Designing a Healthier Community

FRIDAY, NOVEMBER 16, 2018
8:00 AM – 12:00 PM
VENTURA COUNTY OFFICE OF EDUCATION
5100 ADOLFO ROAD, SALON B & C,
CAMARILLO, CA 93010

KEYNOTE SPEAKER

Richard J. Jackson, M.D., MPH, is Professor Emeritus & former Chair of Environmental Health Sciences at the Fielding School of Public Health at UCLA and author of “Designing Healthy Communities” book and PBS series. As a pediatrician, he has served in many leadership positions with the California Health Department, including the highest, State Health Officer.

Dr. Jackson lectures and speaks on many issues, particularly those related to built environment and health. He co-authored two books: “Urban Sprawl and Public Health” in 2004, and “Making Healthy Places” in 2011. He hosted the 2012 public television special, Designing Healthy Communities, which is also the title of his 2012 book. He has served on many environmental and health boards, as well as the Board of Directors of the American Institute of Architects. He is an elected member of the United States National Academy of Medicine.
Health Equity: The Social and Physical Determinants of Health
Ventura County  Nov 2018

Richard J Jackson
MD MPH  FAAP HonAIA HonFASLA
dickjackson@ucla.edu
Professor Emeritus
UCLA Fielding School of Public Health
Social Determinants of Health Series: Designing a Healthier Community - Join the Conversation

Event:
Ventura County Health Care Agency, Ventura County Public Health, Ventura County Behavioral Health
November 16, 2018

Friday, November 16, 2018
8:00 AM - 12:00 PM
Ventura County Office Of Education
5100 Adolfo Road, Camarillo, CA

DESCRIPTION

Can the Built Environment Build Community?
Health starts where you live, learn, work and play. The built environment is everything we have made to live our lives including homes, places of business, public spaces, and parks and recreational areas—or lack thereof.

A healthy community depends on human, institutional, organizational and environmental resources available within the community. The physical design of a community—the built environment—affects health every time a person steps out of the front door and into their neighborhood. Community happens when people connect with each other. The built environment can encourage interaction or hinder it.

Establishing the design of a healthy community is a complex issue and not one that can be solved by any one organization. Everyone has a role in building a healthy community. Local actions support quality of life as well as create a stronger, healthier communities. Join the conversation and get involved.

FEATURED SPEAKERS

- KEYNOTE SPEAKERS: "Designing Healthy Communities," Richard J. Jackson, MD, MPH, is Professor Emeritus of Environmental Health Sciences at the Fielding School of Public Health at UCLA. Author of book and PBS series "Designing Healthy Communities."

- "Exploring the Local Landscape of Healthy Communities," Rigoberto Vargas, MPH, Director, Ventura County Public Health
Quiz: Why is Planning Essential?

A. Shelf life of human beings is short
B. Today’s decisions last decades
C. Today’s decisions, when cast in concrete, last centuries
D. It is cheaper and easier to do it smart and right than to undo and retrofit later.
Land Use Decisions Matter to Health Because…

A. More Pavement = More Air Pollution
B. More Pavement = More Water Pollution
C. More Transit = More Walking
D. More Sidewalks = More Walking
E. More Physical Activity = Better Health
F. Less Isolation = Less Depression
Social Determinants

(Photo: Marvin O. Jimenez)
The Physical Determinants of Health
The Physical Determinants of Health

The Built Environment is...

Social Policy in Concrete
December 7, 1941
San Francisco General Hospital Nursery
1975
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 doctor,

• And the rest of US.
Institute of Medicine

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

......?

Future of Public Health 1988
Institute of Medicine

The purpose of public health is to fulfill society’s interest in assuring the conditions in which people can be healthy.
CDC in 1975
CDC Headquarters - Atlanta
Richard Jackson Sworn in by CDC Director David Satcher as Director, National Center for Environmental Health
September, 1994
Life Expectancy at Birth and Health Spending 2011
Life Expectancy at Birth and Health Spending 2011

![Graph showing the correlation between life expectancy and health spending per capita in various countries.](image-url)

- The graph displays the relationship between life expectancy in years and health spending per capita (USD PPP).
- Countries are represented by red diamonds, with notable outliers such as the USA.
- The curve indicates a positive correlation, with higher health spending generally associated with longer life expectancy.
- The R² value of 0.51 suggests a moderate level of explained variance in life expectancy by health spending.
• “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
US Adult Obesity Rates 1990

Adult Obesity Rate by State, 1990

Select years with the slider to see historical data. Hover over states for more information. Click a state to lock the selection. Click again to unlock.

