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**INSTITUTE OF MEDICINE**

**BOARD ON POPULATION HEALTH AND PUBLIC HEALTH PRACTICE**

**Roundtable on Population Health Improvement**

**September 30, 2015**

**ATTENDEE PACKET CONTENTS**

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1. Workshop Agenda
  2. Speaker Bios
  3. Presentation – David Holtgrave – *Protecting Health, Saving Lives – Millions at a Time*  
(NOTE: includes only presentations provided in time to include with meeting materials. Other presentations will be available on the meeting webpage soon after the meeting)
  4. Instructions for Small Group Discussion (Yellow)
  5. Survey Results (Blue)
  6. Resources
    - Resource List
    - Nancy Krieger Resource List
    - Meltzer, R. and A. Schwartz. 2015. Housing Affordability and Health: Evidence from New York City Housing Policy Debate.
    - Perspective – *Building the Science for a Population Health Movement* (Nancy Adler, Christine Bachrach, Dorothy Daley, and Michelle Frisco, 2013)
-



*The National Academies of*  
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**Institute of Medicine Roundtable on Population Health Improvement**

**Advancing the Science to Improve Population Health: A Workshop**

**September 30, 2015**

**DRAFT AGENDA**

**Location:** The National Academy of Sciences, 2101 Constitution Ave NW, Washington, DC

**WORKSHOP OBJECTIVES:**

1. To provide frameworks for understanding population health research and its role in shaping and having an impact on population health.
2. To identify individual and institutional facilitators and challenges regarding the production, communication and use of research for population health improvement.
3. To identify some key areas for future research critical to the advancement of population health improvement.

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8:15 am **Welcome and overview of the day**

*George Isham, senior advisor, HealthPartners, senior fellow, HealthPartners Institute for Education and Research; co-chair, Roundtable on Population Health Improvement*

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8:30 am **Keynote Speaker**

*Nancy Krieger, professor of social epidemiology, Department of Social and Behavioral Sciences, Harvard T.H. Chan School of Public Health; director, HSPH Interdisciplinary Concentration on Women, Gender, and Health*

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9:15 am **Q&A/Discussion**

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9:30 am **Research Designs and Frameworks For Population Health Improvement**

*Paula Lantz, professor and associate dean for research and policy engagement, Gerald R. Ford School of Public Policy, University of Michigan; professor of health management and policy, University of Michigan School of Public Health; chair of the planning committee; member of the IOM Roundtable on Population Health Improvement*

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10:00 am **Break**

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10:15 am **Research in Practice: Opportunities and Challenges**

*Moderator, David Kindig, professor emeritus of population health sciences, emeritus vice chancellor for health sciences, University of Wisconsin-Madison, School of Medicine and Public Health; co-chair, IOM Roundtable on Population Health Improvement*

*Maya Brennan, vice president, housing, Urban Land Institute Terwilliger Center for Housing*

*David Holtgrave, professor and chair of the Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health*

*Brendan Nyhan, assistant professor, Department of Government, Dartmouth College*

*Lisa Simpson, president & CEO, AcademyHealth; member of the planning committee*

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11:00 am **Q&A/Discussion**

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11:30 am **Building a Population Health Research Agenda: Survey Results**

*Phyllis Meadows, associate dean for practice, clinical professor of health management and policy, University of Michigan School of Public Health and senior fellow, Health Program, Kresge Foundation; member of the planning committee and of the IOM Roundtable on Population Health Improvement*

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12:00 pm **Lunch**

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1:00 pm **Population Health Research Priorities: Perspectives from the Field**

*Moderator, Jeffrey Levi, Trust for America's Health*

*LaMar Hasbrouck, executive director, National Association of County and City Health Officials (NACCHO)*

*Ron Pollack, executive director, Families USA*

*Linda Elam, deputy assistant secretary, Disability, Aging and Long-Term Care Policy, assistant secretary for planning and evaluation, U.S. Department of Health and Human Services*

*Jenelle Krishnamoorthy, executive director, U.S. Policy and Government Relations, Merck & Co.*

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1:40 pm **Q&A/Discussion**

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2:00 pm **Setting a Research Agenda for Population Health Improvement: Facilitated Small Group Discussions**

What research is needed to foster population health improvement?

