Good Jobs,
Slow Food,
Short Commutes,
Real Vitality…

Creating The West’s Future

Richard J. Jackson, MD, MPH
State Public Health Officer
California Department of Health Services
RJackso6@dhs.ca.gov
Urban Sprawl and Public Health
DESIGNING, PLANNING, AND BUILDING FOR HEALTHY COMMUNITIES

Howard Frumkin,
Lawrence Frank
and Richard Jackson
US Health Care Expenditures as Percent of GDP 1960 to Present

1960: 5.1%  
1970: 7.0%  
1980: 8.8%  
1990: 12.1%  
2001: 14.1%

$1.4 Trillion out of $10.08 Trillion GDP in 2001

www.cms.hhs.gov/statistics/nhe/
An Aging Population
Percentage of U.S. Population over Age 65

Source: From Baby Boom to Elder Boom: Providing Health Care for an Aging Population
Estimated Per Capita Health Expenditures by Age and Sex, 1995

Dollars

Source: From Baby Boom to Elder Boom: Providing Health Care for an Aging Population
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
I Believe:

• The Greatest Threat to Americans’ Health is
• How We Manage Our Wealth
• Supersizing and the Quality of American Life
Supersizing Soda Consumption

Girls (6-11 years old)

Supersizing Advertising: Number of TV Ads Seen By Children

Henry J. Kaiser Family Foundation. The Role of Media in Childhood Obesity, Issue Report, February 2004
Microsized Fitness of California’s Children

Annual California Fitnessgram

• Conducted in Grades 5, 7, and 9
• Measures 6 major fitness areas
  (e.g. aerobic capacity, body composition, flexibility)
• 2004 Results: Who passed all standards?
  25% ➔ Grade 5
  29% ➔ Grade 7
  26% ➔ Grade 9
Supersizing Our Homes

Average Size New American Homes

- Year Built
- Square feet

1982: 500 square feet
2002: 2000 square feet

Number in millions

1950: 151
1975: 210
2000: 281

Source: U.S. Census Bureau
U.S. Population, 1990-2100

Number in millions

Year

Source: U.S. Census Bureau
Population Projections for the Central Valley

- 2000: 5,740,000
- 2010: 7,119,000
- 2020: 8,688,000
- 2030: 10,229,000
- 2040: 11,693,000

Public Policy Institute of California, November 2004
Share of Households that can afford median priced home

San Francisco  Fresno

County

1990  2000

Public Policy Institute of California, 2004
Supersizing Stores

WalMart Annual Sales

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>300</td>
<td>350</td>
</tr>
</tbody>
</table>
Supersizing Land Consumption

California Paves or Builds on over 400 acres every day!
25 Years of Urban Growth in Atlanta

Source: Scientific Visualization Studio, Goddard Space Flight Center
Land Development: US and Coastal

- In 225 years of Land Development in the US, more than 25% has been in the last 15 years.
- In Coastal Areas Development is consuming land five times faster than population is growing.

National Resources Inventory USDA 2000
Supersizing Vehicle Travel

Miles per Capita: 1960 to 1995
From 4000 to 9200
VMT per person
Automobile fatality rates by city, 1998
(excluding pedestrian fatalities; deaths/100,000/year)

- Portland: 6.55
- San Francisco: 3.76
- Phoenix: 10.52
- Dallas: 11.33
- Houston: 9.80
- Atlanta: 13.12
- New York: 2.51
- Philadelphia: 5.36

Source: NHTSA
Automobile fatality rates by city, 1998
(excluding pedestrian fatalities; deaths/100,000/year)

- Portland: 6.55
- San Francisco: 3.76
- Phoenix: 10.52
- Dallas: 11.33
- Houston: 9.80
- Atlanta: 13.12
- New York: 2.51
- Philadelphia: 5.36

Source: NHTSA

One fatality per 66 million passenger miles
“It is the occupation of a child to immerse herself in her environment”. 
Children’s Contact with Nature

• School age children with ADHD who had higher contact with nature showed better concentration, task completion, and following of directions.