Percent of obese adults (Body Mass Index of 30+)
- 0 - 9.9%
- 10 - 14.9%
- 15 - 19.9%
- 20 - 24.9%
- 25 - 29.9%
- 30 - 34.9%
- 35%+

Map showing the distribution of obesity rates by state in 1990.
US Adult Obesity Rates 1995

Adult Obesity Rate by State, 1995

Select years with the slider to see historical data. Hover over states for more information. Click a state to lock the selection. Click again to unlock.

Percent of obese adults (Body Mass Index of 30+)

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- 10 - 14.9%
- 15 - 19.9%
- 20 - 24.9%
- 25 - 29.9%
- 30 - 34.9%
- 35% +
US Adult Obesity Rates 2000

Adult Obesity Rate by State, 2000

Select years with the slider to see historical data. Hover over states for more information. Click a state to lock the selection. Click again to unlock.

Percent of obese adults (Body Mass Index of 30+)

- 0 - 9.9%
- 10 - 14.9%
- 15 - 19.9%
- 20 - 24.9%
- 25 - 29.9%
- 30 - 34.9%
- 35% +
Supersizing 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: $1.4 billion
  - (Sept 2008 prices)
- CO$_2$ emissions from extra fuel: 3.8 million tons

Data sources: NCHS; US Dept. of Transportation
Relationship Between BMI and Risk of Type 2 Diabetes

“[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”.

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

TODD Study Group™

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 Todd group — Phil Zelek, M.D., Ph.D., University of Colorado Denver, Aurora; Kathleen Weil, Ph.D., and Laura Holle, M.S., George Washington University, Washington, D.C.; Barbara Lloyd, 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 Anderson, M.D., Children’s Hospital of Pittsburgh, Pittsburgh; Laura Carter, M.D., Case Western Reserve University, Cleveland; Carol M. Nathan, M.D., Massachusetts General Hospital, Boston.

David B Allen MD
New England Journal of Medicine
April 29, 2012
MRI Study of Brain Scans of 120 older adults--
Half —
Moderate aerobic exercise: 45 minutes, three days a week, mostly walking.

Half—
No extra aerobic exercise.

One year later:
MRI Study of Brain Scans of 120 older adults One Year Later—

Half — Moderate aerobic exercise --
   45 minutes, three days a week, mostly walking.

    Brain size increased

Half— No extra aerobic exercise --
    Brain Size Decreased 1.5%

Result: 3.5% difference
Further tests showed that increased brain volume translated into better memory.
Gain in Longevity for a 45-Year Old Male

Additional years of Life:
Moving from Low to Moderate Fitness -- 5.8 years
From Low to High -- 8.7 years.
### Overall Health Status US

**Persons Aged 46-64**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Report “excellent” health</td>
<td></td>
</tr>
<tr>
<td>32%</td>
<td>13%</td>
</tr>
<tr>
<td>Limitations to Life Functions</td>
<td></td>
</tr>
<tr>
<td>9%</td>
<td>14%</td>
</tr>
<tr>
<td>Using Walking Assist (wheelchair, cane, etc)</td>
<td></td>
</tr>
<tr>
<td>3%</td>
<td>7%</td>
</tr>
</tbody>
</table>

*JAMA Internal Medicine* February 4, 2013
## “Lifestyle Factors” US
Persons Aged 46-64 (NHANES)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>28%</td>
<td>21%</td>
</tr>
<tr>
<td>Obesity</td>
<td>29%</td>
<td>39%</td>
</tr>
<tr>
<td>Years</td>
<td>No Regular Physical Activity</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------</td>
<td></td>
</tr>
<tr>
<td>1988-1994</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>2007-2010</td>
<td>52%</td>
<td></td>
</tr>
</tbody>
</table>
NOAA-measured Global Temperature Change

- Lower Troposphere and Actual Surface Measurements
- Change per decade over 25 years

Science 12 May 2006: Vol. 312, no. 5775, p. 825
July 6, 1999
• The Built Environment – how we build our homes, workplaces, towns, cities and world
The United States has now paved over the equivalent area of the entire state of Georgia — 60,000 square miles.

And Photosynthesis is our friend!
Two houses, adjoining back yards
(From Streetsblog, 02/28/2013)
Commuting by driving is mostly not good for you.