Participants will arrange themselves at tables to focus on 1 of 3 research areas for discussion:

- 1) research regarding the understanding of problems/basic phenomena
  - 2) research regarding interventions and policy action
  - 3) research regarding how to better facilitate dissemination and use of existing research results
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3:15 pm **Break**

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3:30 pm **Report Back from Groups**

Explore priority research questions

Explore research needs and challenges

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4:30 pm **Discussion and Reflections on the day**

*David Kindig, professor emeritus of population health sciences, emeritus vice chancellor for health sciences, University of Wisconsin-Madison, School of Medicine and Public Health; co-chair, IOM Roundtable on Population Health Improvement*

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5:00 pm **Adjourn**

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For more information, visit [iom.nationalacademies.org/pophealthrt](http://iom.nationalacademies.org/pophealthrt) or email [pophealthrt@nas.edu](mailto:pophealthrt@nas.edu).

**\*\*\* Live-tweeting? Please use our hashtag #PopHealthRT \*\*\***

## Institute of Medicine Roundtable on Population Health Improvement

Advancing Science to Improve Population Health: A Workshop

Washington, DC · September 30, 2015

### BIOSKETCHES OF PRESENTERS AND INVITED GUESTS

#### Maya Brennan

Maya Brennan is Vice President, Housing, of the ULI Terwilliger Center for Housing. Ms. Brennan joined ULI in 2014 and leads the center's research efforts, including the dissemination of interdisciplinary research through the How Housing Matters portal.

Ms. Brennan joined ULI from the National Housing Conference's Center for Housing Policy, where for seven years she wrote and spoke extensively about affordable housing issues, including how developers and policymakers can use housing to improve outcomes in education, health, aging, and economic self-sufficiency. Maya has authored or co-authored numerous publications, including *Veterans Permanent Supportive Housing: Policy and Practice*; *Comparing the Costs of New Construction and Acquisition-Rehab in Affordable Multifamily Rental Housing*; *The Impacts of Affordable Housing on Education*; and *Strengthening Economic Self-Sufficiency Programs: How Housing Authorities Can Use Behavioral and Cognitive Science to Improve Programs*.

Ms. Brennan holds a master's of science in urban policy analysis and management from the Milano Graduate School at the New School in New York. She earned a Bachelor of Arts degree in liberal arts from St. John's College in Santa Fe, New Mexico.

#### Linda Elam

Linda Elam serves as the Deputy Assistant Secretary directing the office of Disability, Aging and Long-Term Care Policy (DALTCP) within the Office of the Assistant Secretary for Planning and Evaluation (ASPE) at the U.S. Department of Health and Human Services (HHS). DALTCP provides leadership on HHS policies that support the independence, health and productivity of elderly individuals and people with disabilities, including issues related to integrated care, rehabilitative services, mental health parity, post-acute and long-term care, employment of people with disabilities, and the direct care workforce. The Office is home to and supports the Congressionally-established National Advisory Council on Alzheimer's Research, Care and Services.

Prior to joining ASPE, Dr. Elam was Senior Deputy Director and State Medicaid Director at the District of Columbia's Department of Health Care Finance (DHCF). During her time at DHCF, Dr. Elam had key responsibility for implementing critical programmatic changes related to the Affordable Care Act, including Medicaid expansion and the initial work that established the District's health benefits exchange. In addition, she spearheaded Medicaid long-term care reform activities designed to both right-size the program and improve the quality of benefits delivered to eligible residents.

Before she began government service, Dr. Elam was a Principal Policy Analyst with the Henry J. Kaiser Family Foundation, where her areas of focus included Medicaid, prescription drug policy, racial and ethnic disparities in health care, and mental health. Dr. Elam received her B.S. in zoology with honors from Howard University, her M.P.H. in Health Policy and Administration from the University of California at Berkeley, and her Ph.D. in Health Policy and Management from the Bloomberg School of Public Health at the Johns Hopkins University.

