared with the previous generation (5.3%) ($P=.004$).

A logistic regression was conducted to control for changes in demographic characteristics (age, sex, race,

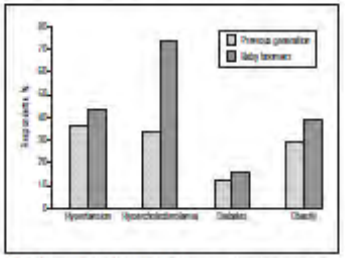


Figure. Proportion of each cohort (baby boomers and previous generation at age 46-64 years) with hypertension, hypercholesterolemia, diabetes, or obesity in the 1988-1994 and 2007-2010 NHANES. The difference between cohorts was statistically significant for prevalence of hypertension ($P<.001$), hypercholesterolemia ($P<.001$), diabetes ($P=.003$), and obesity ($P<.001$). Obesity is defined as the proportion of individuals who exceeded a body mass index of 30 (calculated as weight in kilograms divided by height in meters squared). NHANES indicates National Health and Nutrition Examination Survey.

Overall Health Status US

Persons Aged 46-64

NHANES 1988-1994	NHANES 2007-2010
Report “excellent” health	
32%	13%
Limitations to Life Functions	
9%	14%
Using Walking Assist (wheelchair, cane, etc)	
3%	7%

“Lifestyle Factors” US
Persons Aged 46-64 (NHANES)

	1988-1994	2007-2010
Smoking	28%	21%
Obesity	29%	39%

“Lifestyle Factors” US

Persons Aged 46-64 (NHANES)

1988-1994	2007-2010
No Regular Physical Activity	
17%	52%

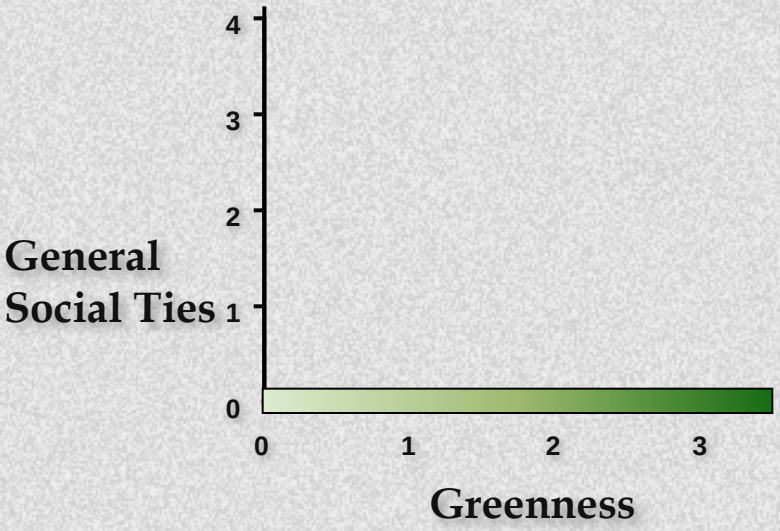
60,000 square miles

And Photosynthesis is our friend!

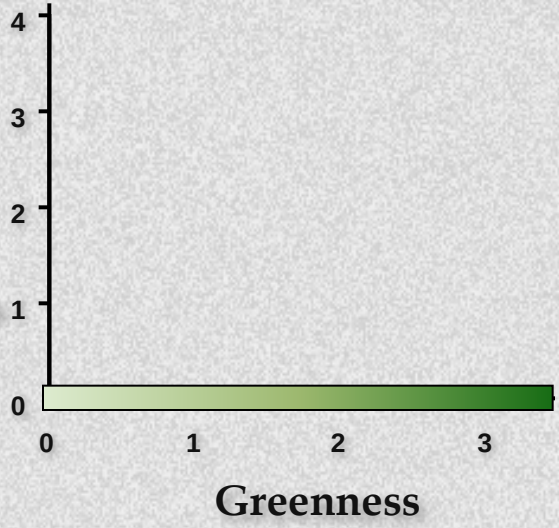
The United States has now paved over the equivalent area of the entire state of Georgia

Does Presence of Landscaping Affect Neighborhood Social Ties?

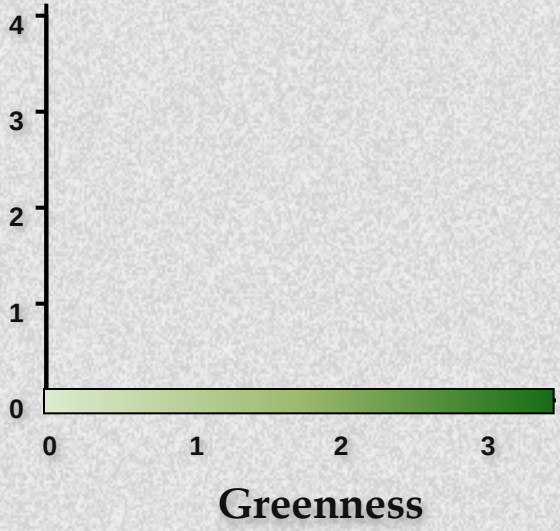
A study at Robert Taylor Homes in Chicago
by Virginia Kuo and William Sullivan


4
3
2
General
Social Ties
1
0
0
1
2
3
Greenness

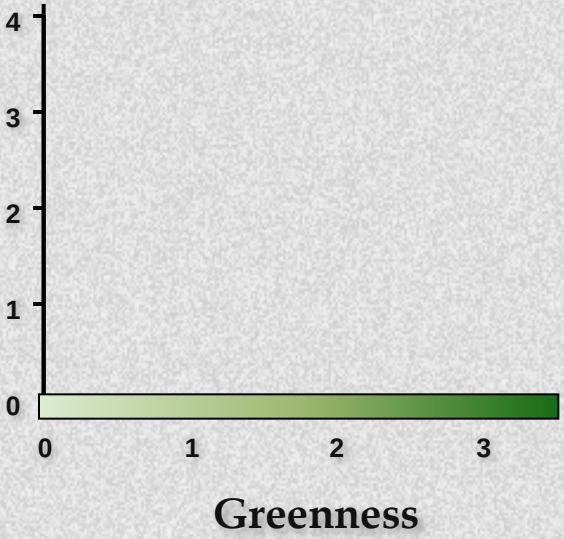
General Social Ties



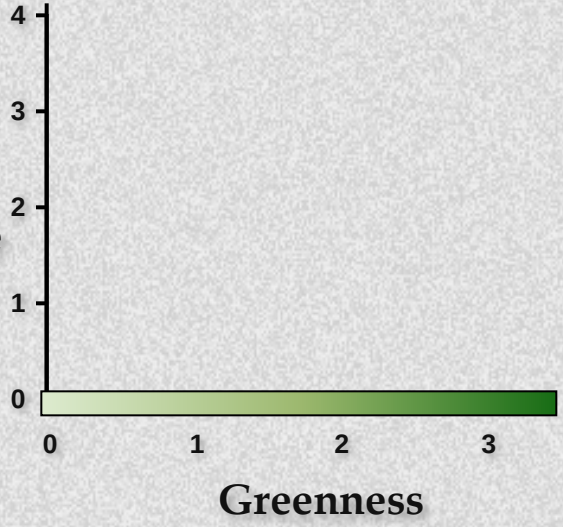
Socializing at Taylor



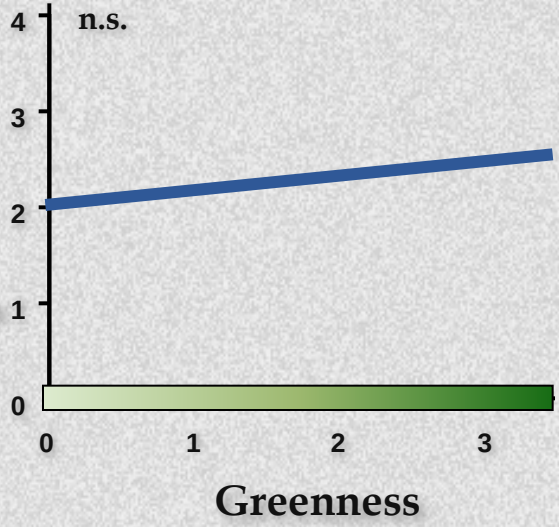
Nearby Neighbors



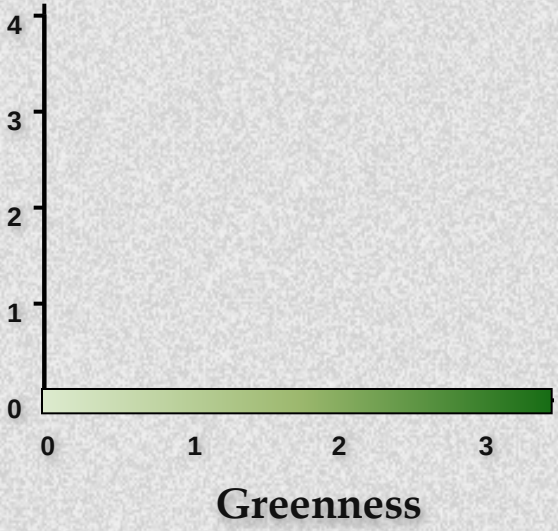
Local Sense of Comm.



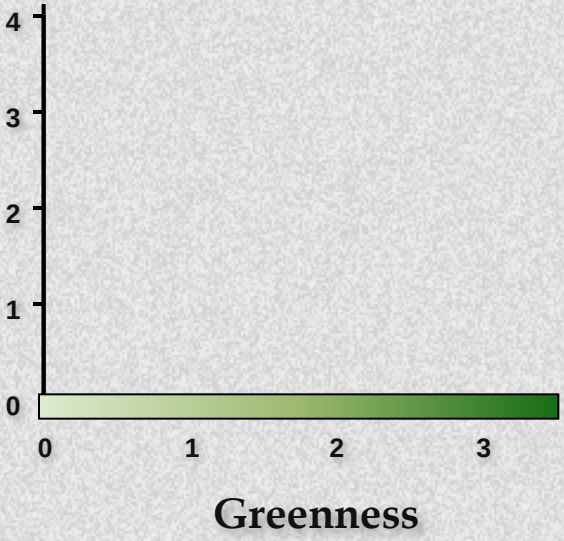
General Social Ties



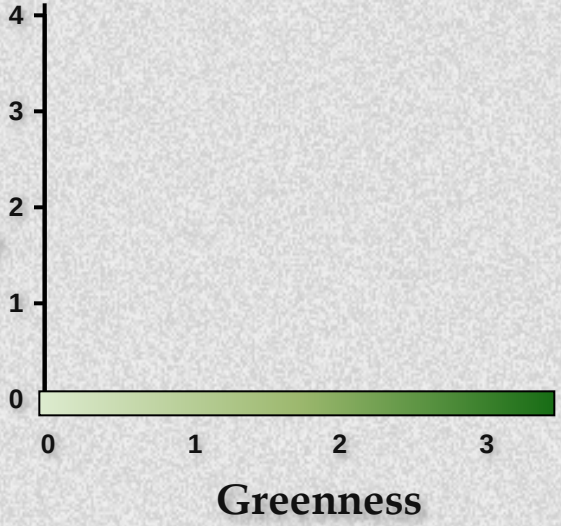
Socializing at Taylor



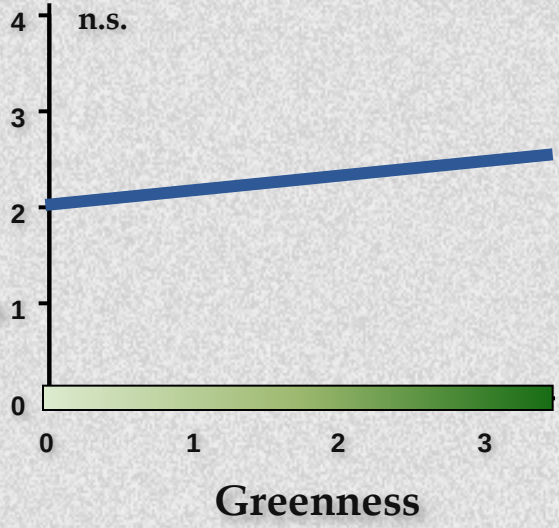
Nearby Neighbors



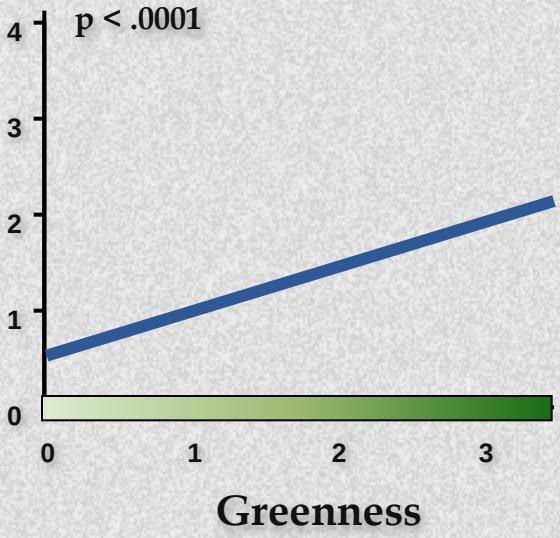
Local Sense of Comm.



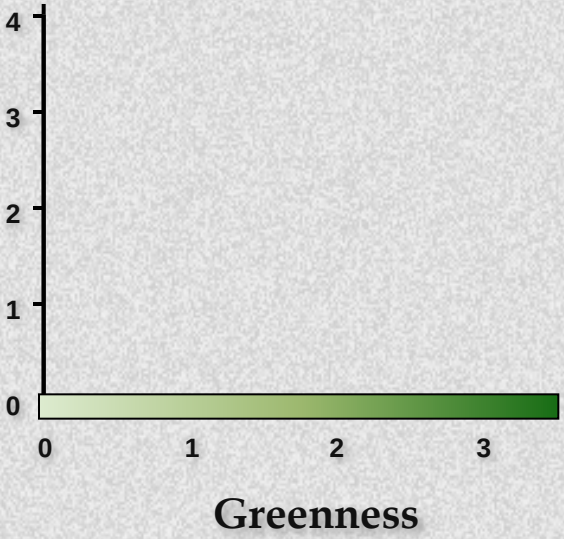
General Social Ties



Socializing at Taylor



Nearby Neighbors



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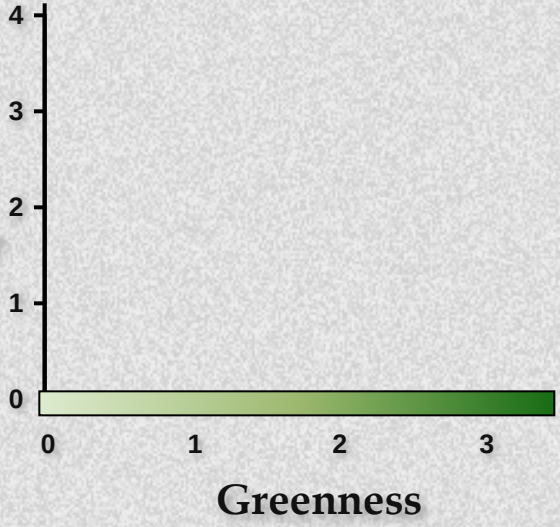
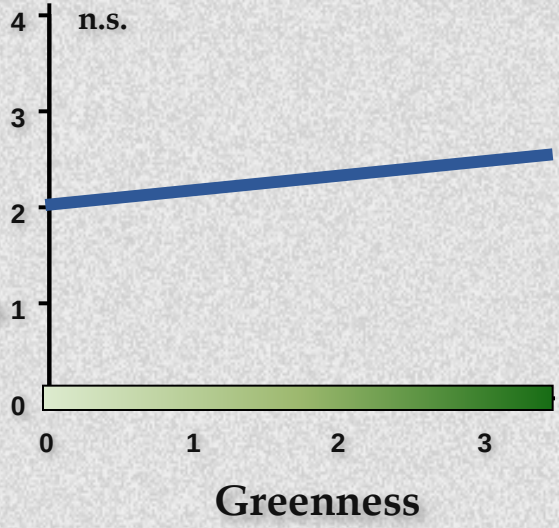
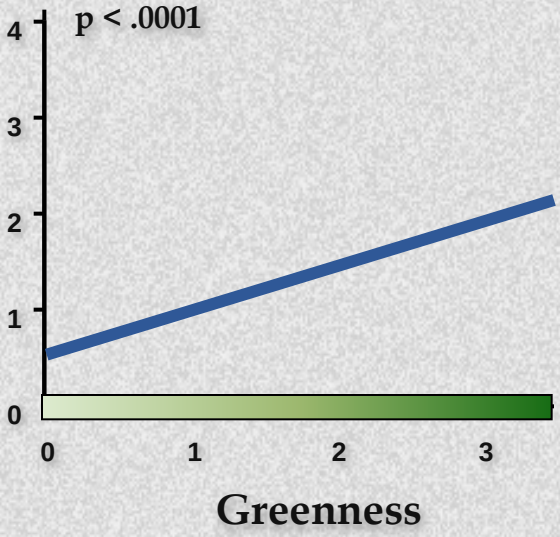


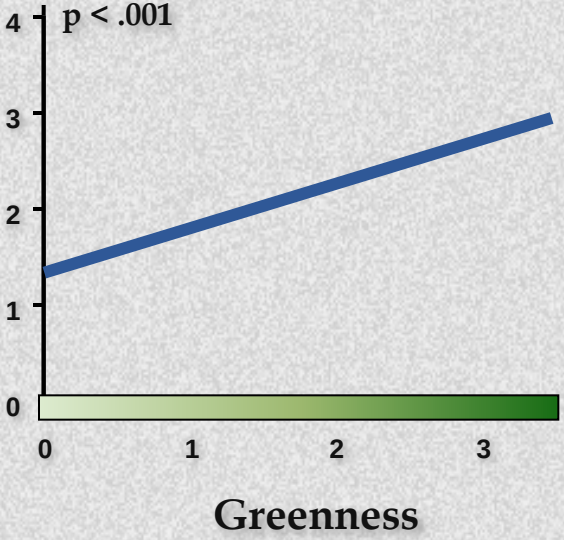
General Social Ties



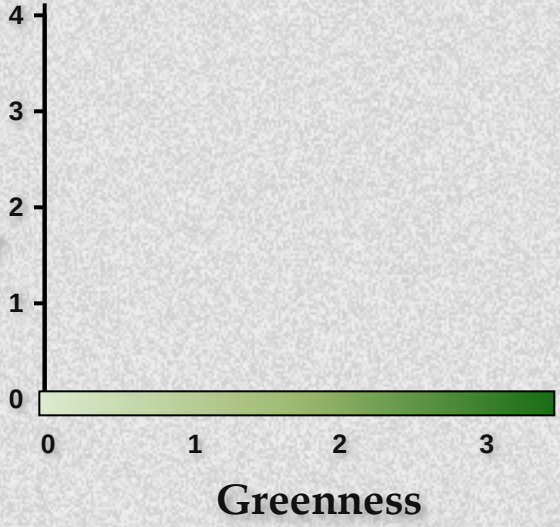
Socializing at Taylor



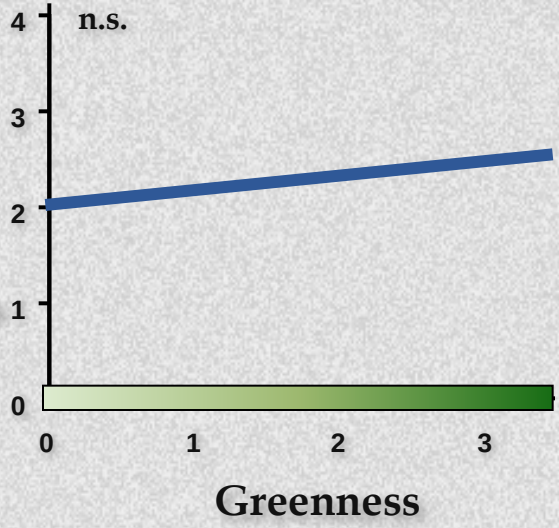
Nearby Neighbors



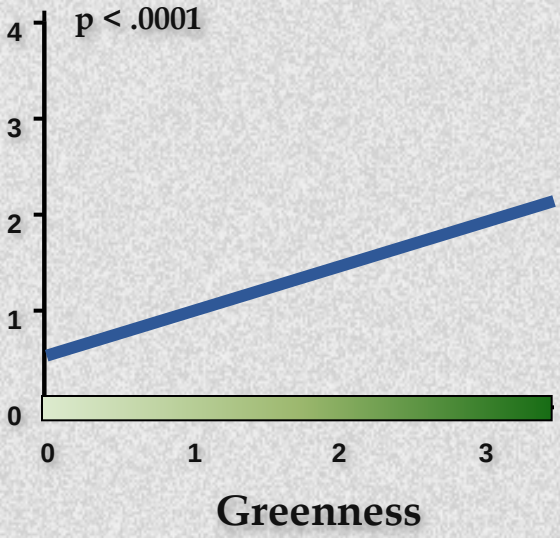
Local Sense of Comm.