*Coping with ADD: The Surprising Connection to Green Play Settings” Environment and Behavior, 33 (1), 54-77  AF Taylor, FE Kuo, WC Sullivan, 2001*
Overall: Compared to 1969
Americans drive:
- 88% farther to shop
- 137% farther for errands

Mega-Mileage Moms
- Family “chauffeur”

Average minutes per day spent in car:
- Women overall: 64 minutes
- Single mothers: 75 minutes

Surface Transportation Policy Project: 2000
Women and Men’s Trip Making by Purpose, 1995

Women

- Social and Recreational: 24%
- Work: 16%
- Church & School: 9%
- Errand and Chauffeur Trips: 50%

Men

- Social and Recreational: 26%
- Work: 25%
- Church & School: 8%
- Errand and Chauffeur Trips: 41%

Source: Surface Transportation Policy Project
Supersized Air Pollution in California

10 Worst Cities for Air Quality

- Sacramento, Calif.
- Fresno, Calif.
- Bakersfield, Calif.
- Riverside, Calif.
- Louisville, Ky.
- Nashville, Tenn.
- Knoxville, Tenn.
- Charlotte, N.C./Rock Hill, S.C.
- Atlanta, Ga.
- Houston, Texas

Source:
Environmental Protection Agency
Days Per Year when Ozone Standard Exceeded
San Joaquin Valley vs. National

Air Resources Board, California Air Quality Trend Summaries
The Heat Island

Sketch of an Urban Heat-Island Profile

<table>
<thead>
<tr>
<th>Rural</th>
<th>Commercial</th>
<th>Urban Residential</th>
<th>Suburban Residential</th>
<th>Suburban Residential</th>
<th>Rural Farmland</th>
</tr>
</thead>
</table>
Heat Islands Affect Energy Use, the Environment, and Health

Higher Temperatures:

• Increase Electricity Demand
• Increase Emissions of CO₂ and other pollutants
• Increase production of ground level ozone
Temperature Projections
California, Summer (JJA)

-3 0 3 6 9 12
1960 1980 2000 2020 2040 2060 2080 2100
Temperature Change (°F)

HadCM3 higher  PCM higher  PCM lower
HadCM3 lower  PCM lower

Previous Midrange Projection
Temperature Projections
California, Winter (DJF)

- HadCM3 A1 (red)
- PCM A1 (green)
- HadCM3 B1 (orange)
- PCM B1 (yellow)

Temperature Change (°F)

- Previous Midrange Projections

Timeline:
- 1960
- 1980
- 2000
- 2020
- 2040
- 2060
- 2080
- 2100
We Supersize Our Climate Impact

Sierra Snowpack
% Remaining, Relative to 1961-1990

2020-2049
HadCM3 lower HadCM3 higher

2070-2099
HadCM3 lower HadCM3 higher

Sierra Snowpack % Remaining, Relative to 1961-1990
“Infiltration” of Water Brings Less Silting, Steadier and Cleaner, Base Flow.
Urban Runoff -- Nonpoint Source Pollution

- Every eight months, runoff from US roads and parking lots carries as much oil into the oceans as did the spill from the Exxon Valdez -- 10.9 million gallons

NRC “Oil in the Sea III” 2002
"Trying to hang on in the Poconos: from before dawn to way past dusk"

New York Times  April 11, 2004

Up at 3:30 am, getting the children to childcare and taking the 5:15 am bus to New York
More than 1 million children and teens in the US are on antidepressants

Childhood depression affects 1 in 20 children.