### **LaMar Hasbrouck**

A graduate of the University of California-Berkeley's School of Public Health, UCLA School of Medicine (Charles R. Drew-UCLA Program), and the New York-Presbyterian Hospital's Internal Medicine Residency Program, Dr. LaMar Hasbrouck is currently the executive director of the National Association of County and City Health Officials (NACCHO), the national non-profit organization that represents the country's nearly 2,800 local health departments. As the executive director, Hasbrouck leads the association's mission to be a leader, partner, catalyst, and voice for local health departments to ensure the conditions that promote health and equity, combat disease, and improve the quality and length of all lives.

Prior to joining NACCHO, Dr. Hasbrouck was the director of the Illinois Department of Public Health. Among Hasbrouck's achievements as director, he developed a five-year strategy, implemented various aspects of the Affordable Care Act, applied for national accreditation by the Public Health Accreditation Board, and built successful partnerships to pass a state cigarette tax increase. Dr. Hasbrouck also led the development of the statewide blueprints for health workforce expansion and population health-healthcare integration, two key initiatives of the Governor's Office for Health Innovation and Transformation.

Prior to his appointment as the "Top Doc" for Illinois, Dr. Hasbrouck was Public Health Director of Ulster County, and the only county official in New York State to simultaneously lead both the public health and mental health departments. Before that, he spent 11 years with the Centers for Disease Control and Prevention (CDC), the nation's premier public health agency, where his impressive record of service included co-authoring the first Surgeon General's Report on Youth Violence (2001) and the active engagement in two of the largest global health initiatives in history: polio eradication with the World Health Organization and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), where he served in a diplomatic assignment as the CDC Director in Guyana, South America.

Formerly, Hasbrouck served on faculties of medicine and public health at Emory University, Morehouse College, New York Medical College, and the University of Illinois in Chicago. He is a diplomat with the American Board of Internal Medicine, a former Epidemic Intelligence Service (EIS) Officer at the CDC, and primary care health policy fellow at the Department of Health and Human Services, Health Resources and Services Administration (HRSA). He has received numerous awards for his governmental and non-governmental work. His knack for making health make sense has made him a much sought after speaker and change agent for healthy living.

### **David Holtgrave**

David Holtgrave, Ph.D. is Professor and Chair of the Department of Health, Behavior, and Society at the Johns Hopkins Bloomberg School of Public Health. He also co-directs the Center for Implementation Research, and is the Interim Director of the Lerner Center for Public Health Promotion.

Dr. Holtgrave's research has focused on the effectiveness and cost-effectiveness of a variety of HIV prevention and care interventions (including the provision of housing as a structural HIV/AIDS intervention), and the relationship of the findings of these studies to HIV prevention policy making. He

has served on an Institute of Medicine panel charged with recommending methods to improve the public financing and delivery of HIV care in the United States. He has also previously served as the Director of the Division of HIV/AIDS Prevention -- Intervention Research & Support at the US Federal Centers for Disease Control and Prevention (CDC).

In addition, Dr. Holtgrave has investigated the relationship between social capital measures, infectious disease rates, and risk behavior prevalence. He has worked extensively on HIV prevention community planning, and has served as a member of the Wisconsin HIV Prevention Community Planning group. He is currently a member and Vice-Chair of the Presidential Advisory Council on HIV/AIDS (PACHA).

Dr. Holtgrave received his Ph.D. from the University of Illinois in 1988.

#### **George Isham (Roundtable Co-chair)**

George Isham, M.D., M.S. is Senior Advisor to HealthPartners, responsible for working with the board of directors and the senior management team on health and quality of care improvement for patients, members and the community. Dr. Isham is also Senior Fellow, HealthPartners Research Foundation and facilitates forward progress at the intersection of population health research and public policy. Dr. Isham is active nationally and currently co-chairs the National Quality Forum convened Measurement Application Partnership, chairs the National Committee for Quality Assurance's clinical program committee and is a member of NCQA's committee on performance measurement. Dr. Isham is chair of the Institute of Medicine's Roundtable on Health Literacy and has chaired three studies in addition to serving on a number of IOM studies related to health and quality of care. In 2003 Isham was appointed as a lifetime National Associate of the National Academies of Science in recognition of his contributions to the work of the Institute of Medicine. He is a former member of the Center for Disease Control and Prevention's Task Force on Community Preventive Services and the Agency for Health Care Quality's United States Preventive Services Task Force and currently serves on the advisory committee to the director of Centers for Disease Control and Prevention. His practice experience as a general internist was with the United States Navy, at the Freeport Clinic in Freeport, Illinois, and as a clinical assistant professor of medicine at the University of Wisconsin Hospitals and Clinics in Madison, Wisconsin. He was elected to the National Academy of Medicine in 2014.