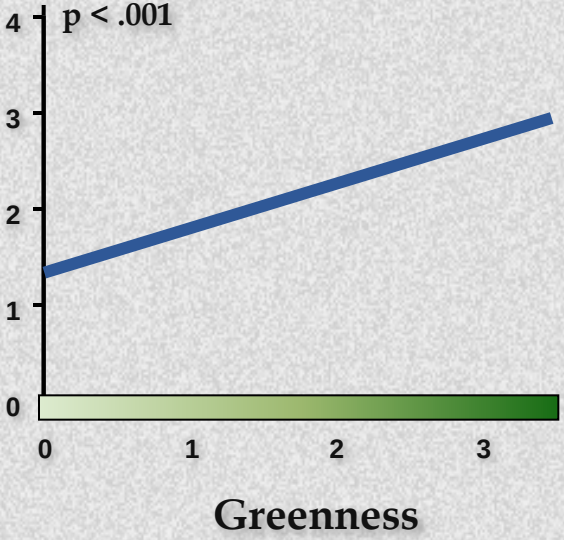
General Social Ties



Socializing at Taylor



Nearby Neighbors



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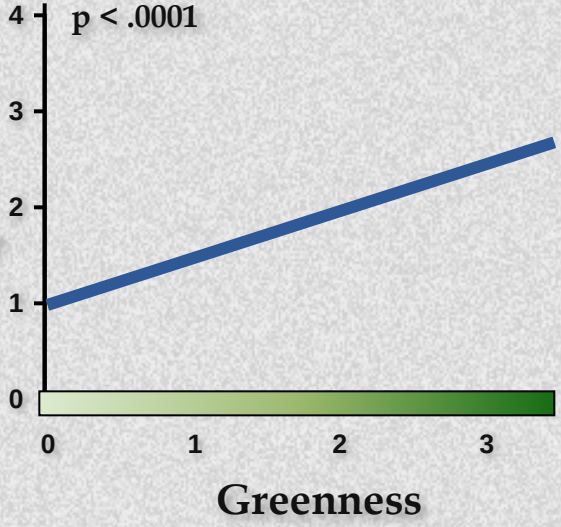
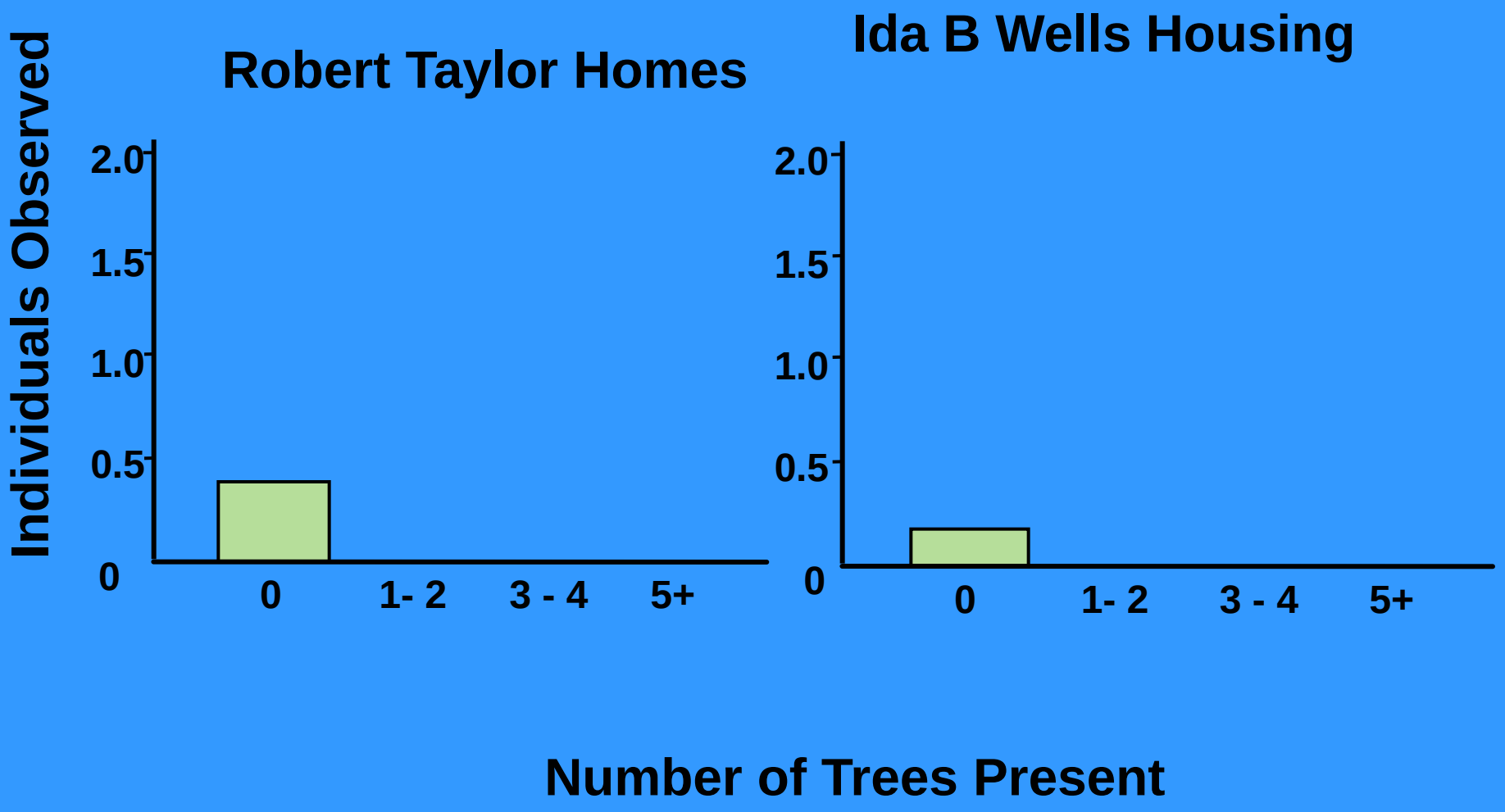


Trees & Crime

Do Trees Attract People?

Two Housing Projects in Chicago

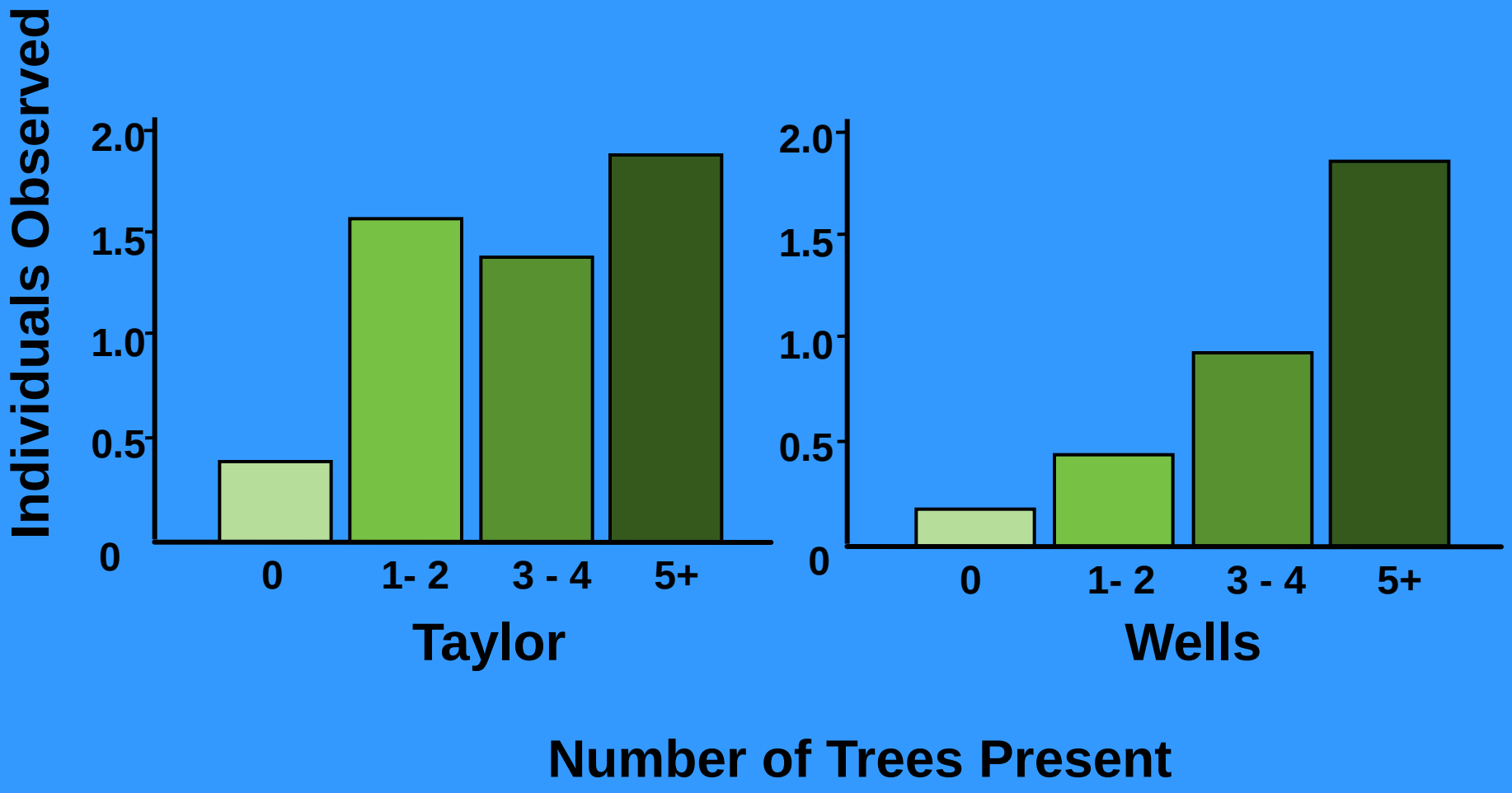
Coley, Kuo, & Sullivan (1997)




FedEx

As Trees Increase, So do people

Coley, Kuo, & Sullivan (1997)

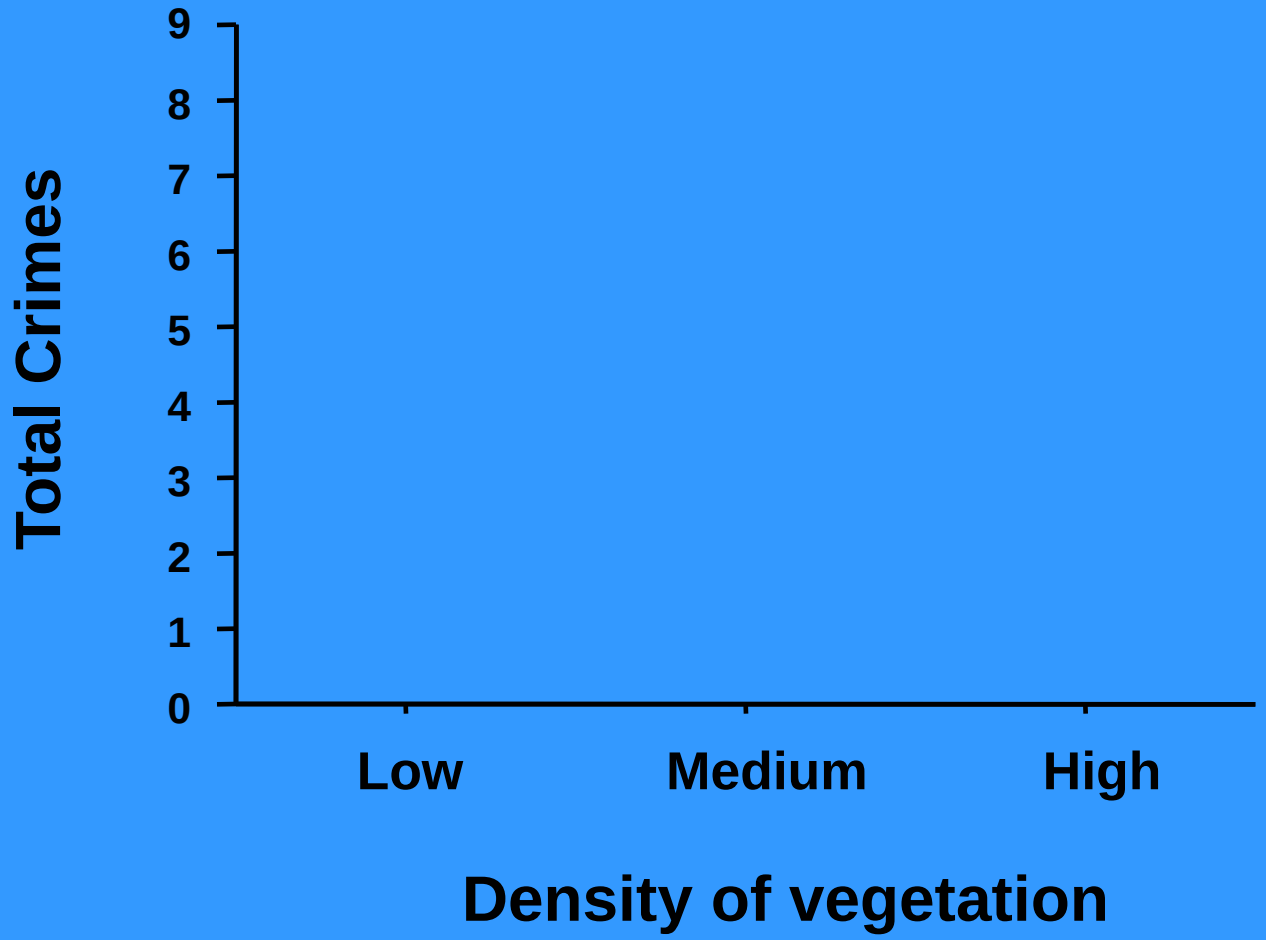


Trees & Crime

An archival study

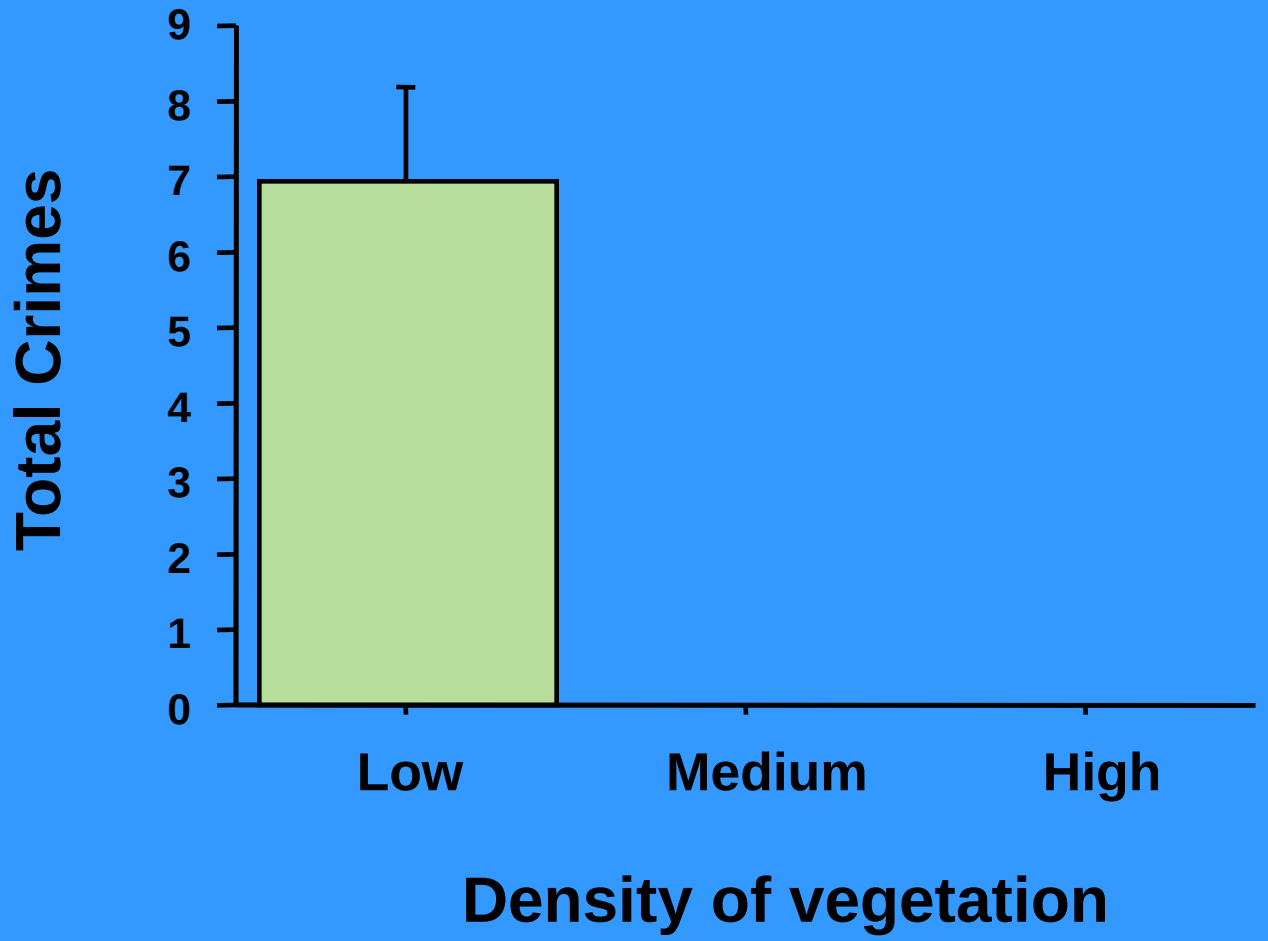
- 98 buildings
- Measure vegetation
- FBI Part I crime statistics