Anti-depressant use increases by 10% annually in children and adolescents.
• … the fastest-growing group of work travelers in the country, people who rarely see their houses in daylight, leave home when their kids are still asleep, and mainline Red Bull just to stay awake. They're known as extreme commuters. They spend at least a month of their lives each year traveling a minimum of an hour-and-a-half to work and back.
<table>
<thead>
<tr>
<th>Country</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>1,801</td>
</tr>
<tr>
<td>Denmark</td>
<td>1,504</td>
</tr>
<tr>
<td>France</td>
<td>1,590</td>
</tr>
<tr>
<td>Germany</td>
<td>1,482</td>
</tr>
<tr>
<td>Japan</td>
<td>1,821</td>
</tr>
<tr>
<td>Sweden</td>
<td>1,625</td>
</tr>
<tr>
<td>UK</td>
<td>1,708</td>
</tr>
<tr>
<td>USA</td>
<td>1,835</td>
</tr>
</tbody>
</table>

Americans Work a Lot!
Supersizing the number of days per month Americans Feel Unwell: Quality of Life Prevalence Data

19 million American adults

- Leading cause of disability in the U.S. and worldwide

Supersized Rates of Depression


Millions of prescriptions

SOURCE: IMS Health, Inc.
HEALTH AFFAIRS - Volume 19, Number 4
Methylphenidate (Ritalin) Consumption, United States and Elsewhere: 1987 - 2001

• “…students have better attendance, are less likely to drop out, exhibit fewer discipline problems, and perform better when attending a smaller high school.”

Secretary of Education Richard Riley  Oct 4, 2000
Obesity Trends* Among U.S. Adults

BRFSS, 1990

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

Obesity Trends* Among U.S. Adults

BRFSS, 1993

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

Obesity Trends* Among U.S. Adults

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Obesity Trends* Among U.S. Adults

BRFSS, 1999

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

Obesity Trends* Among U.S. Adults

BRFSS, 2001

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

Super-sizing: More Jet Fuel Use

- Mean weight gain of Americans in 1990s: 10 pounds
- Airline distance flown in 2000 in US: 515 billion passenger-miles
- Weight transported 1 mile by 1 gallon of fuel: 7.3 tons (passengers or cargo)
- Jet fuel to transport added weight in 2000: 350 million gallons
- Cost of extra fuel: $275 million
- CO₂ emissions from extra fuel: 3.8 million tons

Data sources: NCHS; US Dept. of Transportation
GI Surgery for Severe Obesity

Risk and Complications:

• 10-20% require follow-up surgery
• Abdominal hernia
• Break down of staple line
• Gallstones
• 30% develop nutritional deficiency

Cost: $20,000 to $50,000

Source: NIDDK

Highest Increase Rate of all Pediatric Surgeries
Average Cost per Surgery: $20,000 - $50,000
Link Between Obesity and Type 2 Diabetes: Nurses Health Study

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1993-94

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1997-98

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1999

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 2001

California’s Children Rank #2!

Highest Number of Low-income Overweight Children (age 2-5)

Trust for America’s Health, Issue Report, October 2004
Diabetes Projected Risks:
For Babies Born in 2000

Girls: 38% lifetime risk
If diabetic before age 40,
Lifespan shortened by 14 years
(Quality of life by 19 years)

Boys: 33% lifetime risk
If diabetic before age 40,
Lifespan shortened by 12 years
(Quality of life by 22 years)

Changes in Future Life Expectancies

- Current rates reduce life expectancy by 0.25 to 1 year.
- Rapidly increasing rates of Early Life Obesity and Diabetes are projected to increase these reductions to 2 to 5 years, or more.

Olshansky et al  NEJM  March 17, 2005
Nurse Study 1976-2000

Risk of Death

Nurse Study 1976-2000

Risk of Death

Lean: 1
Obese: 1.9

Nurse Study 1976-2000

Risk of Death

Nurse Study 1976-2000

Risk of Death

Life Expectancy
– American Females

• Industrialized nations: average life expectancy has increased by 3 months each year since 1850

• For American Females during most of the last 20 years:
  • unchanged

Olshansky et al   NEJM  March 17, 2005
## Cost of Overweight, Obesity & Physical Inactivity
California, 2000