#### **David A. Kindig (Roundtable Co-chair)**

David A Kindig received a B.A. from Carleton College in 1962 and M.D. and Ph.D. degrees from the University of Chicago School of Medicine in 1968. He completed residency training in Social Pediatrics at Montefiore Hospital in 1971. Dr. Kindig served as Professor of Preventive Medicine/Population Health Sciences at the University of Wisconsin from 1980-2003, where he developed a unique distance education graduate degree in medical management. He was Vice Chancellor for Health Sciences at the University of Wisconsin-Madison from 1980-1985, Director of Montefiore Hospital and Medical Center (1976-80), Deputy Director of the Bureau of Health Manpower, U.S. Department of Health, Education and Welfare (1974-76), and the First Medical Director of the National Health Services Corps (1971-73). He was National President of the Student American Medical Association in 1967-68.

He served as Chair of the federal Council of Graduate Medical Education (1995-1997), President of the Association for Health Services Research (1997-1998), a ProPAC Commissioner from 1991-94 and as Senior Advisor to Donna Shalala, Secretary of Health and Human Services from 1993-95. In 1996 he was elected to the National Academy of Medicine, National Academy of Sciences. He received the Distinguished Service Award, University of Chicago School of Medicine 2003. He chaired the Institute of Medicine Committee on Health Literacy in 2002-2004, chaired Wisconsin Governor Doyle's Healthy

Wisconsin Taskforce in 2006, and received the 2007 Wisconsin Public Health Association's Distinguished Service to Public Health Award.

### **Nancy Kreiger**

Nancy Krieger is Professor of Social Epidemiology, Department of Social and Behavioral Sciences, at the Harvard T.H. Chan School of Public Health and Director of the HSPH Interdisciplinary Concentration on Women, Gender, and Health. She has been a member of the School's faculty since 1995. Dr. Krieger is an internationally recognized social epidemiologist (Ph.D., Epidemiology, UC Berkeley, 1989), with a background in biochemistry, philosophy of science, and history of public health, plus 30+ years of activism involving social justice, science, and health. In 2004, she became an ISI highly cited scientist, a group comprising "less than one-half of one percent of all publishing researchers." In 2013, she received the Wade Hampton Frost Award from the Epidemiology Section of the American Public Health Association, and in 2015, she was awarded the American Cancer Society Clinical Research Professorship.

Dr. Krieger's work addresses three topics: (1) conceptual frameworks to understand, analyze, and improve the people's health, including the ecosocial theory of disease distribution she first proposed in 1994 and its focus on embodiment and equity; (2) etiologic research on societal determinants of population health and health inequities; and (3) methodologic research on improving monitoring of health inequities. In April 2011, Dr. Krieger's book, *Epidemiology and the People's Health: Theory and Context*, was published by Oxford University Press. This book presents the argument for why epidemiologic theory matters. Tracing the history and contours of diverse epidemiologic theories of disease distribution from ancient societies on through the development of — and debates within — contemporary epidemiology worldwide, it considers their implications for improving population health and promoting health equity. She is also editor of *Embodying Inequality: Epidemiologic Perspectives* (Baywood Press, 2004) and co-editor, with Glen Margo, of *AIDS: The Politics of Survival* (Baywood Publishers, 1994), and, with Elizabeth Fee, of *Women's Health, Politics, and Power: Essays on Sex/Gender, Medicine, and Public Health* (Baywood Publishers, 1994). In 1994 she co-founded, and still chairs, the Spirit of 1848 Caucus of the American Public Health Association, which is concerned with the links between social justice and public health.