Trees & Crime



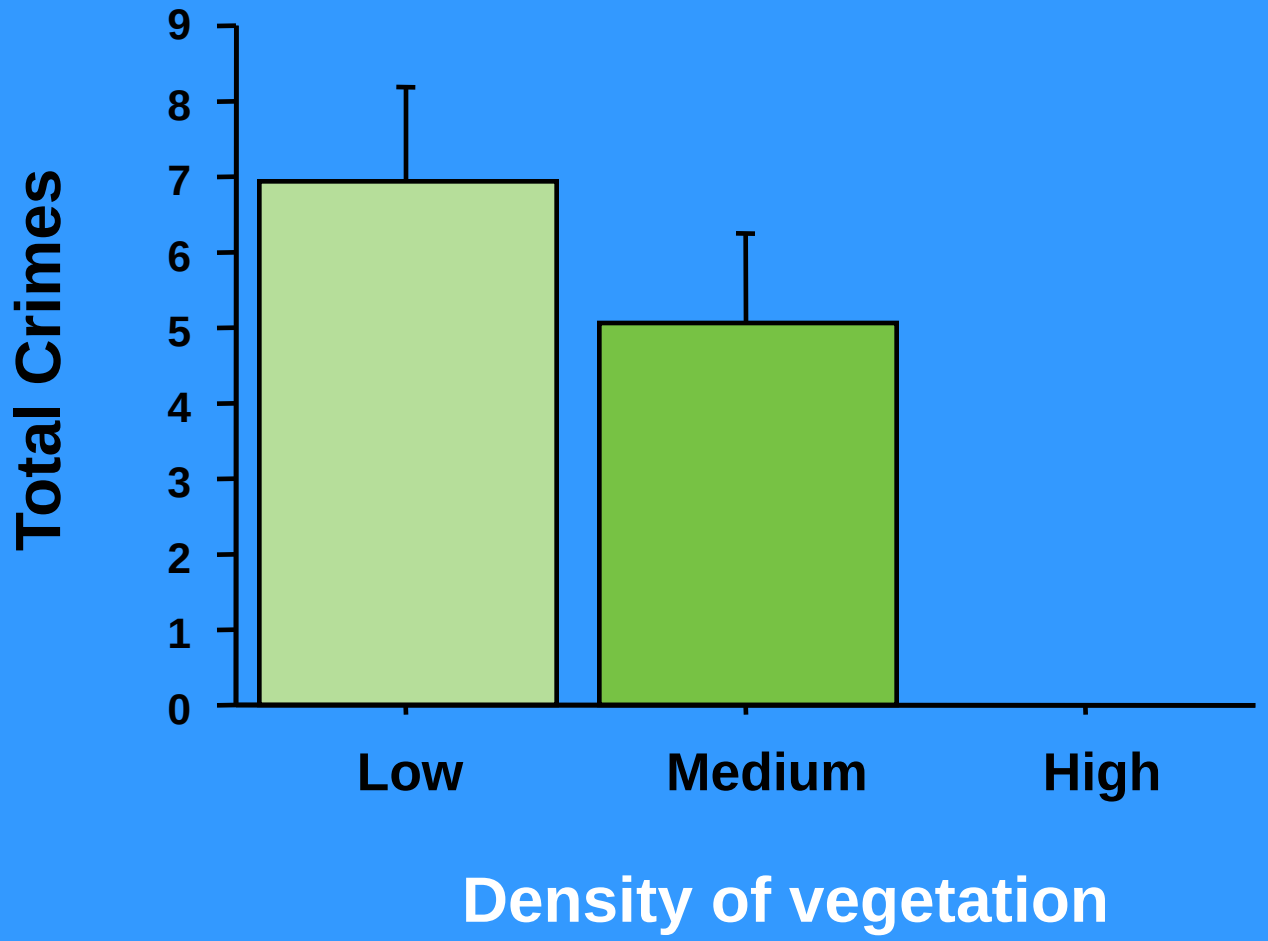
Kuo & Sullivan, 2001b

Trees & Crime



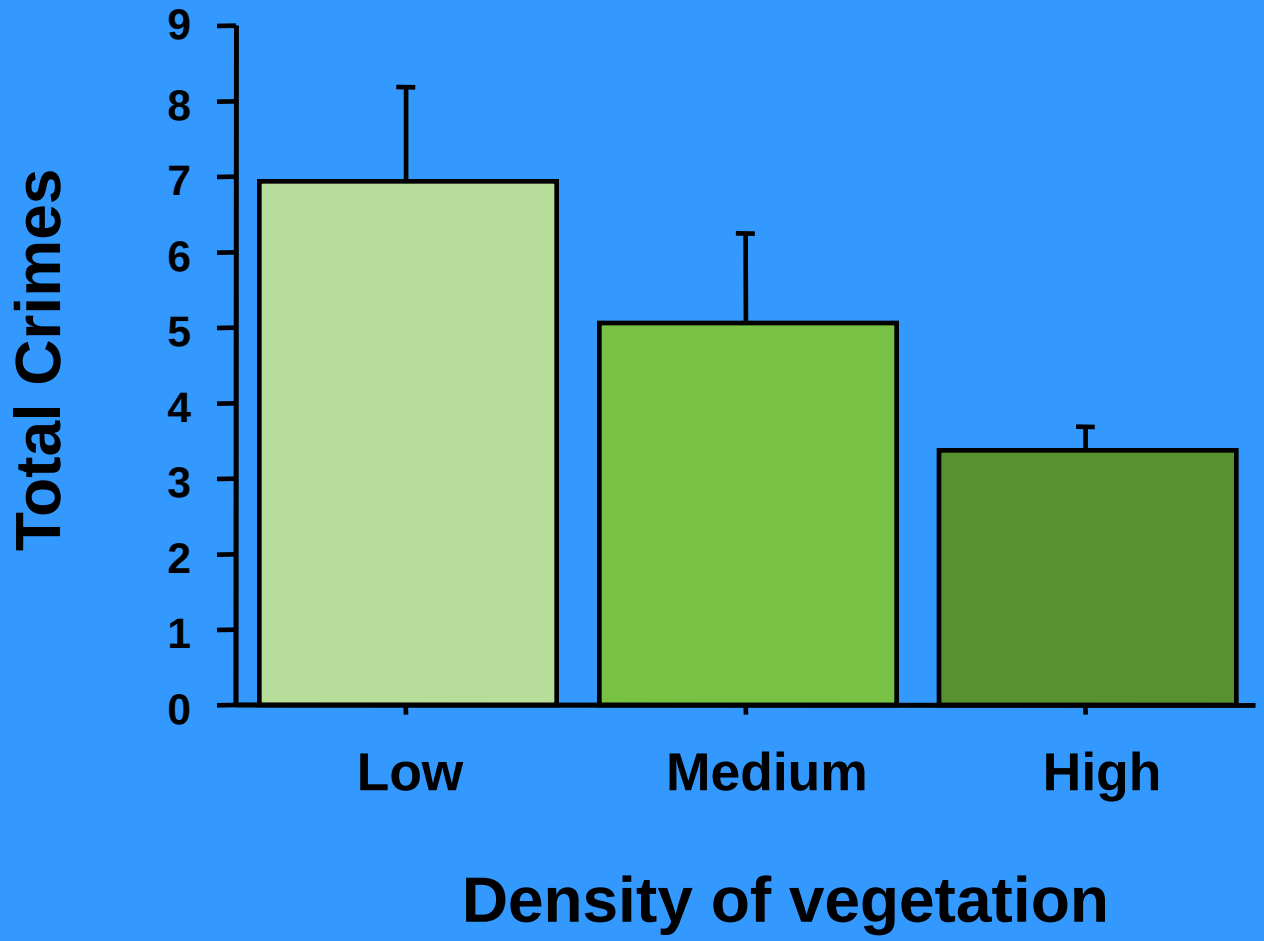
Kuo & Sullivan, 2001b

Trees & Crime

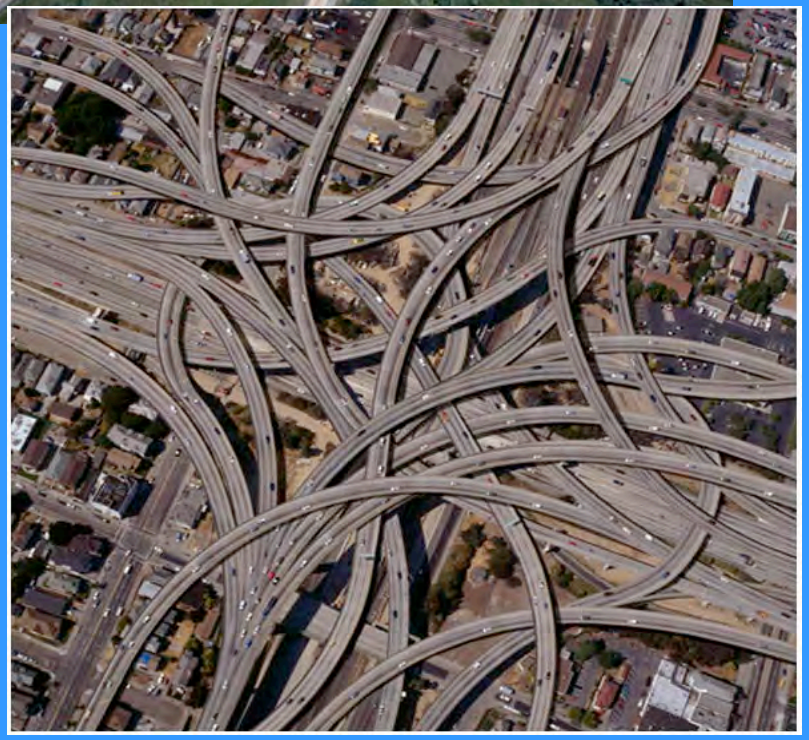


Kuo & Sullivan, 2001b

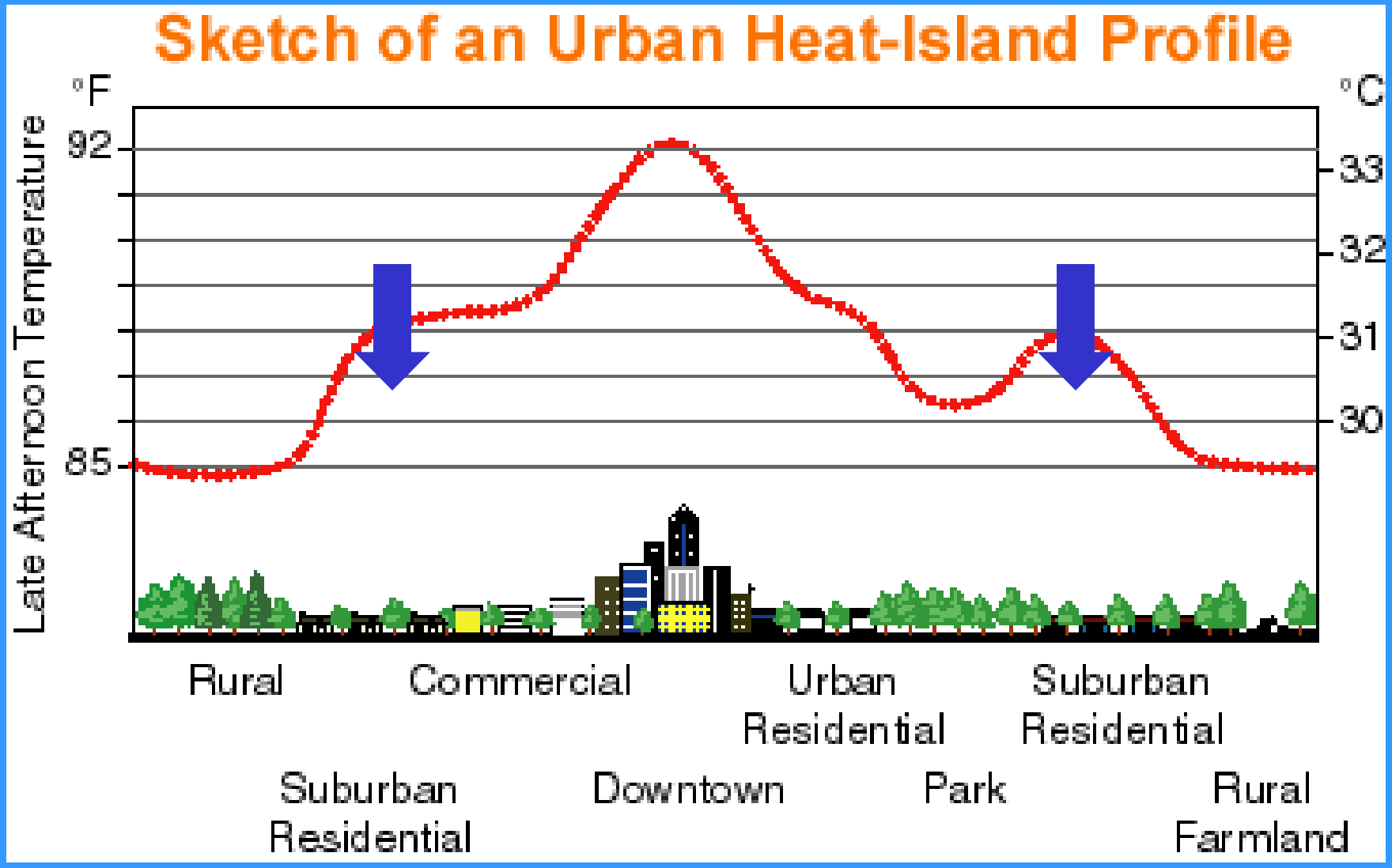
Trees & Crime



Kuo & Sullivan, 2001b

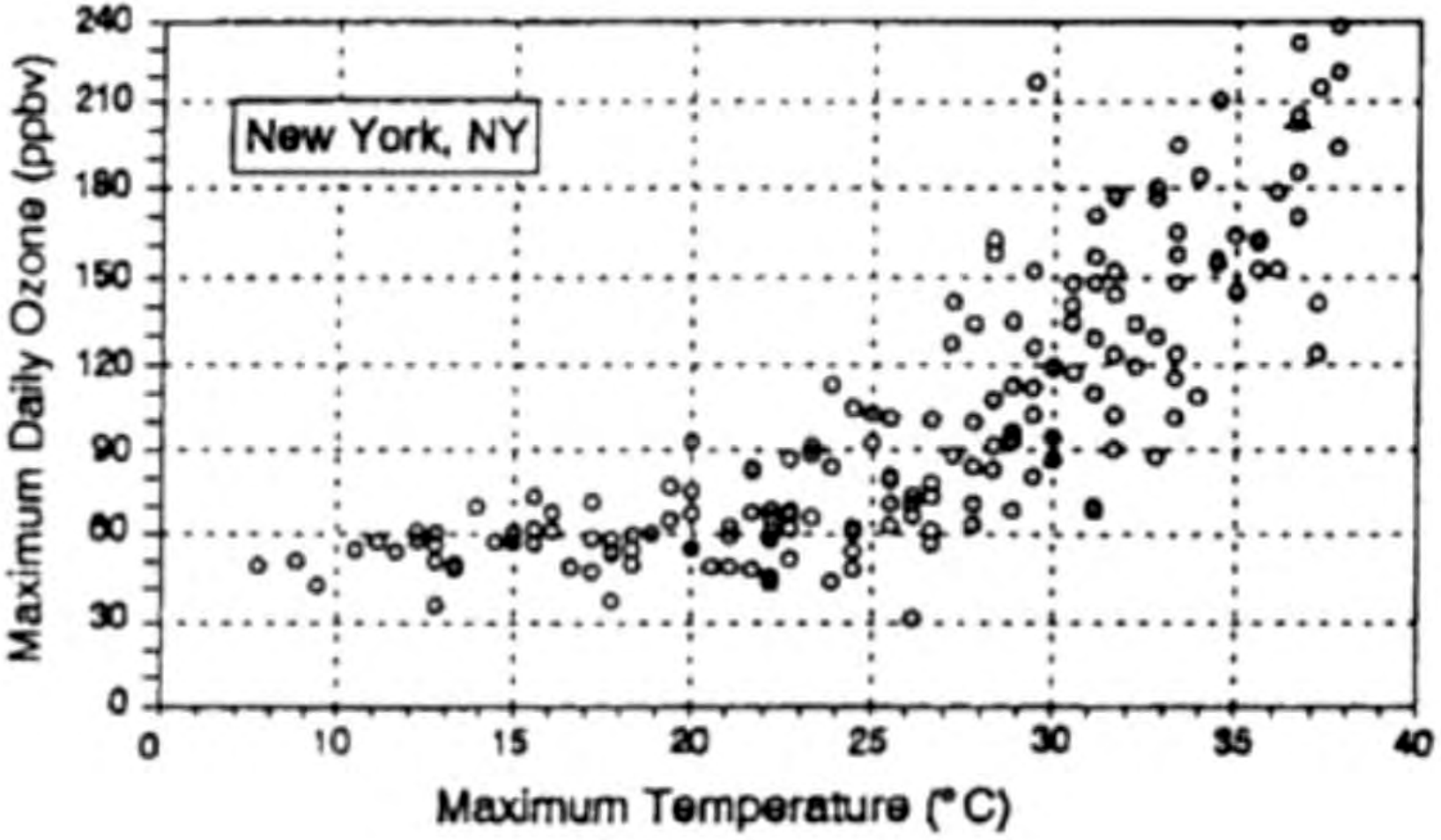


The Heat Island



Maximum Daily Ozone Concentrations

and Maximum Daily Temperature



Asthma outbreak hits kids

RISKS OF THE 'RED ZONE'

JENNI GIRTMAN / Staff

Asthma sufferer Tyrone Johnson, 2, breathes fresh air Friday as his aunt Susan Thomas tends him at Atlanta's Hughes Spalding Children's Hospital. Sky-high smog readings in metro Atlanta have produced a flare-up of asthma cases, especially among children.

The Atlanta Journal-Constitution SATURDAY, AUG. 19, 2000

ORIGINAL CONTRIBUTION

Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma

Michael S. Friedman, MD
Kenneth E. Powell, MD, MPH
Lori Hutwagner, MS
LeRoy M. Graham, MD
W. Gerald Teague, MD

Context Vehicle exhaust is a major source of ozone and other air pollutants. Although high ground-level ozone pollution is associated with transient increases in asthma morbidity, the impact of citywide transportation changes on air quality and childhood asthma has not been studied. The alternative transportation strategy implemented during the 1996 Summer Olympic Games in Atlanta, Ga, provided such an opportunity.

Objective To describe traffic changes in Atlanta, Ga, during the 1996 Summer Olympic Games and concomitant changes in air quality and childhood asthma events.