Traffic along LA freeways and Wilshire Blvd.
Automobile fatality rates by city, 1998
(excluding pedestrian fatalities; deaths/100,000/year)

Source: NHTSA

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

Source: NHTSA
Pedestrian Fatality Rates for Collisions at Different Speeds

Zegeer et al. 2002
The LA County Parking Crater:
18.6 Million Parking Spots Use 200 Square Miles of Space

16 miles in diameter
2.3 million residents
900,000 homes
1 million workers

Shane Phillips    Better Institutions    APA
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

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

Centers for Disease Control and Prevention

SPRAWL WATCH CLEARINGHOUSE MONOGRAPH SERIES
Medline Keyword Search:

“Built Environment” and “Health”

Sept 1993 – Sept 2003
58 Articles

American Journal of Public Health
A Big Shift in Public Health’s Awareness of Built Environment as a Core Determinant of Health
Urban Sprawl and Public Health
DESIGNING, PLANNING, AND BUILDING FOR HEALTHY COMMUNITIES

Howard Frumkin, Lawrence Frank, and Richard Jackson
“Health pros link sprawl with spread; Suburbs, obesity stir debate”
(headline)
Critique from a Harvard Professor: “Americans are so car-oriented that will be hard to return to a pedestrian world.”

• "Unsurprisingly, the free market has come up with its own walking cities that are surely more popular than anything the smart-growth advocates are going to come up [with],"
"They are called shopping malls"

Edward L. Glaeser,
urban economist
Harvard University

Atlanta Journal
Constitution
November 17, 2003
Return as State PH Chief 2004
The Built Environment: Designing Communities to Promote Physical Activity in Children

Policy Statement American Academy of Pediatrics
June 2009
NYC Active Design Guidelines

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

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.
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
2011 APHA Annual Meeting

“land use” 102 matches


“built environment” 182 matches

1. Systematic assessment of built environment disparities: The Multnomah County Built Environment Atlas project
Medline Keyword Search: “Built Environment” and “Health”

Sept 1993 – Sept 2003
58 Articles

Sept 2003 – May 2013
665 Articles

American Journal of Public Health
Built Environment and Health Issue
September, 2003
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.
Physical Activity: Built Environment Approaches Combining Transportation System Interventions with Land Use and Environmental Design

Summary of Task Force Finding

The Community Preventive Services Task Force (CPSTF) recommends built environment strategies that combine one or more interventions to improve pedestrian or bicycle transportation systems with one or more land use and environmental design interventions to increase physical activity.

https://www.thecommunityguide.org/sites/default/files/assets/PA-Built-Environments.pdf
2016 APHA Annual Meeting

“Land Use”
1000 matches

“Built Environment”
703 matches
Built Environment Opportunities Possibly Ahead

Infrastructure may be back on the table with a gas tax to pay for it

BY TORY NEWMYER
with Bastion Inzaurraide

THE TICKER

President Trump sits in the cab of a truck as he welcomes members of American Trucking Associations to the White House in March 2018.
Health Equity: The Social and Physical Determinants of Health
Ventura County  Nov 2018
Environmental Impact Assessment Should Be Made in the 21st Century

• If we did Impact Assessments that emphasized health and well-being, and captured health and societal benefits, as well as environmental impacts, we would make better construction decisions.
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 demand HIA, integration into EIA will be required to achieve the substantive goals set forth by NEPA. However, where legal standards do not require HIA, integration into EIA is not mandated by law. In such cases, HIA can be performed as a separate activity.
“...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.”
Caltrans Mission, Vision, Goals

**Mission:** Caltrans provides a safe, sustainable, integrated, and efficient transportation system to enhance California’s economy and livability.

This transportation system must accommodate all modes of travel – highway users, transit users, pedestrians, and bicyclists. We know California’s transportation system cannot meet our state’s needs with just highways. We can only make a safe, sustainable, effective and efficient transportation system if we work to improve all modes of travel.

**Goals:** Safety and Health
Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities.

**Sustainability, Livability and Economy**
Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.

Effective 2014
Caltrans Mission and Vision
Effective 2014

Caltrans strives for an interconnected, multimodal transportation system that is consistent with its newly adopted mission statement:

**Mission:** Caltrans provides a safe, sustainable, integrated, and efficient transportation system to enhance California’s economy and livability.

This transportation system must accommodate all modes of travel – highway users, transit users, pedestrians, and bicyclists. We know California’s transportation system cannot meet our state’s needs with just highways. We can only make a safe, sustainable, effective and efficient transportation system if we work to improve all modes of travel.