<table>
<thead>
<tr>
<th>Category</th>
<th>Billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care</td>
<td>$10.172</td>
</tr>
<tr>
<td>Lost Productivity</td>
<td>$11.168</td>
</tr>
<tr>
<td>Workers Comp.</td>
<td>$0.338</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$21.678</strong></td>
</tr>
</tbody>
</table>

**Projected Cost for 2005:** $28 BILLION

We Can Turn This Around

• Personal Solutions
Heart Disease Success Story

Actual and Expected Death Rates for Coronary Heart Disease, 1950–1998

California vs. Rest of US: Adult per capita Cigarette Consumption 1984-2004

Packs/Person

$0.25 tax increase
$0.02 tax increase
U.S. minus CA
$0.50 tax increase

California

Packs per Year: California: 128 to 44

<table>
<thead>
<tr>
<th></th>
<th>86/87</th>
<th>87/88</th>
<th>88/89</th>
<th>89/90</th>
<th>90/91</th>
<th>91/92</th>
<th>92/93</th>
<th>93/94</th>
<th>94/95</th>
<th>95/96</th>
<th>96/97</th>
<th>97/98</th>
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<th>00/01</th>
<th>01/02</th>
<th>02/03</th>
<th>03/04</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>127.9</td>
<td>123.3</td>
<td>109.6</td>
<td>101.5</td>
<td>95.1</td>
<td>91.6</td>
<td>85.5</td>
<td>80.7</td>
<td>78.9</td>
<td>76.1</td>
<td>73.8</td>
<td>70.5</td>
<td>62.1</td>
<td>54.6</td>
<td>50.7</td>
<td>47.7</td>
<td>45.3</td>
<td>44.2</td>
</tr>
<tr>
<td>U.S.-CA</td>
<td>157</td>
<td>152.5</td>
<td>147.1</td>
<td>139.3</td>
<td>133.5</td>
<td>129.7</td>
<td>126.1</td>
<td>122.9</td>
<td>123.2</td>
<td>120.4</td>
<td>119.5</td>
<td>116.6</td>
<td>111.9</td>
<td>108.4</td>
<td>103.9</td>
<td>101.5</td>
<td>94.8</td>
<td>90.8</td>
</tr>
</tbody>
</table>

Source: California State Board of Equalization (packs sold) and California Department of Finance (population). U.S. Census, Tax Burden on Tobacco, and United States Department of Agriculture. Note that data is by fiscal year (July 1-June 30). Prepared by: California Department of Health Services, Tobacco Control Section, February 2005.
Lung and Bronchus Cancer Incidence Rates: 1988-2001 (age adjusted)

Lung Cancer rate: 73 to 58 (per 100,000 population)

1 Rates are per 100,000 and age-adjusted to the 2000 U.S. standard (19 age groups); Percent changes were calculated using 2 years for each end point; EAPCs were calculated using weighted least squares method.
* The EAPC is significantly different from zero (p<0.05).
Microsized Investment in Public Health, Protection and Prevention

Upstream Prevention -- Total < 3%

Downstream Care and Management

Total ≅ 97%
Institute of Medicine

The purpose of public health is to fulfill society’s interest in

......?

Future of Public Health 1988
The purpose of public health is to fulfill society’s interest in assuring the conditions in which people can be healthy.
Economy…
Economic Growth, strength in agriculture, jobs, industry

Environment…
Healthy air, water, food & healthy places to live, work, play

Equity…
Access to all aspects of community is fair for all residents
Causally Link to Obesity

• Sweetened Beverages
  – Americans over age 2: 16% of their total energy intake
  – For adolescents: 50% of daily intake of fructose

• Restaurant Prepared Foods

Center for Weight and Health  UCB  2005
ONE 20 oz SODA per day

- 17 teaspoons of SUGAR
- 250 calories
- 4 hrs bicycling
“Satiety”

– Reduction in food consumption after food loading.
  • 64% decrease after solid food
  • 9% decrease after liquid food