Design Ecological study comparing the 17 days of the Olympic Games (July 19–August 4, 1996) to a baseline period consisting of the 4 weeks before and 4 weeks after the Olympic Games.

Setting and Subjects Children aged 1 to 16 years who resided in the 5 central counties of metropolitan Atlanta and whose data were captured in 1 of 4 databases.

Main Outcome Measures Citywide acute care visits and hospitalizations for asthma (asthma events) and nonasthma events, concentrations of major air pollutants, meteorological variables, and traffic counts.

Results During the Olympic Games, the number of asthma acute care events decreased 41.6% (4.23 vs 2.47 daily events) in the Georgia Medicaid claims file, 44.1% (1.36 vs 0.76 daily events) in a health maintenance organization database, 11.1% (4.77 vs 4.24 daily events) in 2 pediatric emergency departments, and 19.1% (2.04 vs 1.65 daily hospitalizations) in the Georgia Hospital Discharge Database. The number of nonasthma acute care events in the 4 databases changed −3.1%, +1.3%, −2.1%, and +1.0%, respectively. In multivariate regression analysis, only the reduction in asthma events recorded in the Medicaid database was significant (relative risk, 0.48; 95% confidence interval, 0.44-0.86). Peak daily ozone concentrations decreased 27.9%, from 81.3 ppb during the baseline period to 58.6 ppb during the Olympic Games ($P<.001$). Peak weekday morning traffic counts dropped 22.5% ($P<.001$). Traffic counts were significantly correlated with that day's peak ozone concentration (average $r=0.36$ for all 4 roads examined). Meteorological conditions during the Olympic Games did not differ substantially from the baseline period.

Conclusions Efforts to reduce downtown traffic congestion in Atlanta during the Olympic Games resulted in decreased traffic density, especially during the critical morning period. This was associated with a prolonged reduction in ozone pollution and significantly lower rates of childhood asthma events. These data provide support for efforts to reduce air pollution and improve health via reductions in motor vehicle traffic.

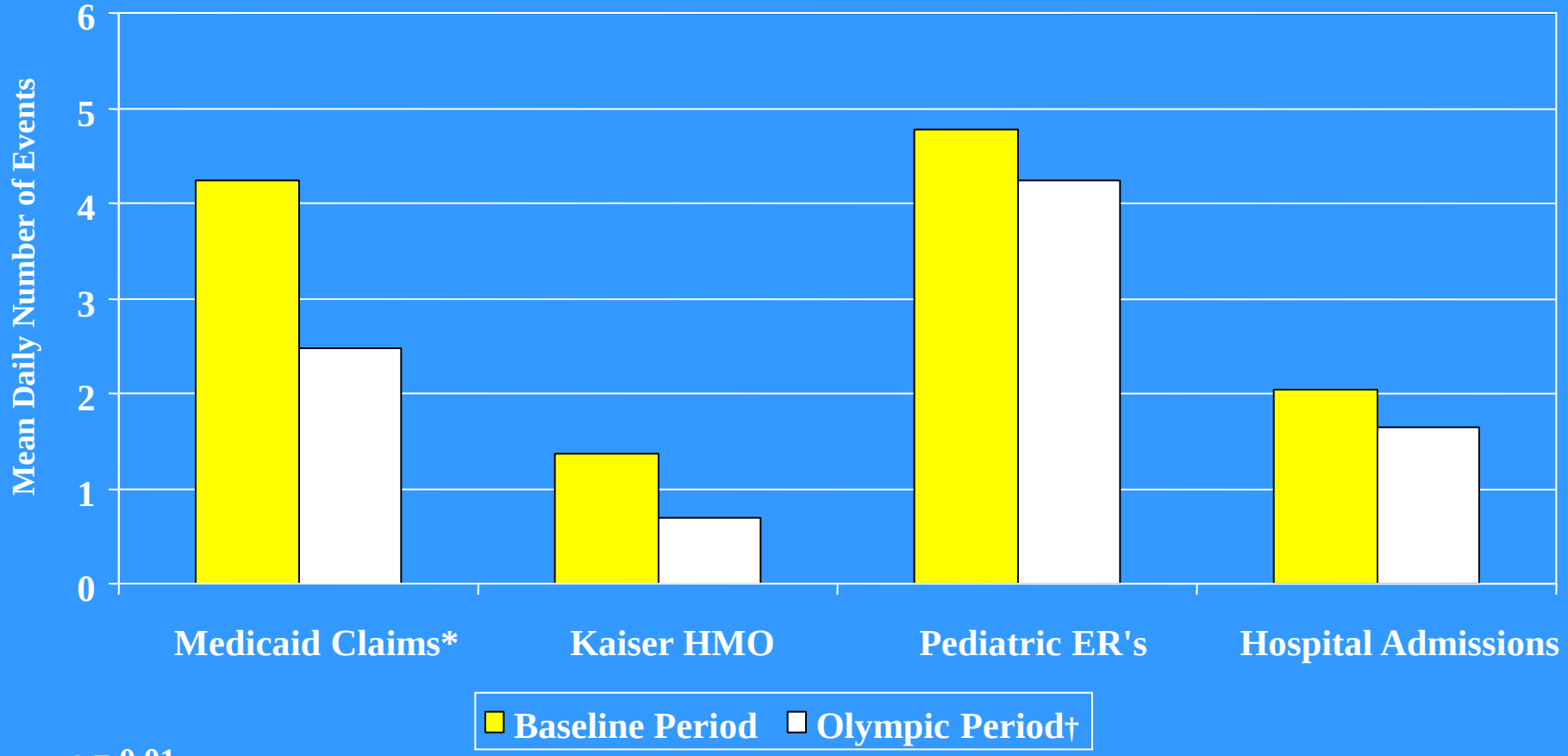
JAMA. 2001;285:897-905 www.jama.com

DESPITE ADVANCES IN ASTHMA therapy, asthma remains a substantial public health problem. In the United States, asthma is a leading cause of childhood morbidity, with an estimated prevalence of 6.9% in children and youth younger than 18 years.[1] Numerous studies have documented a rise in the morbidity, mortality, and prevalence of asthma in different populations.[2-8] The cause or causes of this trend remain controversial.[9-11]

Experimental, laboratory, and epidemiologic studies in the last several years have linked high concentrations of known air pollutants to respiratory health problems, most notably exacerbations of asthma.[12-23] However, opportunities to study the health effects of anthropogenic improvements in air quality are rare. One study found a decrease in particulate pollution and respiratory hospital admissions associated with the closure of an industrial factory in that community.[24] To our knowledge, no study has examined the impact of improved ozone pollution for an extended period of time on asthma exacerbations or other markers of asthma morbidity. Also, the extent to which moderate concentrations of ozone (ie, daily peak of 50-100 ppb) during various exposure lengths affects asthma morbidity remains controversial.[12,16]

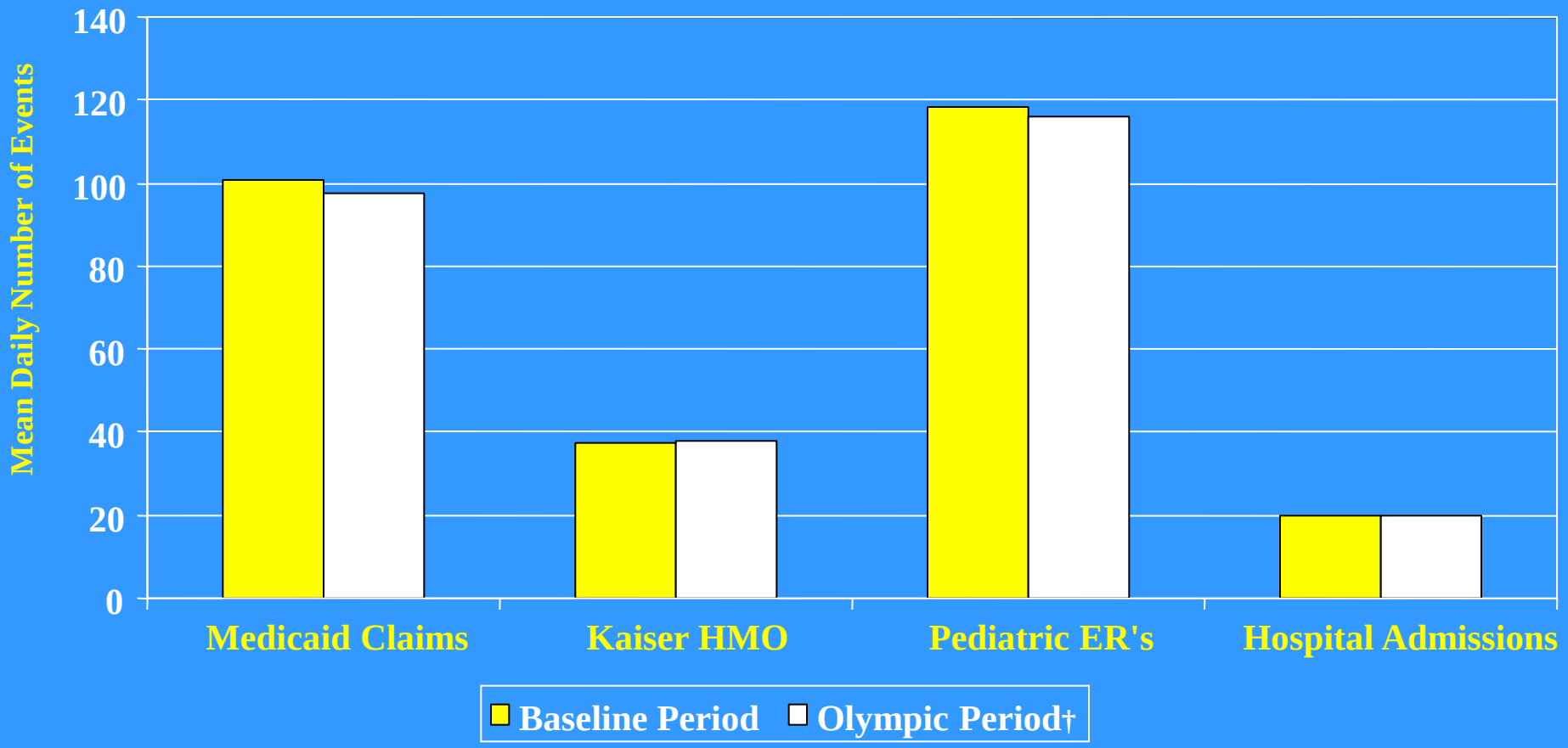
Author Affiliations are listed at the end of this article.
Corresponding Author and Reprints: Michael S. Friedman, MD, Air Pollution and Respiratory Health Branch, National Center for Environmental Health, Centers for Disease Control and Prevention, Atlanta, GA 30333 (e-mail: mff7@cdc.gov).

Acute Care Visits for Asthma
1-16 year old residents of Atlanta



•p = 0.01
† July 19 –August 4, 1996
Source: Friedman, et al, *JAMA*, 2001

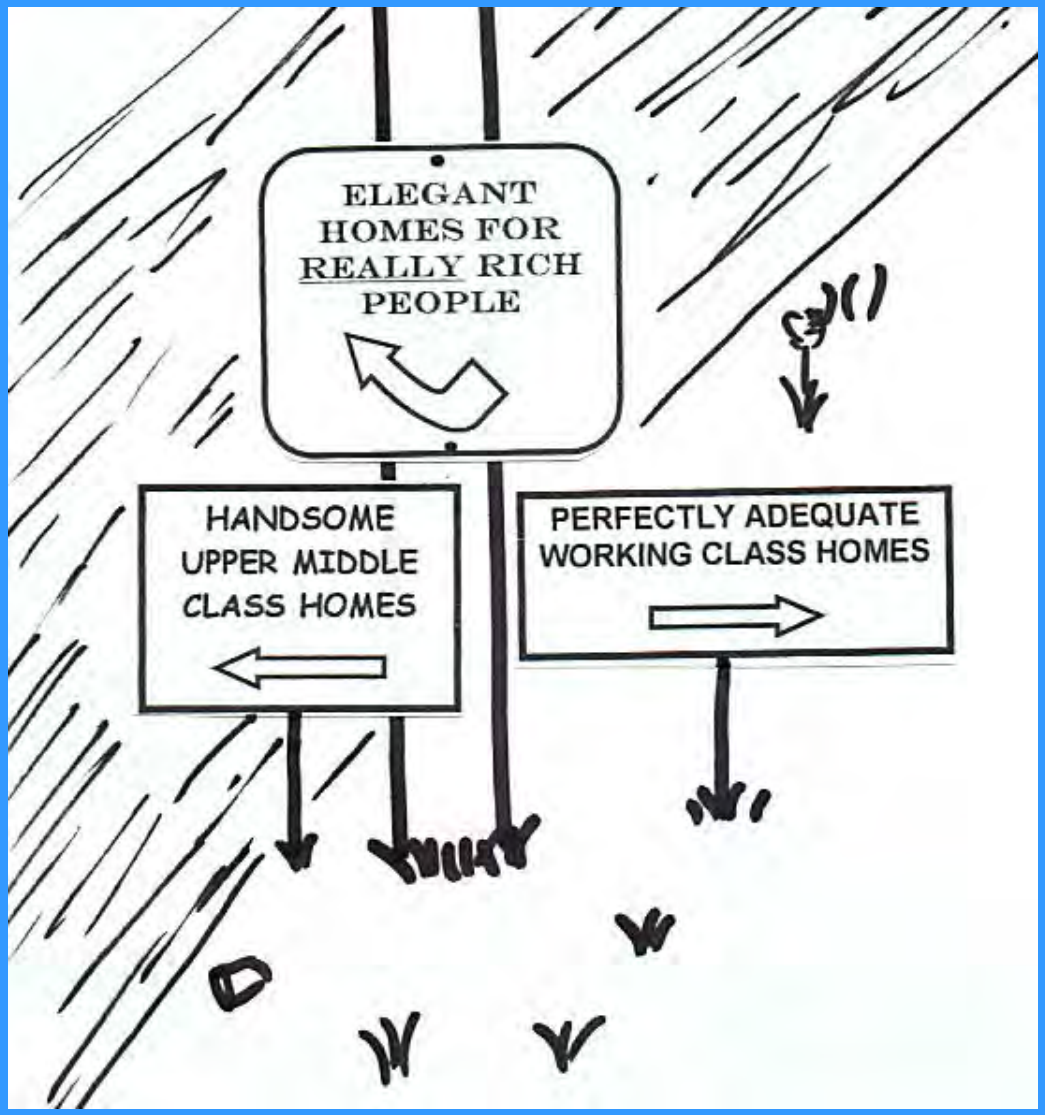
Total Non-Asthma Related Acute Care Visits
1-16 year old residents of Atlanta