**Vision:** A performance-driven, transparent and accountable organization that values its people, resources, and partners, and meets new challenges through leadership, innovation and teamwork.
CalTrans Goals
Effective 2014

Goals: Safety and Health
Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities.

Stewardship and Efficiency
Money counts. Responsibly manage California's transportation-related assets.

Sustainability, Livability and Economy
Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl.

System Performance
Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.

Organizational Excellence
Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability.
For every age group from 3 through 34--crashes were the No. 1 cause of death
<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Urban Area</th>
<th>Transport</th>
<th>Carbon Emissions: Tonnels CO₂ per Person (Public + Private Transport)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta</td>
<td>5.25 million</td>
<td>4.280 km²</td>
<td></td>
<td>7.5</td>
</tr>
<tr>
<td>Barcelona</td>
<td>5.33 million</td>
<td>162 km²</td>
<td></td>
<td>0.7</td>
</tr>
</tbody>
</table>

Source: Bertaud and Richardson, 2004.\textsuperscript{57}
Two Cities -- 5 million+ population

POPULATION: 5.25 MILLION
URBAN AREA: 4.280 KM²

POPULATION: 5.33 MILLION
URBAN AREA: 162 KM²
Supersizing 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: $1.4 billion
  - (Sept 2008 prices)
- CO$_2$ emissions from extra fuel: 3.8 million tons

Data sources: NCHS; US Dept. of Transportation
Frederick Law Olmsted
(April 26, 1822 – August 28, 1903)
Head of US Sanitary Commission
during the Civil War
Canine Constitutional

A brisk walk in the park keeps Maxx II in shape between dog shows. His owner, Columbus resident Cathy Stumho, got up early to give her 3-year-old Doberman his regular workout. They typically jog 25 miles in Berliner Park.
Will 23 lanes be enough?

Proposal would put I-75 among country's biggest

By ARIEL HART
ahart@ajc.com

It's wider than an aircraft carrier. Far wider than the carving on Stone Mountain. Wider than the White House stretched end to end, twice.

It's the planned I-75, all 23 lanes, coming soon to Cobb County. As currently conceived it's 388 feet across, wider than a football field is long.

23 LANES: The state Department of Transportation is planning to expand I-75 (below) and I-575 in Cobb and Cherokee counties. The 23-lane stretch would be between Delk and Windy Hill roads on I-75.

<table>
<thead>
<tr>
<th>Truck lanes</th>
<th>General purpose lanes</th>
<th>HOV lanes</th>
<th>General purpose lanes</th>
<th>Truck lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southbound</td>
<td></td>
<td>Northbound</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Truck and van pools and buses ride for free. Single-occupant vehicles must pay. Cost rises when traffic is heavier.

Traffic heads north on I-75 just north of I-285 on Thursday. A proposal for the interstate is enough to make a road builder weep with joy and make others wonder whether it's overkill.
Charlantingham: Welcome to the big city

By Maurice Tamman
mtamman@ajc.com

Charlotte — Over the past 40 years, satellite lenses have clicked away, 450 miles high, capturing the nation’s night lights.

In the 1970s, those lenses detected only a few blips from Georgia, Alabama, Tennessee, and the Carolinas. Today, the region glows like a wheel-shaped constellation, with Atlanta at its hub.

During that time, markets in the Piedmont have grown from 1.39 million people in five counties to 4.11 million people in 41 counties; it pushes out I-20, I-75, and I-85 toward Birmingham, Greenville, S.C., Charlotte and even Raleigh and from Chattanooga to Macon. This shows how the areas are growing together as people move to areas along the interstates. A look at those metropolitan statistical areas and their populations.
Downtown Los Angeles
## Temperature Effects of Asphalt “Meadows” Atlanta

**May 11-12, 1997**

<table>
<thead>
<tr>
<th>Remote Sensing Target</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hartsfield Airport, Concrete Runway</td>
<td>84.2°</td>
</tr>
<tr>
<td>Turner Field, Aged Asphalt Parking Lot</td>
<td>98.6°</td>
</tr>
<tr>
<td>Turner Field, New Asphalt Parking Lot</td>
<td>102.2°</td>
</tr>
</tbody>
</table>


*NASA Thermal and Land Application Sensor.*
The Heat Island

Sketch of an Urban Heat-Island Profile

Late Afternoon Temperature

- Rural
- Commercial
- Urban Residential
- Suburban Residential
- Downtown
- Park
- Rural Farmland

°F

33
32
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°C
Asthma outbreak hits kids
RISKS OF THE ‘RED ZONE’

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