– “Energy consumed as solid food is more likely to decrease appetite than energy consumed as a liquid”

Mattes RD  UCB Center for Weight and Health 2005
Causal Link to Obesity (2)

• Restaurant Prepared Foods:
  – from 1970s to 1990s
    • Caloric Intake Tripled
    • Food dollar expenditures Doubled

• People who eat more food prepared away from home have higher rates of obesity
  – Nutritional quality poorer: higher in fat and lower in fiber
  – Consumers are encouraged to purchase “Value Meals”
Newest Wonder Drug

- Life span increase: 2 years
- Risk of Cardiovascular Disease: 40% less
- Rates of High Blood Pressure and Diabetes: Reduced
- Risk of breast & colon cancer: Reduced
- Mood and mental health status: Improved
- Body Mass Index (BMI): Reduced
- Health care costs: $300-$400 less per year
- Cost: minimal
Percentage of Trips in Urban Areas Made by Walking and Bicycling: North America and Europe 1995

The chart shows the percentage of trips made by walking and bicycling in various countries in North America and Europe in 1995. The countries listed are the United States, Canada, England and Wales, France, Italy, Switzerland, Germany, Austria, Sweden, Denmark, and the Netherlands. The percentages are as follows:

- United States: 6% walking, 4% bicycling
- Canada: 10% walking, 2% bicycling
- England and Wales: 12% walking, 8% bicycling
- France: 24% walking, 4% bicycling
- Italy: 24% walking, 4% bicycling
- Switzerland: 24% walking, 6% bicycling
- Germany: 22% walking, 8% bicycling
- Austria: 28% walking, 2% bicycling
- Sweden: 29% walking, 1% bicycling
- Denmark: 21% walking, 9% bicycling
- Netherlands: 28% walking, 2% bicycling

The chart indicates that walking is more prevalent in European countries compared to North American countries, with the Netherlands having the highest percentage of trips made by walking (28%) and the United States having the lowest (6%).
10,000 steps a day

- 3234 people with IGT (Pre-Diabetes)
- walked or exercised five times a week for 30 minutes
- lost 5% to 7% of their body weight
- reduced their risk of diabetes by 58%
Benefits of 10,000 steps

Diabetes Prevention Program Study, 2003
“Those living in Sprawling counties were likely to walk less (p=.004), weigh more (p<.001), and have a greater prevalence of hypertension (p=.018) than those living in compact counties.” (average six pound difference)

Ewing R et al: American Journal of Health Promotion
18 (1) Sept/Oct 2003
Places of the Heart
THE BUILT ENVIRONMENT AND HEALTH
11 Profiles of Neighborhood Transformation

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www.preventioninstitute.org
Exercise

Boyle Heights, California

Improved opportunities for walking and jogging

East Los Angeles
Improved opportunities for walking and jogging

Boyle Heights, California

- Small, densely populated, predominantly Latino urban community
- Evergreen Cemetery is one of the area’s main green spaces
- Before the Walking trail: High rates of Traffic-related deaths and hospitalizations
• Only **13%** of children walk or bike to school as compared to **66%** in 1974.  
  (CDC, 2000)

• About **85%** of children are driven to school in private vehicles— even when the students live less than two miles away.

• **50%** of children who live less than a mile away are driven to school regularly.  
  (CDC, 2002)
“Walking” School Bus
School Gardens

Exercise, Learning, Cooperation, Fun, and...

It Tastes good!
Importance of Food Markets

• In town stores: especially “mom and pop”
• Farmers’ Markets
• Transportation Access (including safe adequately-lit sidewalks)
• CDC now mandates its new Buildings have attractive, daylit stairways at main entrance.
• Elevators require more effort to get to than stairs
CDC Healthy Places Website

www.cdc.gov/healthyplaces

- Journal of Health Promotion: Full September Issue
- Increased Research Support From NIH
- Active University Planning/Health Collaborations