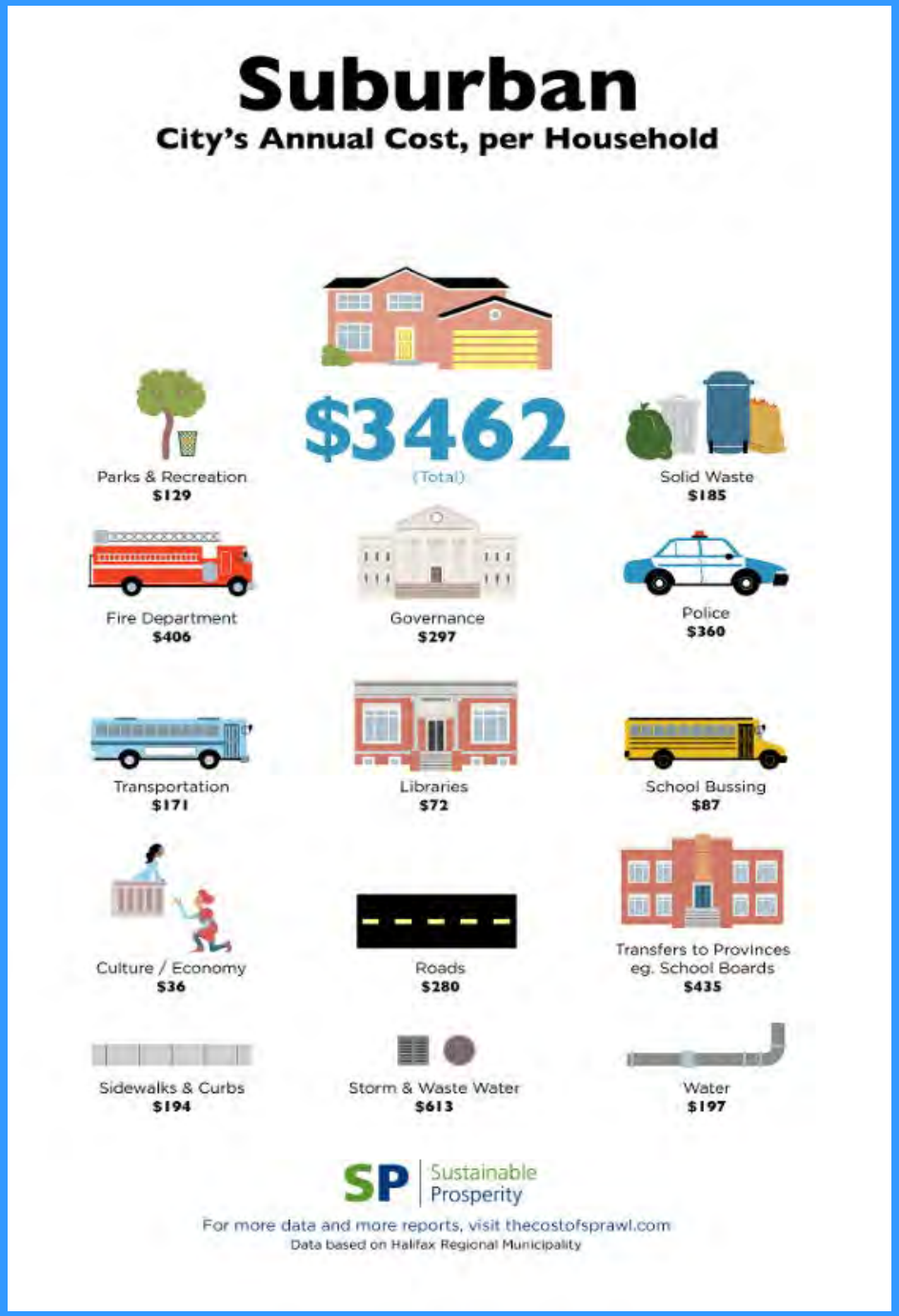
† July 19 –August 4, 1996

Source: Friedman, et al, *JAMA*, 2001

We Used to Build Real Towns and Neighborhoods but Now…

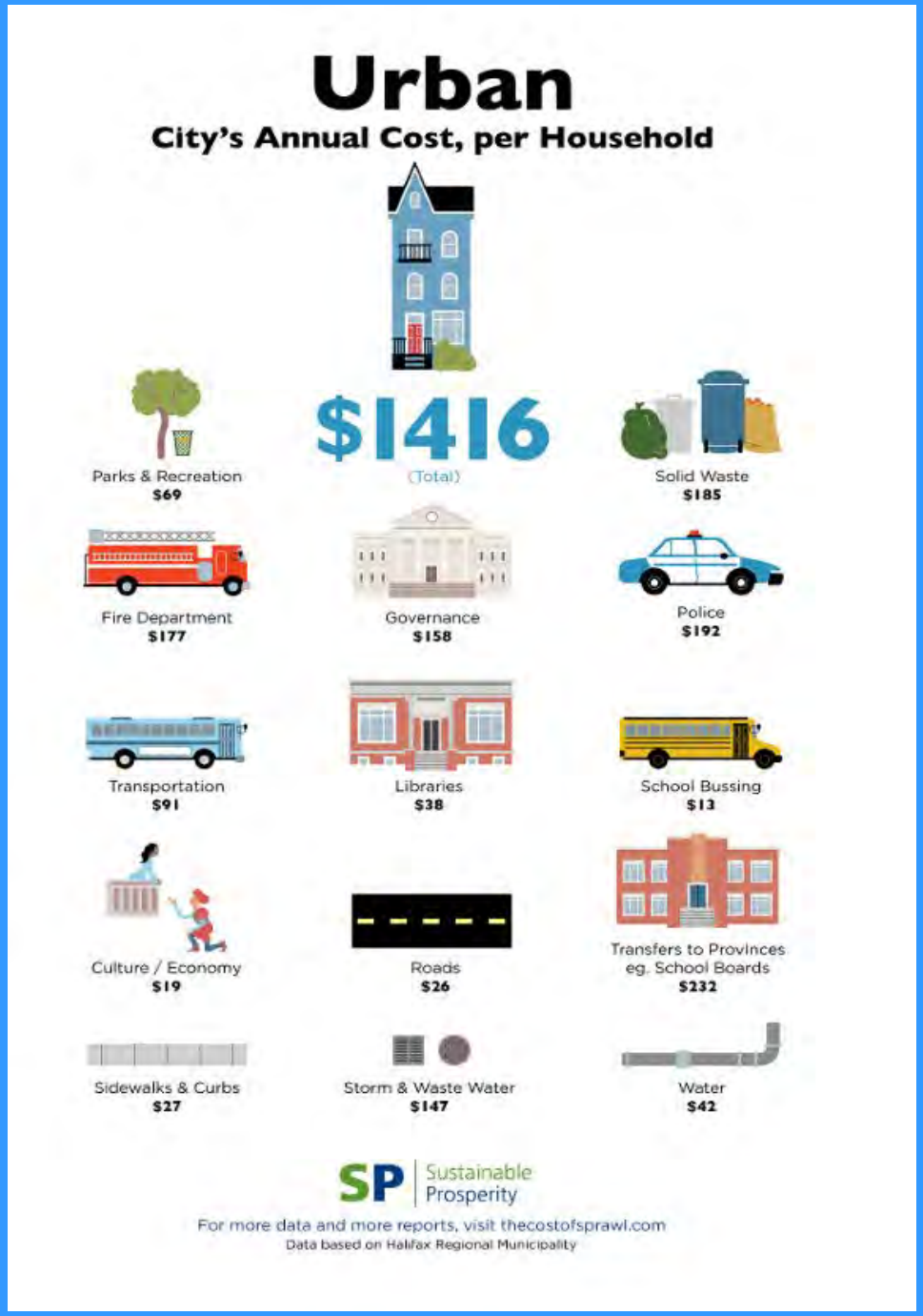


Nature Does Not Tolerate Monocultures for long…



Annual Cost of Living per household In the Suburbs

Annual Cost of Living per household In a City



Suburban

City's Annual Cost, per Household

$3462

(Total)

- Parks & Recreation **$129**
- Solid Waste **$185**
- Fire Department **$406**
- Governance **$297**
- Police **$360**
- Transportation **$171**
- Libraries **$72**
- School Bussing **$87**
- Culture / Economy **$36**
- Roads **$280**
- Transfers to Provinces eg. School Boards **$435**
- Sidewalks & Curbs **$194**
- Storm & Waste Water **$613**
- Water **$197**

SP | Sustainable Prosperity

For more data and more reports, visit thecostofsprawl.com

Data based on Halifax Regional Municipality

Urban

City's Annual Cost, per Household

$1416

(Total)

- Parks & Recreation **$69**
- Solid Waste **$185**
- Fire Department **$177**
- Governance **$158**
- Police **$192**
- Transportation **$91**
- Libraries **$38**
- School Bussing **$13**
- Culture / Economy **$19**
- Roads **$26**
- Transfers to Provinces eg. School Boards **$232**
- Sidewalks & Curbs **$27**
- Storm & Waste Water **$147**
- Water **$42**

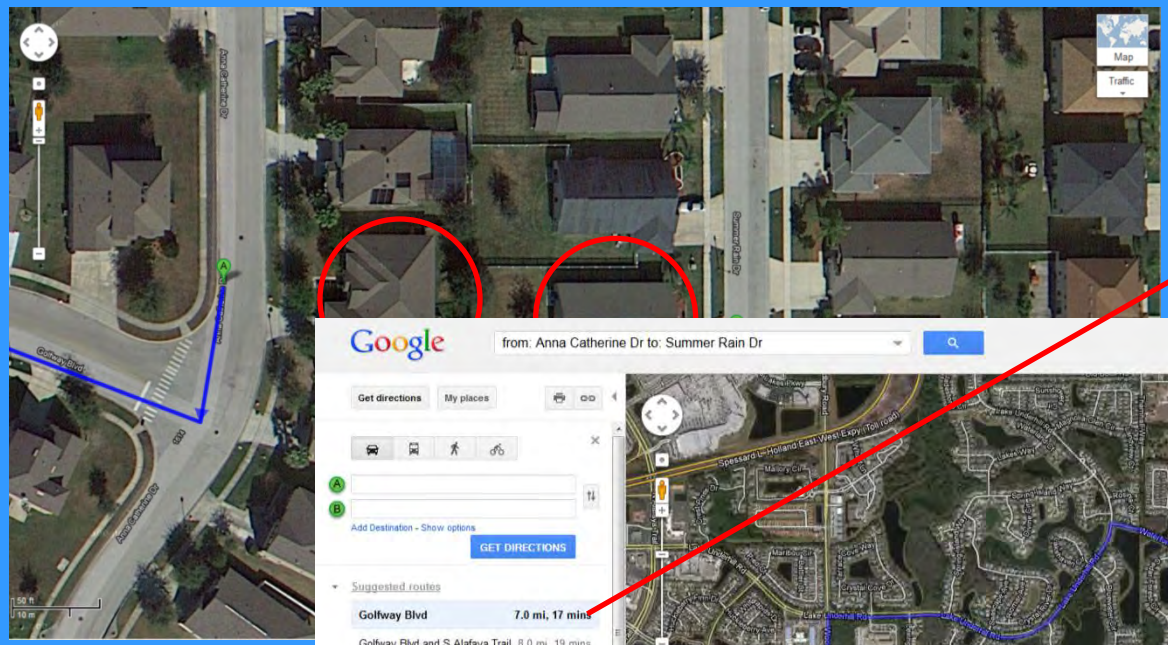
SP | Sustainable Prosperity

For more data and more reports, visit thecostofsprawl.com

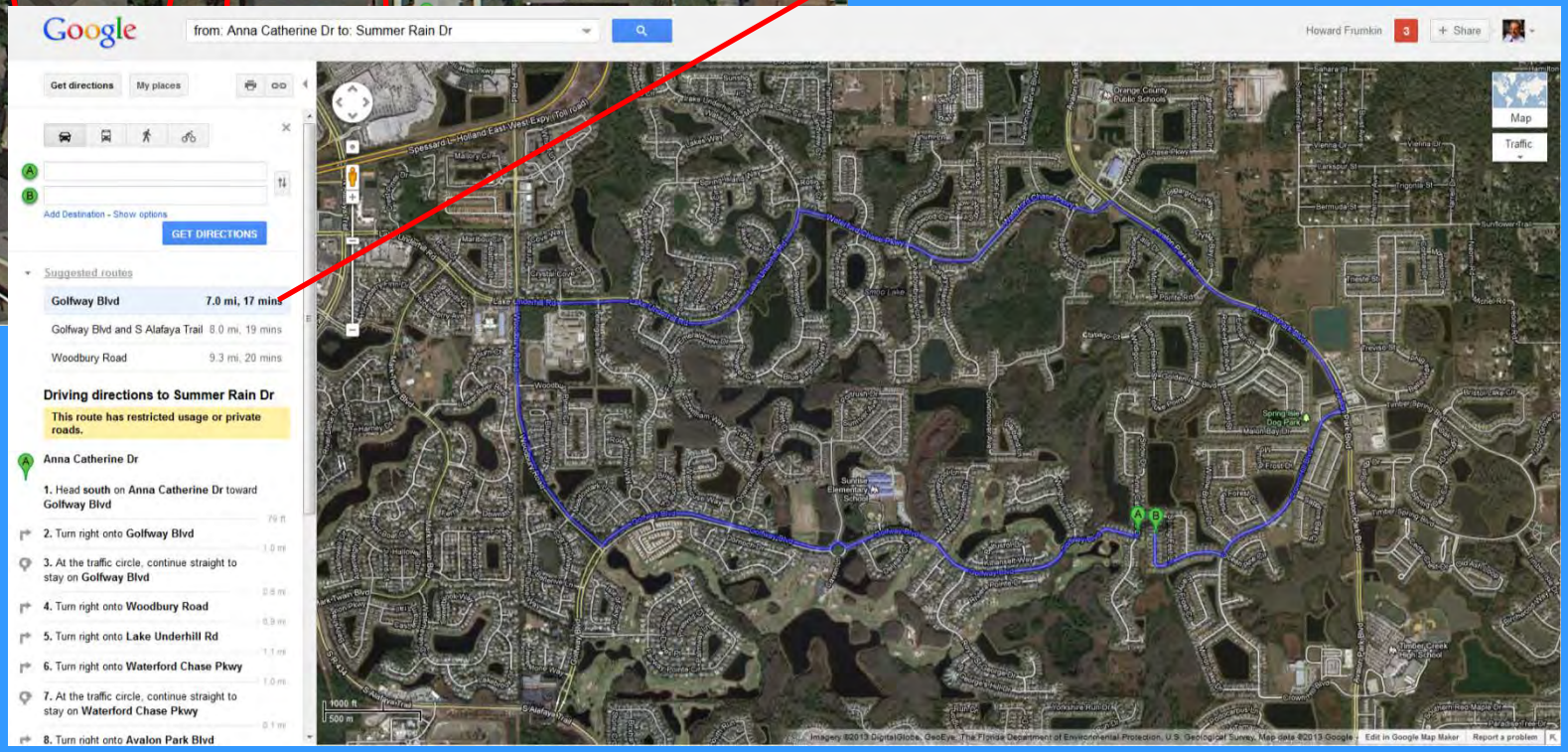
Data based on Halifax Regional Municipality

Two houses, adjoining back yards

(From Streetsblog, 02/28/2013)



Golfway Blvd	**7.0 mi, 17 mins**
Golfway Blvd and S Alafaya Trail	8.0 mi, 19 mins
Woodbury Road	9.3 mi, 20 mins




SPEED
LIMIT
40

CANINE CONSTITUTIONAL

A brisk walk in the park keeps Maxee B in shape between dog shows. His owner, Columbus resident Cathy Stumbo, got up early to give her 3-year-old Doberman his regular workout. They typically log 3½ miles in Berliner Park.

“Old” Schools

Credit: Hummel Architects, Boise, ID

“Modern” Schools

Credit: South Carolina Coastal Conservation League

Credit: Constance E. Beaumant, NTHP

We have changed how much we walk or bike

- Percent of children who walk or bike to school:
- 1974 → **66%**
- 2000 → **13%**

(CDC, 2000)

Fittest Cities in the United States

ten most and ten least fit

The annual American Fitness Index ranks the 50 largest metro areas in the U.S. according to factors like preventative health behaviors, levels of disease and community resources that support physical activity.

1 Washington/Arlington/Alexandria
2 Minneapolis/St. Paul/Bloomington
3 San Diego/Carlsbad
4 San Francisco/Oakland-Hayward
5 Sacramento/Roseville/Arden/Arcade
6 Denver/Aurora/Lakewood
7 Portland/Vancouver/Hillsboro
8 Seattle/Tacoma/Bellevue
9 Boston/Cambridge/Newton
10 San Jose/Sunnyvale/Santa Clara

41 Dallas/Fort Worth/Arlington
42 New Orleans/Metairie
43 Charlotte/Concord/Gastonia
44 Birmingham/Hoover
45 Nashville/Davidson/Murfreesboro/Franklin
46 Louisville/Jefferson County
47 San Antonio/New Braunfels
48 Oklahoma City
49 Memphis
50 Indianapolis/Carmel/Anderson

SOURCE: American College of Sports Medicine (ACSM), Anthem Foundation

http://americanfitnessindex.org/report/

Educational Benefits of Walking and Biking to School

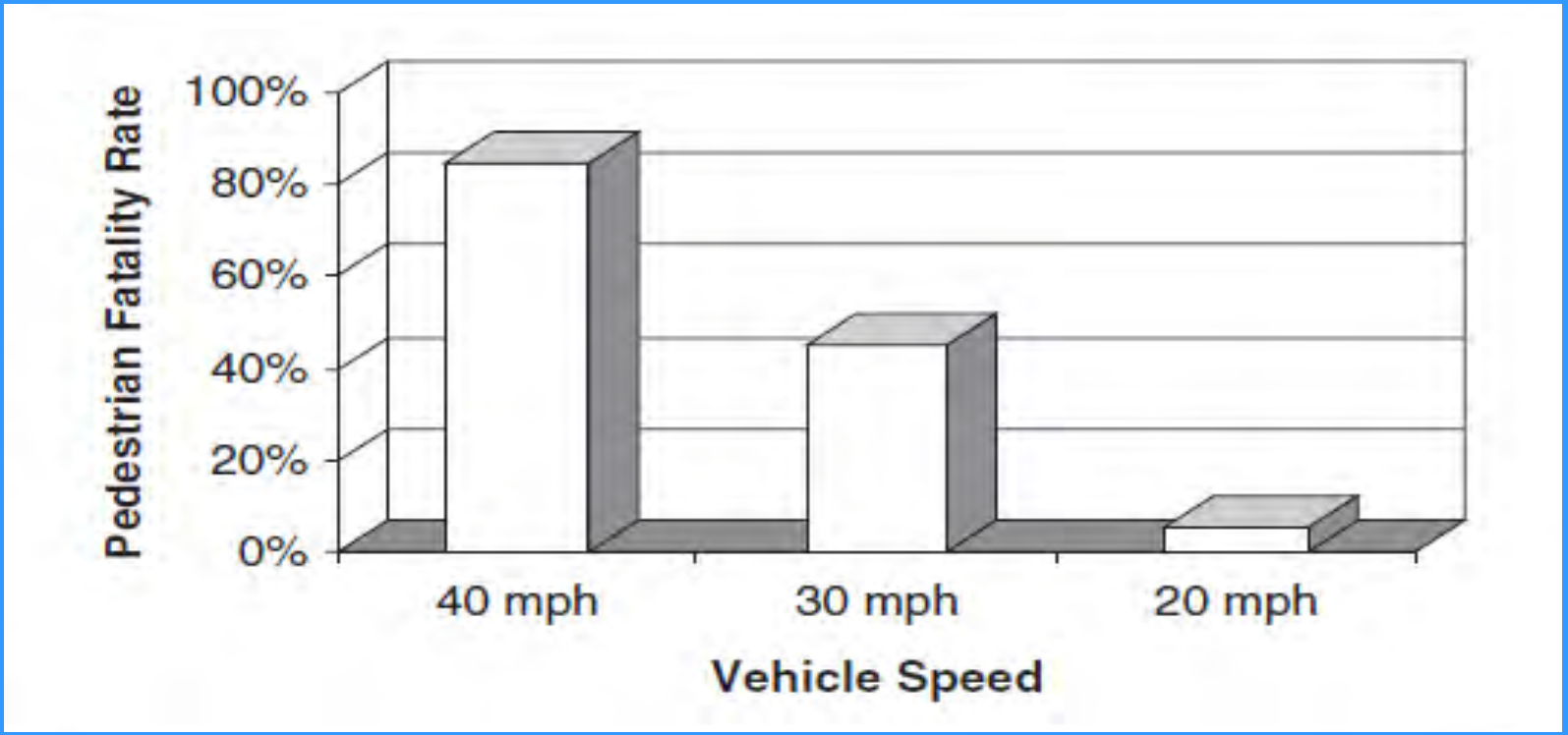
- Increases concentration
- Improves mood and ability to be alert
- Improves memory and learning
- Enhances creativity

RANK	Cause and Number of Deaths									
	Under 1	1-3	4-7	8-15	16-20	21-24	Other Adults			65+
							25-34	35-44	45-64	
1	Perinatal Period	Congenital Anomalies	**MV Traffic Crashes**	**MV Traffic Crashes**	**MV Traffic Crashes**	**MV Traffic Crashes**	**MV Traffic Crashes**	Malignant Neoplasms	Malignant Neoplasms	
2	Congenital Anomalies	**MV Traffic Crashes**	Malignant Neoplasms	Malignant Neoplasms	Homicide	Homicide	Suicide	Heart Disease		
3	Heart Disease	Accidental Drowning	Congenital Anomalies	Suicide	Suicide	Suicide	Homicide	MV		
4	Homicide	Homicide	Accidental Drowning	Homicide	Malignant Neoplasms	Accidental Poisoning	M			
5	Septicemia	Malignant Neoplasms	Exposure to Smoke/Fire	Congenital Anomalies	Accidental Poisoni	M				
6	Influenza/ Pneumonia	Exposure to Smoke/Fire	Homicide	Accidental Drowning						
7	Nephritis/ Nephrosis	Heart Disease	He							
8	**MV Traffic Crashes**	In								

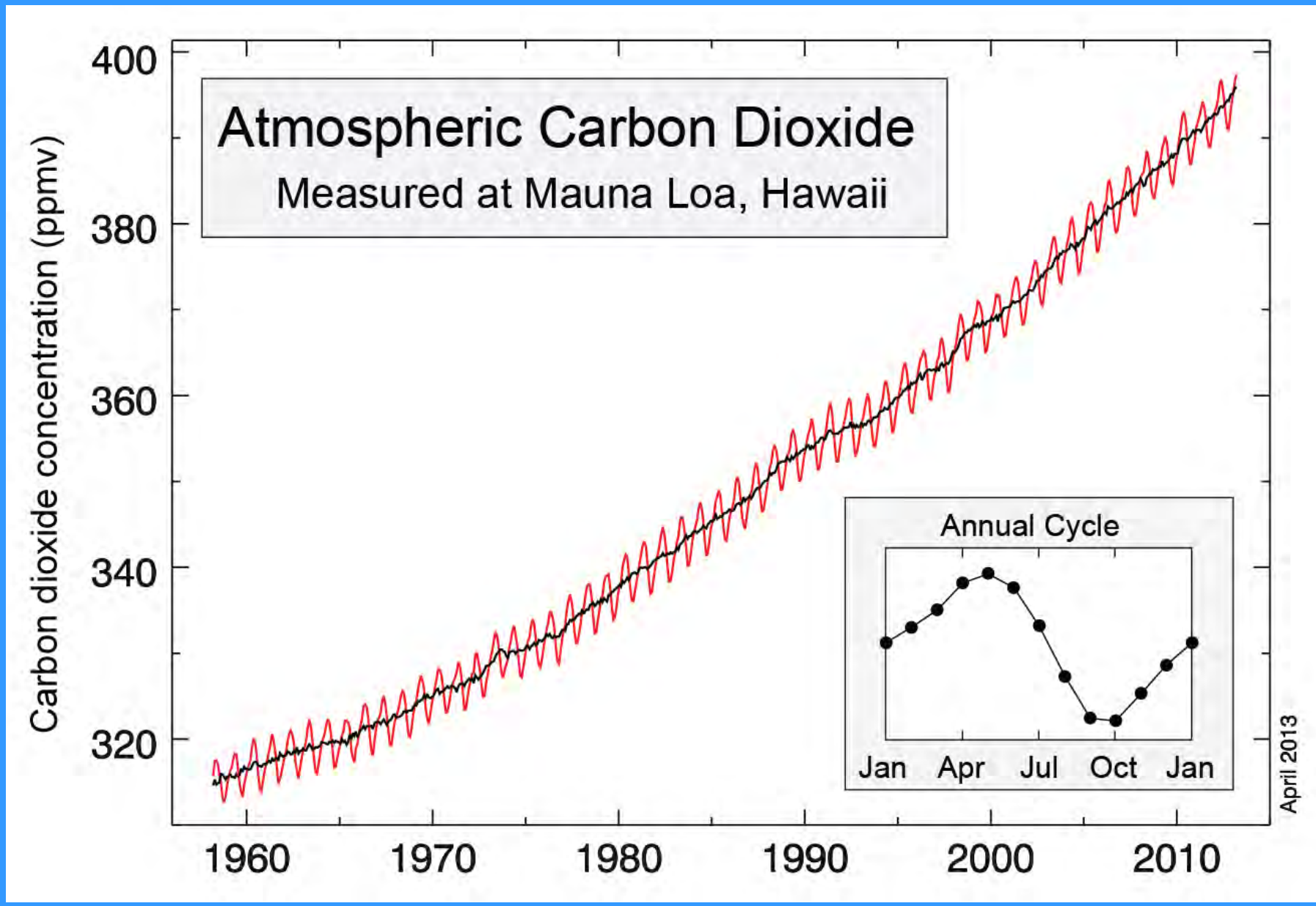
For every age group from 3 through 34-- crashes were the No. 1 cause of death

nhtsa "People Saving People"

Pedestrian Fatality Rates for Collisions at Different Speeds



Zegeer et al 2002


Atmospheric Carbon Dioxide
Measured at Mauna Loa, Hawaii
Carbon dioxide concentration (ppmv)
400
380
360
340
320
1960
1970
1980
1990
2000
2010
Annual Cycle
Jan
Apr
Jul
Oct
Jan
April 2013

Earth's CO_2 Home Page

CLICK HERE *for daily CO2Now data updates.*

397.13 ppm

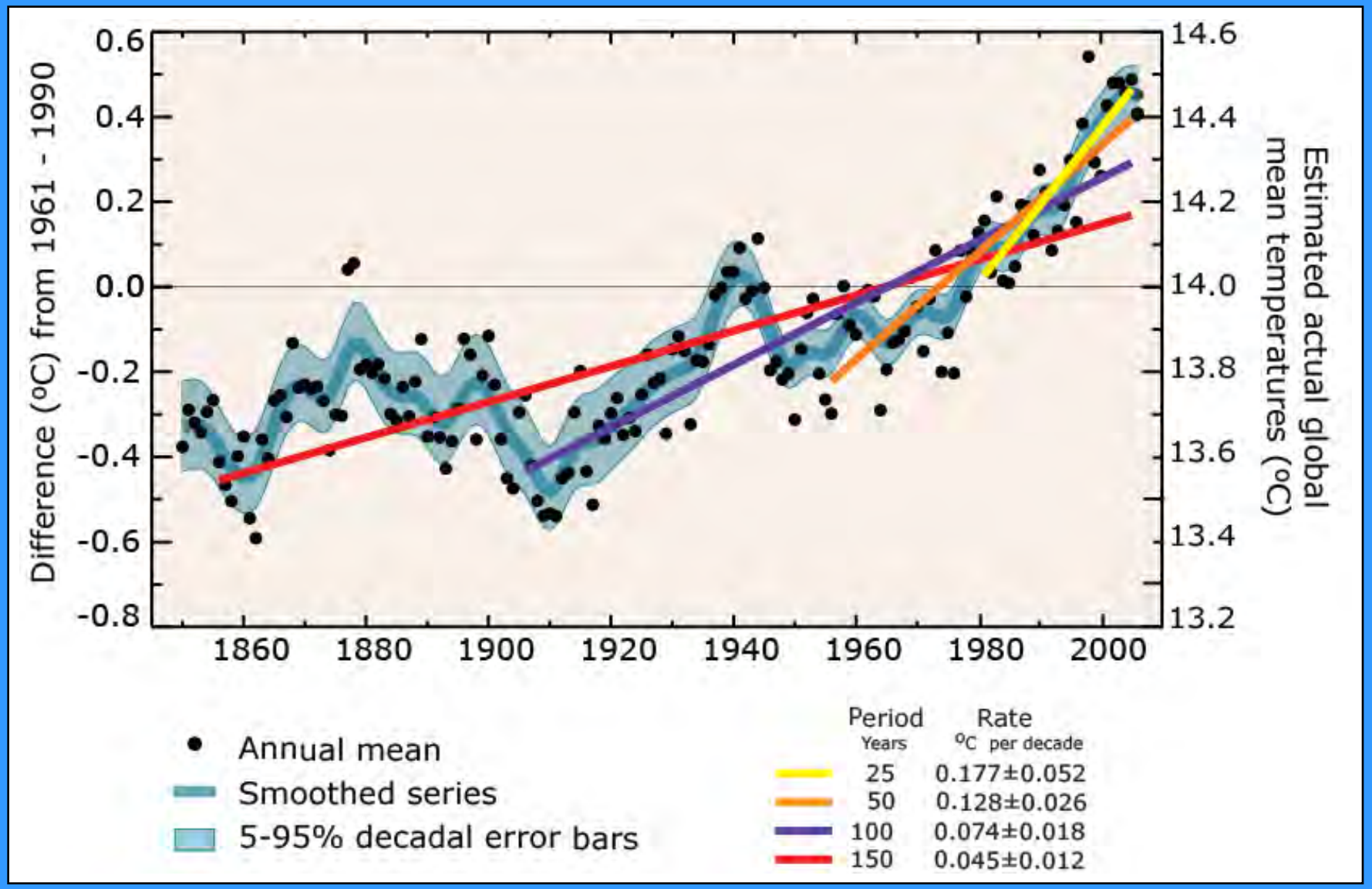
Atmospheric CO_2 for November 2014

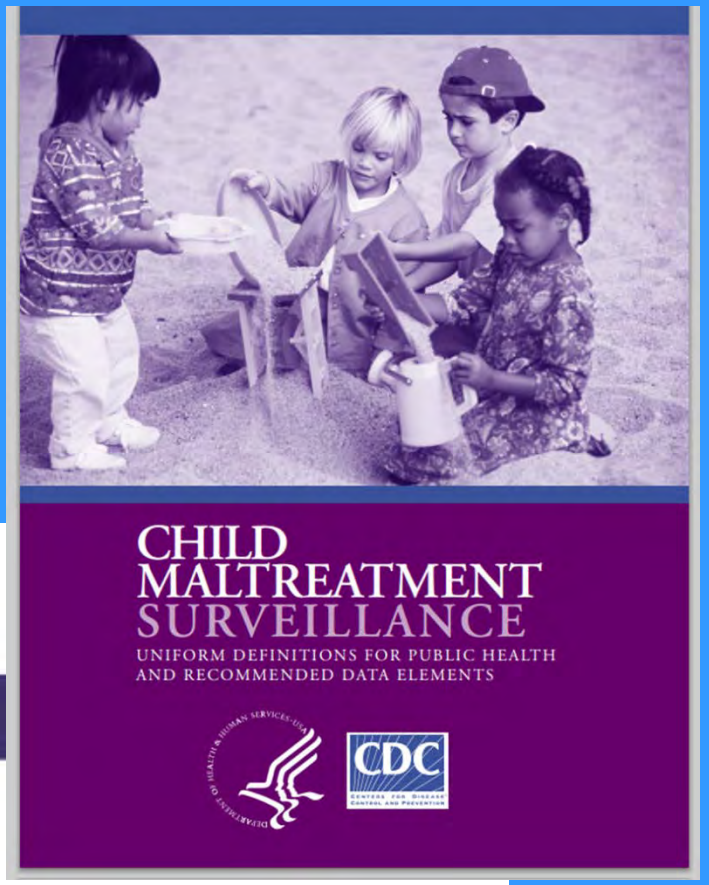
Preliminary monthly average as of December 5, 2014

(Mauna Loa Observatory: NOAA-ESRL)

NOTE: On May 10, 2013, *NOAA* & *Scripps* *first reported daily averages that temporarily reached 400 ppm.*

Global average temperature





CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Injury Prevention & Control : Division of Violence Prevention

- Violence Prevention
- About Us +
- Child Maltreatment −
  - Definition
  - Data Sources
  - Risk and Protective Factors
  - Essentials for Childhood
  - ACE Study +
  - Consequences
  - Prevention Strategies
  - Translation

CDC > Violence Prevention > Child Maltreatment

Child Maltreatment: Definitions

Recommend Tweet Share

Any act or series of acts of commission or omission by a parent or other caregiver (e.g., clergy, coach, teacher) that results in harm, potential for harm, or threat of harm to a child.

Acts of Commission (Child Abuse)

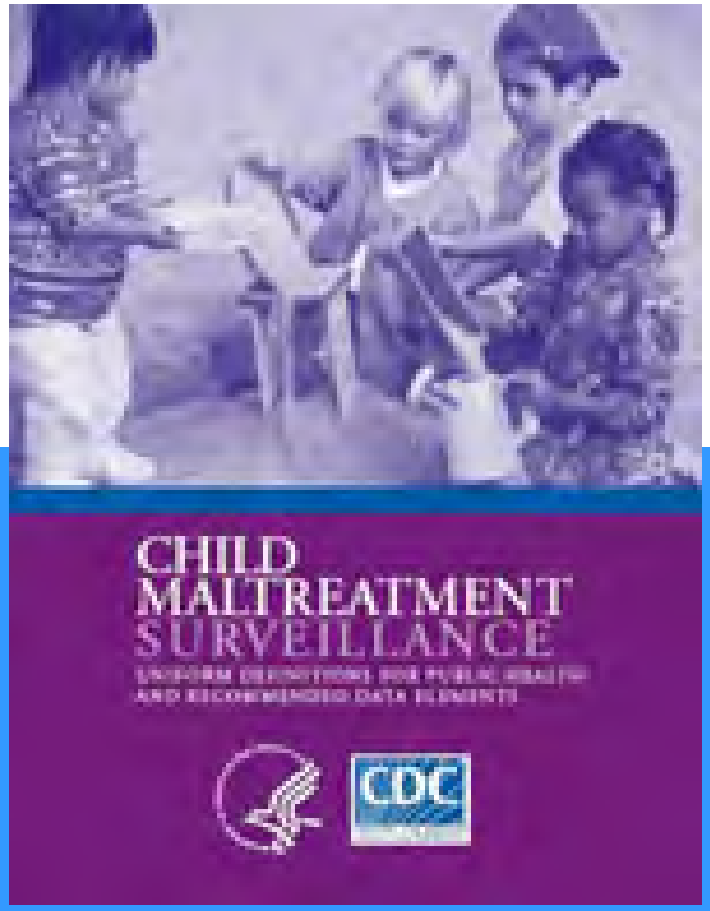
Words or overt actions that cause harm, potential harm, or threat of harm to a child. Acts of commission are deliberate and intentional; however, harm to a child may or may not be the intended consequence. Intentionality only applies to the caregivers' acts-not the consequences of those acts. For example, a caregiver may intend to hit a child as punishment (i.e., hitting the child is not accidental or unintentional) but not intend to cause the child to have a concussion. The following types of maltreatment involve acts of commission:

- Physical abuse
- Sexual abuse
- Psychological abuse

Acts of Omission (Child Neglect)

The failure to provide for a child's basic physical, emotional, or educational needs or to protect a child from harm or potential harm. Like acts of commission, harm to a child may or may not be the intended consequence. The following types of maltreatment involve acts of omission:

- Failure to provide
  - Physical neglect
  - Emotional neglect
  - Medical/dental neglect
  - Educational neglect
- Failure to supervise
  - Inadequate supervision
  - Exposure to violent environments



CUMULATIVE greenhouse emissions in 2002, by country

Density-equalizing cartogram;

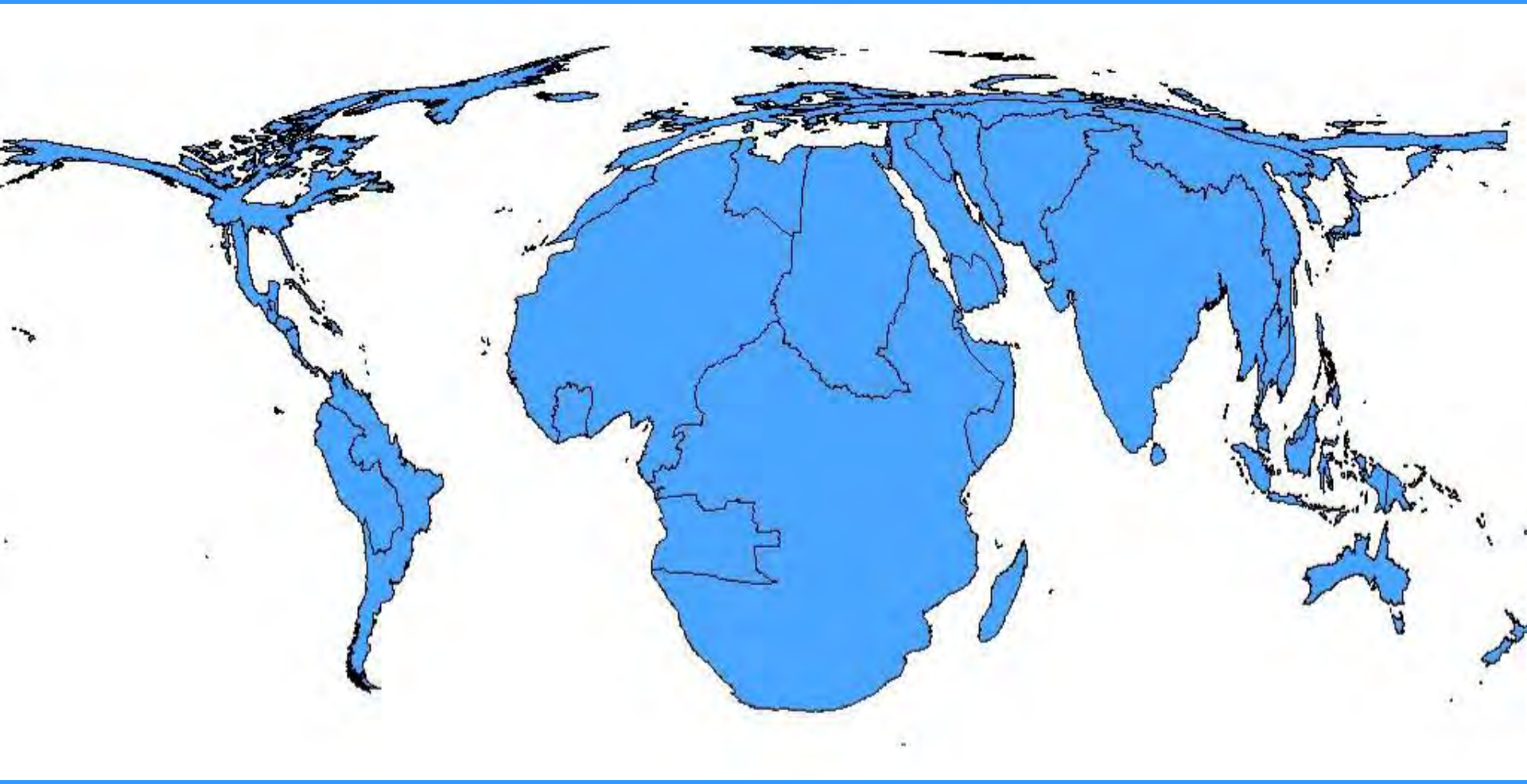
WHO region size proportional to mortality

Jonathan Patz,

University of Wisconsin

Climate-related mortality (per 10^6 population), 2000

Density-equalizing cartogram; WHO region size proportional to mortality



Jonathan Patz

University of Wisconsin

"Climate change threatens our fragile existence on this planet."

—Jim Yong Kim, World Bank[1]

"For public health, climate change is the defining issue for the 21st century."

—Margaret Chan, World Health Organization[2]

Climate Change, Health, and Equity:

Opportunities for Action

Center for Climate Change & Health

MARCH 2015

QUADRENNIAL DEFENSE REVIEW 2014

Institute of Medicine

The purpose of public health is to fulfill society's interest in assuring the conditions in which people can be healthy

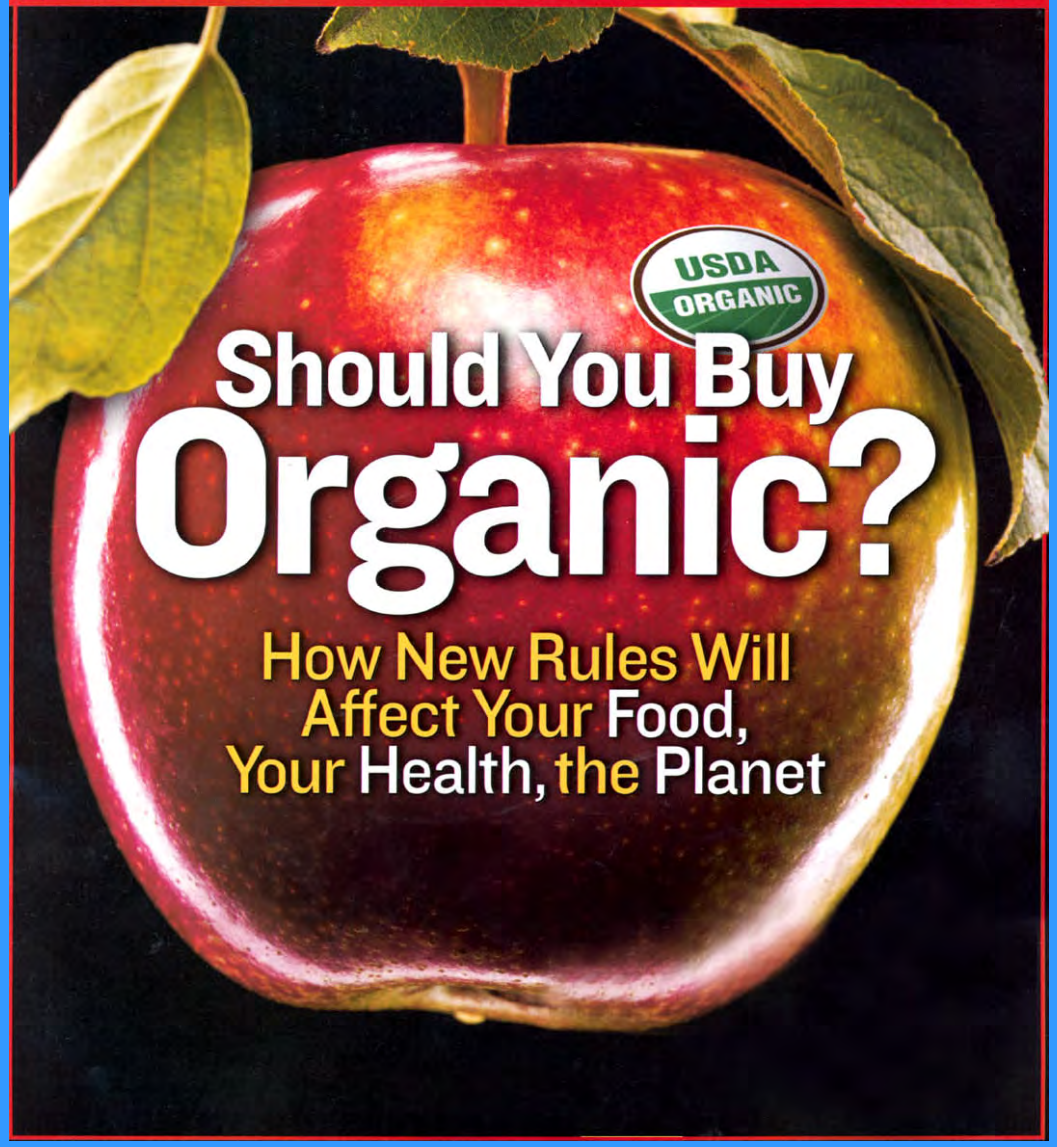
Food

Likely Results of a Sugar Sweetened Beverage (SSB) Tax

- "A national tax of 1 cent per ounce on sugar-sweetened beverages (SSBs) would decrease consumption by 23% and raise $14.9 billion in the first year alone."

Brownell KD, et al. The public health and economic benefits of taxing sugar-sweetened beverages. NEJM. 2009;361(16):1599-1605.

Newsweek
September 30, 2002 : $3.95
newsweek.msnbc.com



Should You Buy Organic?

How New Rules Will Affect Your Food, Your Health, the Planet

The Need for Health Impact Assessment

- Big decisions are made without examining potential health impacts (both positive and negative) over the life cycle.


BeltLine
BeltLine
Trail


Malik Yakini
Chairperson, Detroit Black Food Security Network

IMPROVING HEALTH IN THE UNITED STATES

The Role of Health Impact Assessment

Committee on Health Impact Assessment

Board on Environmental Studies and Toxicology

Division on Earth and Life Studies

National Research Council

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

THE NATIONAL ACADEMIES PRESS
Washington, D.C.
www.nap.edu

Integrating HIA into environmental impact assessment (EIA). The U.S. National Environmental Policy Act (NEPA) and some related state laws explicitly require the identification and analysis of health effects when EIA is conducted. EIA, however, has traditionally included at most only a cursory analysis of health effects. Some argue that health analysis should be integrated into EIA because NEPA and related state laws provide a mechanism for achieving the same substantive goals as HIA. Others contend that EIA has become too rigid to accommodate a comprehensive health analysis and that attention should be focused on the independent practice of HIA. The committee emphasizes that the appropriate assessment of direct, indirect, and cumulative health effects in EIA under NEPA is a matter of law and not discretion, and recent efforts have successfully integrated the HIA framework into EIA. Thus, where legal standards

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"…the appropriate assessment of Direct, Indirect, and Cumulative Health Effects in Environmental Impact Assessment Under the National Environmental Policy Act is a Matter of Law and Not Discretion."

American Academy of Pediatrics

POLICY STATEMENT

The Built Environment: Designing Communities to Promote Physical Activity in Children

Committee on Environmental Health

ABSTRACT

An estimated 32% of American children are overweight, and physical inactivity contributes to this high prevalence of overweight. This policy statement highlights how the built environment of a community affects children's opportunities for physical activity. Neighborhoods and communities can provide opportunities for recreational physical activity with parks and open spaces, and policies must support this capacity. Children can engage in physical activity as a part of their daily lives, such as on their travel to school. Factors such as school location have played a significant role in the decreased rates of walking to school, and changes in policy may help to increase the number of children who are able to walk to school. Environment modification that addresses risks associated with automobile traffic is likely to be conducive to more walking and biking among children. Actions that reduce parental perception and fear of crime may promote outdoor physical activity. Policies that promote more active lifestyles among children and adolescents will enable them to achieve the recommended 60 minutes of daily physical activity. By working with community partners, pediatricians can participate in establishing communities designed for activity and health. *Pediatrics* 2009;123:1591–1598

Key Words:

INTRODUCTION

A child's life is affected by the environment in which he or she lives. Relationships between health and the quality of air, water, and food are well recognized.[1–3] The physical environments of the home and school also influence health through exposures to lead,[4] mold,[5] noise,[6] or ambient light.[7] In addition, the overall structure of the physical environment of a child's community (referred to as the "built environment") can also affect health in diverse ways.

As cities have expanded into rural areas, large tracts of land have been frequently transformed into low-density developments in a "leapfrog" manner. The resultant urban sprawl can increase automobile travel, which increases air pollution[8] as well as passenger and pedestrian traffic fatalities.[9] Some urban areas may have few supermarkets, produce stands, or community gardens, thereby limiting access to fresh fruits and vegetables.[10] The physical environment of a community can support opportunities for play, an essential component of child development,[11] and for physical activity, a health behavior that not only reduces risk of excess weight gain[12,13] but also has many other benefits for overall well-being.

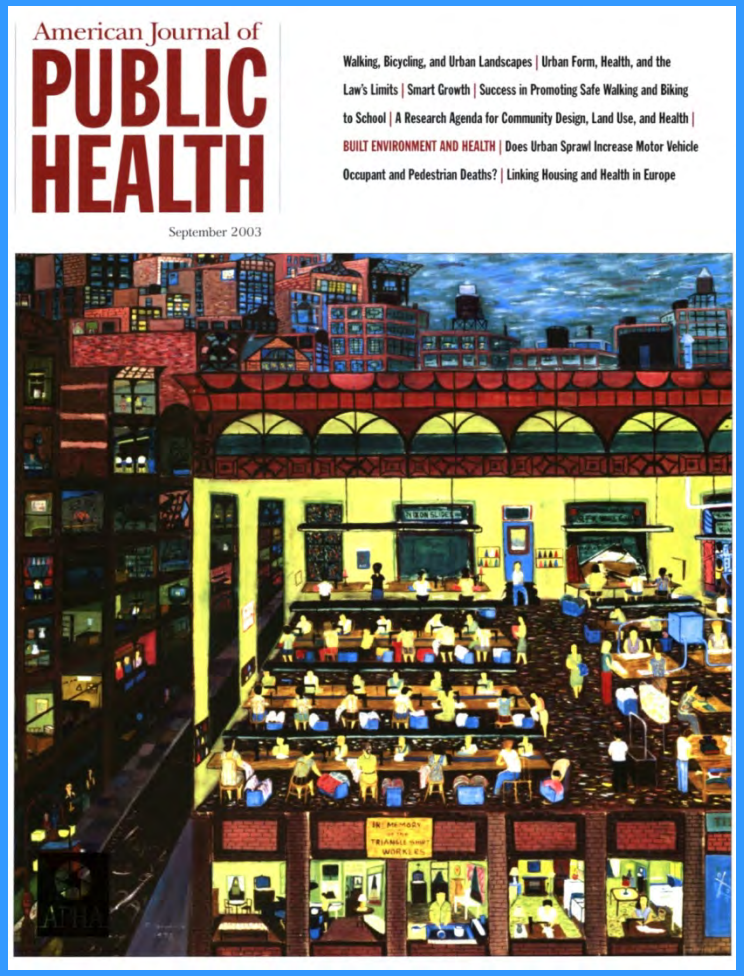
Many factors influence a child's level of physical activity, including individual-level psychosocial factors such as self-efficacy[14,15]; family factors such as parental support[16]; and larger-scale factors such as social norms.[17] Although these are all important contributors, this policy statement is limited to focusing on how the physical design of the community affects children's opportunities for physical activity. Opportunities for recreational physical activity arise with parks and green spaces. "Utilitarian" physical activity, such as walking or bicycling to school and to other activities, is an equally important part of a child's daily life. Environments that promote more active lifestyles among children and adolescents will be important to enable them to achieve recommended levels of physical activity.

BACKGROUND

The term "built environment" refers to spaces such as buildings and streets that are deliberately constructed as well as outdoor spaces that are altered in some way by human activity. This term may be unfamiliar to most clinicians, but with the high prevalence of childhood overweight and obesity,[18] the subject is increasingly relevant.

- The Built Environment: Designing Communities to Promote Physical Activity in Children
- Policy Statement American Academy of Pediatrics
- June 2009

Medline Keyword Search:
"*Built Environment*" and "*Health*"



Sept1993 – Sept 2003

58 Articles

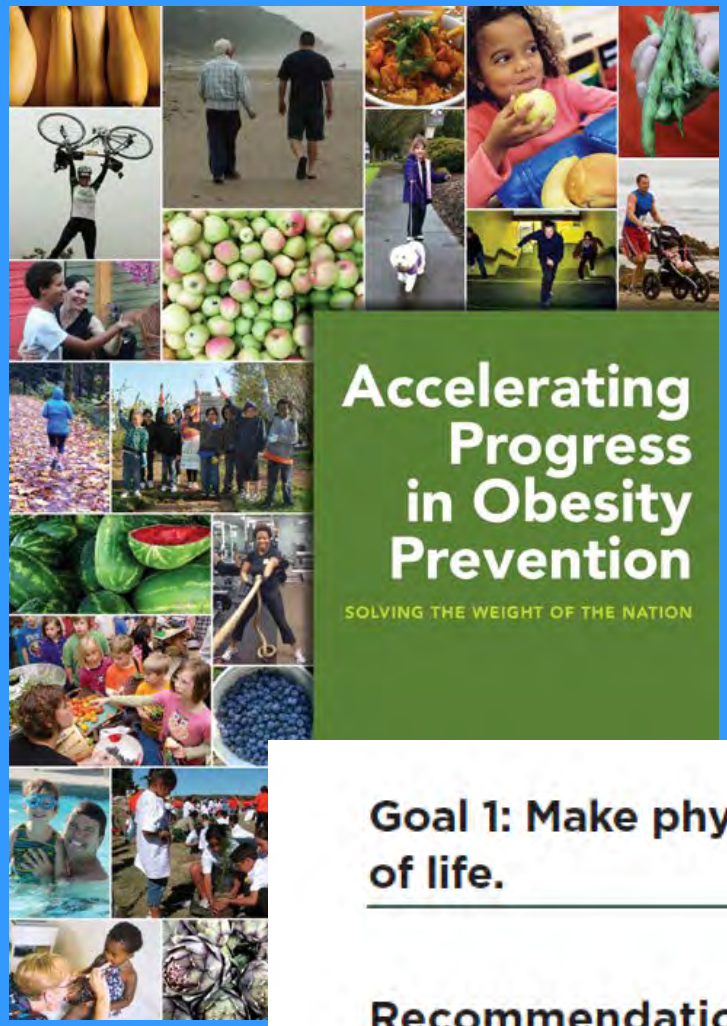
Sept 2003 – May 2013

665 Articles

American Journal of Public Health

Built Environment and Health Issue

September, 2003



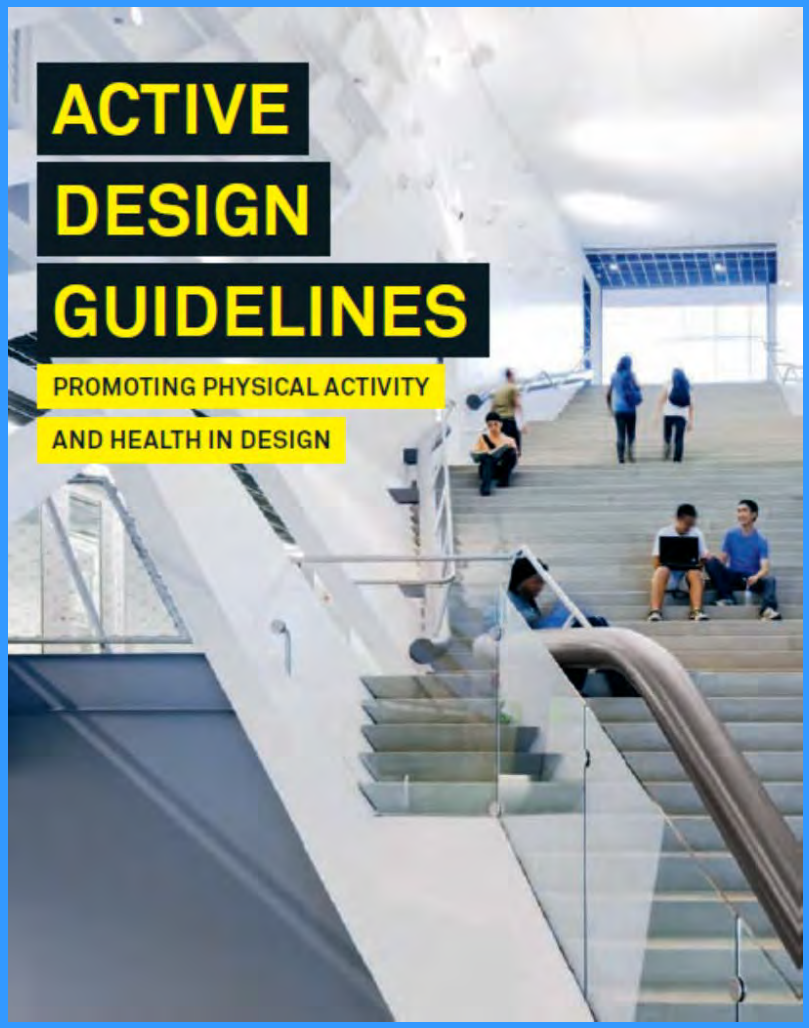
Institute of Medicine Report *Accelerating Progress in Obesity Prevention* May 8, 2012

Goal 1: Make physical activity an integral and routine part of life.

Recommendation 1: Communities, transportation officials, community planners, health professionals, and governments should make promotion of physical activity a priority by substantially increasing access to places and opportunities for such activity.

NYC Active Design Guidelines

- Resilient Bldgs
- Energy Efficient Buildings
- Healthy Bldgs
- Smart zoning and locations



http://www.nyc.gov/html/ddc/html/design/active_design.shtml

Charlotte, NC, Light Rail Opened November, 2007

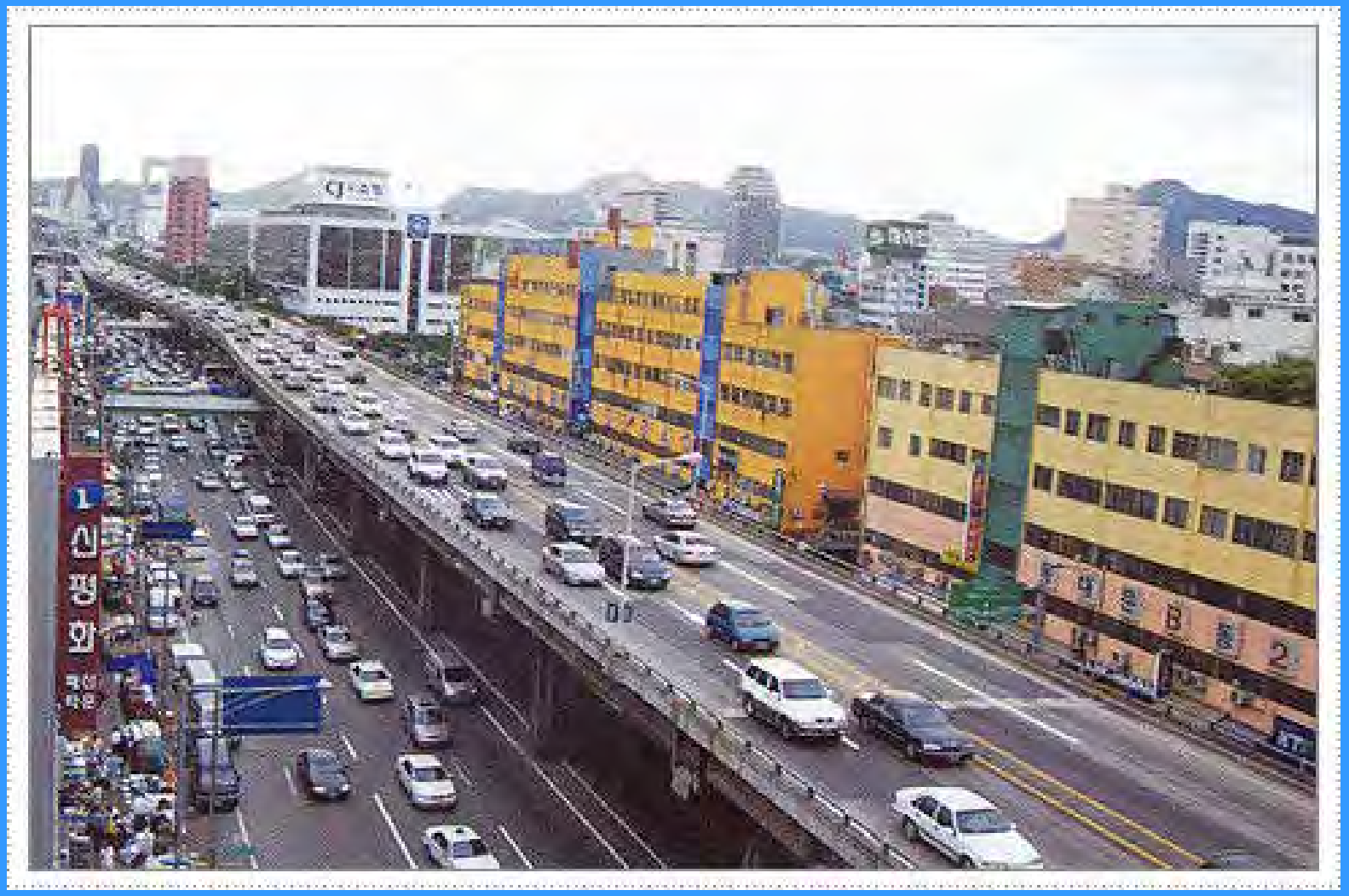
After 2 Years…
Light Rail Transit Users Had

- An average reduction of 1.18 BMI points
  - For a person who is 5’5” --equivalent to a weight loss of 6.45 lbs.
- An 81% reduced odds of becoming obese over time.

The High Line NYC

A 20 block walk in Manhattan without a cross street–

and it was delightful even with a 2 year old.



- The Chenoggye freeway ran through the center of Seoul ~1970-2005

- Cheonggyecheon -- 8.4 km long downtown Seoul, South Korea.
  - The $900 million project initially attracted much public criticism.

Integrating Health into Decision-Making

Importance of What Makes People Happy

Marketplace is Shifting--

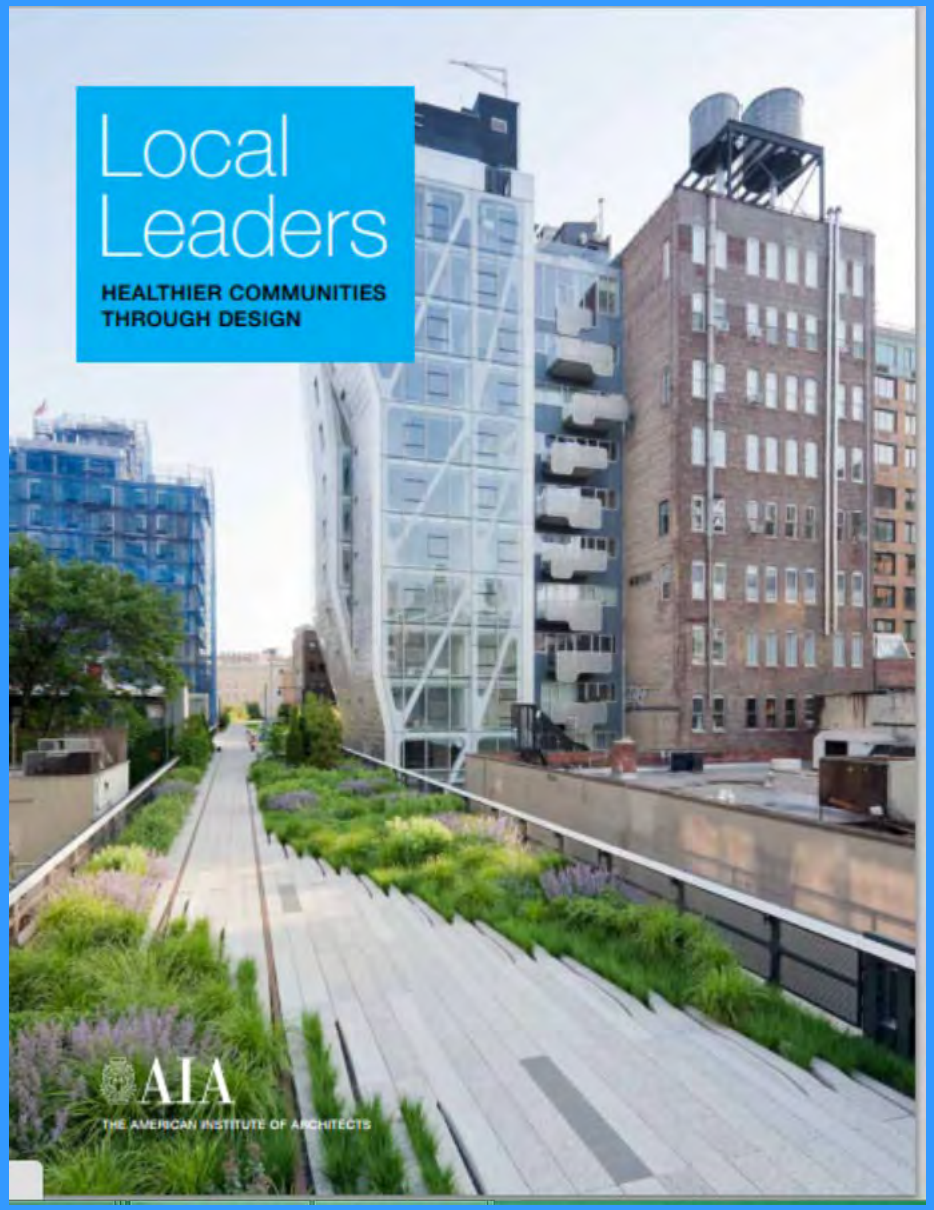
More than 56% of home buyers want a home that is a walkable neighborhood with as little need for driving as possible.

- Ciclavia Los Angeles April 2012

Indianapolis Cultural Trail

Importance of Art and Beauty and Nature

- 8 miles $69 million
- First $15 million from Glick family (start with philanthropy)
- $2 million for Art
- Links the city together
- Revitalized Business
- Helps to Recruit and Retain Top Talent
- And, yes, a GOP Mayor



- Importance of Courage– The NYC High Line

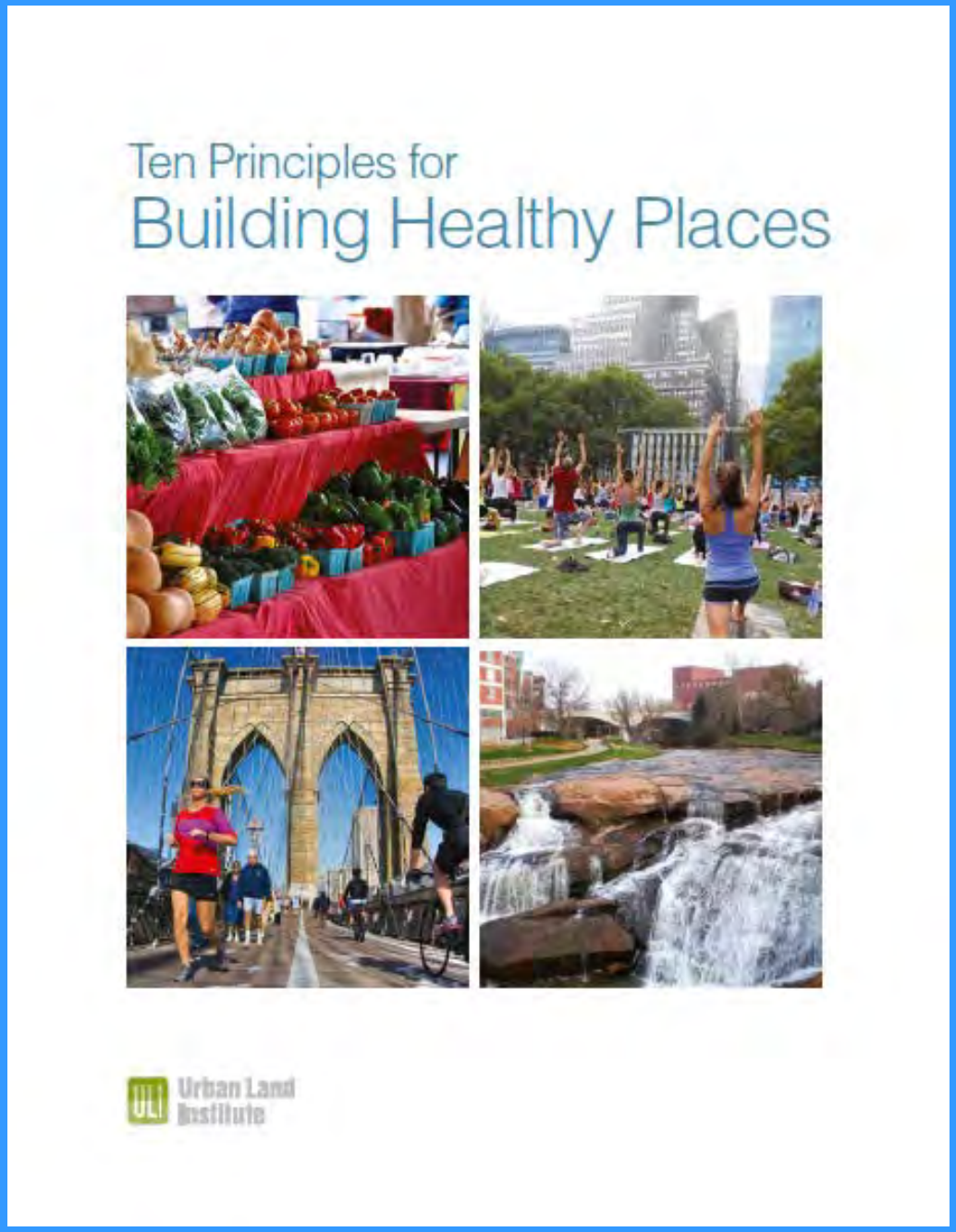
- AIA Report:

Local Leaders—
Healthier Communities Through Design

2013

Ten Principles for Building Healthy Places

The Urban Land Institute 2013

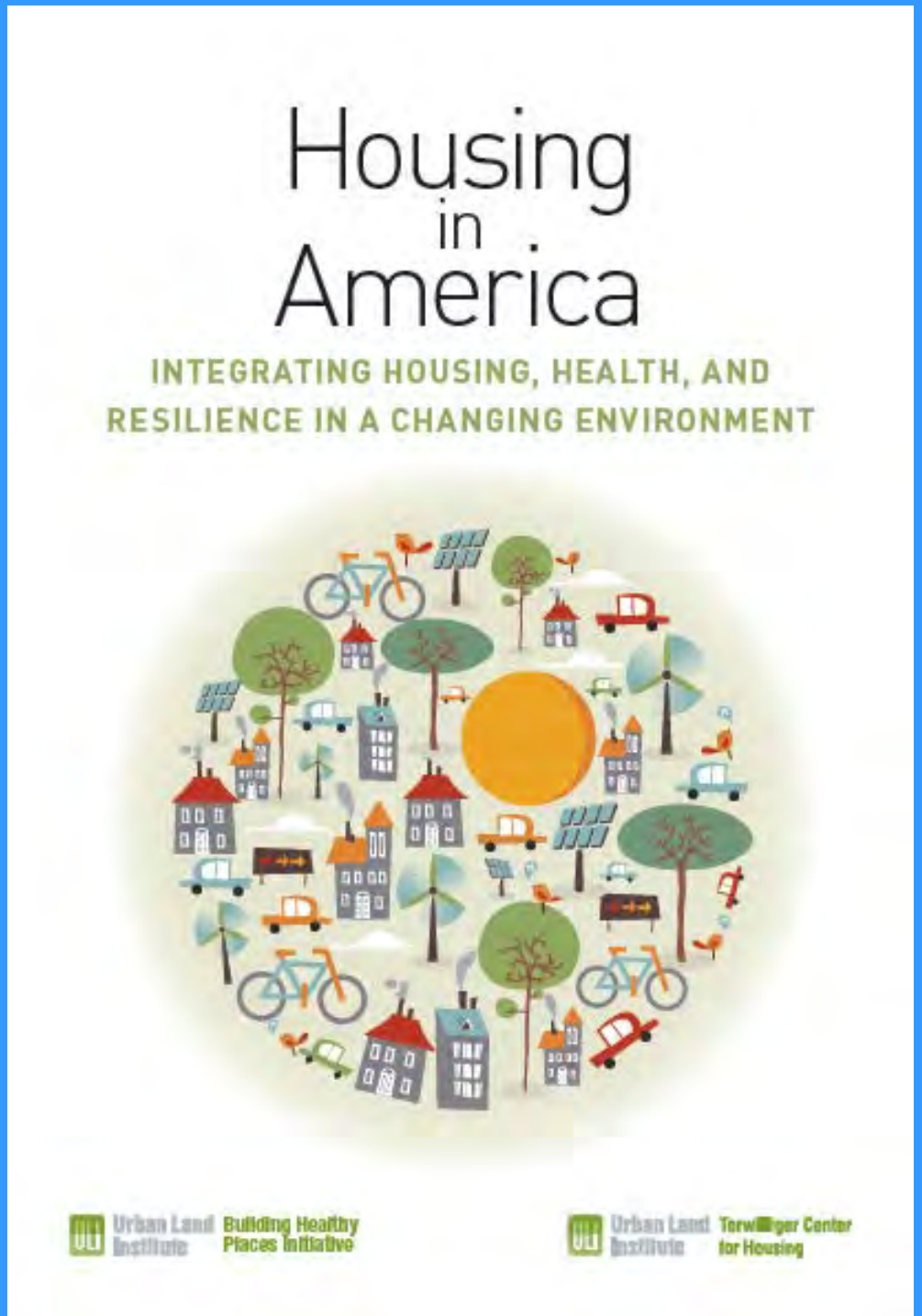


Ten Principles for Building Healthy Places

1. **Put People First**
2. **Recognize the Economic Value**
3. **Empower Champions for Health**
4. **Energize Shared Spaces**
5. **Make Healthy Choices Easy**
6. **Ensure Equitable Access**
7. **Mix It Up**
8. **Embrace Unique Character**
9. **Promote Access to Healthy Food**
10. **Make It Active**

5 Make Healthy Choices Easy

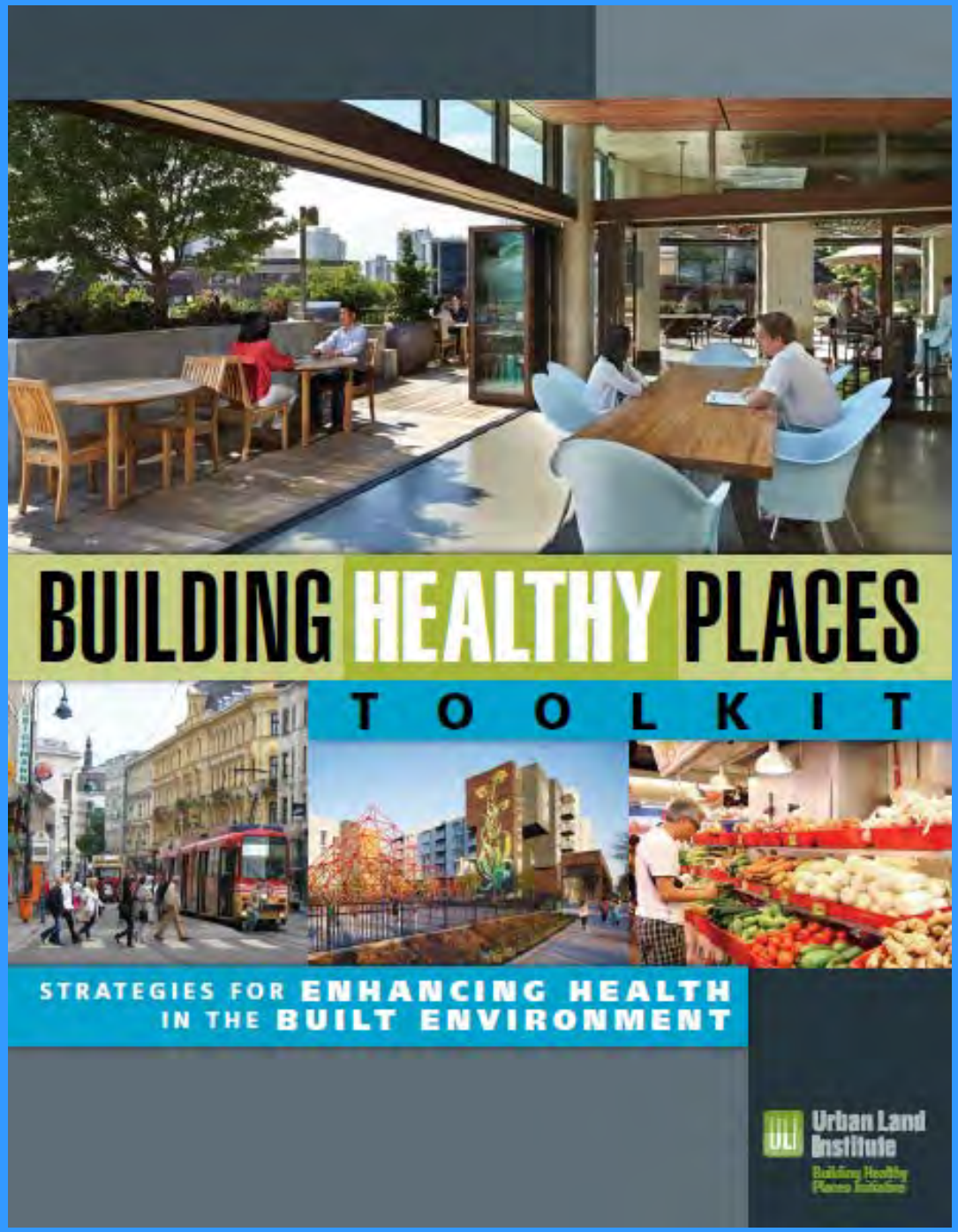
Communities should make the healthy choice the one that is SAFE—safe, accessible, fun, and easy.



Housing in America -- ULI --

August, 2014

Integrating Housing, Health, and Resilience in a Changing Environment



Urban Land Institute's *Healthy Places Toolkit*

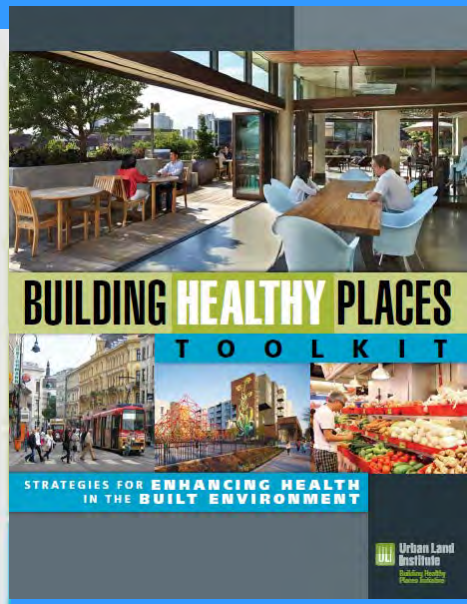
To be released at International Meeting in Paris February 5, 2015

http://www.uli.org/toolkit

http://www.uli.org/toolkit

Evidence-Based Recommendations

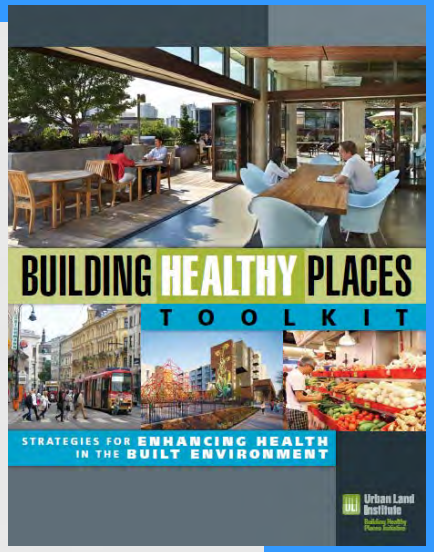
1. Incorporate a mix of land uses
2. Design well-connected street networks at the human scale
3. Provide sidewalks and enticing, pedestrian-oriented streetscapes
4. Provide infrastructure to support biking
5. Design visible, enticing stairs to encourage everyday use
6. Install stair prompts and signage
7. Provide high-quality spaces for multigenerational play and recreation
8. Build play spaces for children



http://www.uli.org/toolkit

Evidence-Based Recommendations

9 Accommodate a grocery store
10 Host a farmers market
11 Promote healthy food retail
12 Support on-site gardening and farming
13 Enhance access to drinking water
14 Ban smoking
15 Use materials and products that support healthy indoor air quality
16 Facilitate proper ventilation and airflow
17 Maximize indoor lighting quality
18 Minimize noise pollution
19 Increase access to nature
20 Facilitate social engagement
21 Adopt pet-friendly policies



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Richard J Jackson MD

dickjackson@ucla.edu