### **Jenelle Krishnamoorthy**

Jenelle Krishnamoorthy is the Executive Director for U.S. Policy and Government Relations at Merck and is trained as a licensed clinical psychologist. Prior to joining Merck in January 2015, Jenelle was the Health Policy Director for the Health, Education, Labor and Pensions (HELP) Committee in the United States Senate for Chairman Harkin. Dr. Krishnamoorthy first joined Chairman Harkin's team as an American Association for the Advancement of Science (AAAS) Fellow in 2003 and 2004. During 2004 and 2005 Jenelle worked at the U.S. State Department in the Bureau of South Asian Affairs on health, science, technology, and environment issues with India on an AAAS Diplomacy Fellowship. Dr. Krishnamoorthy rejoined the Harkin office in January 2006 as the Senator's lead health staffer and has been responsible for the HELP Committee's legislative agenda on health reform, public health and prevention, SAMHSA and mental health issues, FDA issues, NIH/CDC research, workforce issues, and all programs at agencies within Health and Human Services (HHS).

Early in her career, Jenelle completed her pediatric clinical psychology internship and post-doctoral fellowship at Brown Medical School where she conducted research in the areas of childhood obesity and tobacco issues. Dr. Krishnamoorthy received her B.S. from Randolph-Macon College, M.S. from the University of Tennessee and her Ph.D. from Virginia Commonwealth University.

### **Paula Lantz**

Paula Lantz is the Associate Dean for Research and Policy Engagement and a professor of public policy at the Ford School. She most recently was professor and chair of the Department of Health Policy and Management at the Milken Institute School of Public Health at George Washington University. From 1994-2011, she was faculty member at the University of Michigan with a primary appointment in the School of Public Health, and affiliations with the Ford School and the Institute for Social Research. Dr. Lantz, a social demographer, studies the role of public health in health care reform, clinical preventive services (such as cancer screening and prenatal care), and social inequalities in health. She is particularly interested in the role of health care versus broad social policy aimed at social determinants of health in reducing social disparities in health status. She is currently doing research regarding the potential of social impact bonds to reduce Medicaid expenditures. Lantz received an M.A. in sociology from Washington University, St. Louis, and an M.S. in epidemiology and Ph.D. in sociology from the University of Wisconsin.

### **Phyllis Meadows**

As a Senior Fellow in the Health Program, Phyllis D. Meadows engages in all levels of grantmaking activity. Since joining The Kresge Foundation in 2009, she has advised the Health team on the development of its overall strategic direction and provided leadership in the design and implementation of grantmaking initiatives and projects. Phyllis also has coached team members and created linkages to national organizations and experts in the health field. In addition, she regularly reviews grant proposals, aids prospective grantees in preparing funding requests, and provides health-related expertise. Phyllis' 30-year career spans the nursing, public health, academic, and philanthropic sectors. She is associate dean for practice at the University of Michigan's School of Public Health and has lectured at Wayne State University's School of Nursing, Oakland University's School of Nursing, and Marygrove College. From 2004 to 2009, Phyllis served as deputy director, director, and public health officer at the Detroit Department of Health and Wellness Promotion. In the early 1990s, she traveled abroad as a Kellogg International Leadership Fellow and subsequently joined the W.K. Kellogg Foundation as a program director. She also served as director of nursing for The Medical Team – Michigan.

### **Brendan Nyhan**

Brendan Nyhan is Assistant Professor in the Department of Government at Dartmouth College. His research, which focuses on political scandal and misperceptions about politics and health care, has been published or is forthcoming in journals including the American Journal of Political Science, British Journal of Political Science, Political Analysis, Political Behavior, Political Psychology, Pediatrics, Medical Care, Vaccine, Journal of Adolescent Health, and Social Networks.

He is a contributor to *The Upshot* at The New York Times (March 2014-), and previously served as a media critic for Columbia Journalism Review (November 2011-February 2014). He also blogs at [www.brendan-nyhan.com](http://www.brendan-nyhan.com) and tweets at [@BrendanNyhan](https://twitter.com/BrendanNyhan).

Previously, he was a marketing and fundraising consultant for Benetech, a Silicon Valley technology nonprofit, and Deputy Communications Director of the Bernstein for US Senate campaign in Nevada. He received his Ph.D. from the Department of Political Science at Duke University in 2009 and served as a RWJ Scholar in Health Policy Research at the University of Michigan from 2009-2011.

## **Ron Pollack**

Ron Pollack is the Founding Executive Director of Families USA, the national organization for health care consumers. Families USA's mission is to achieve high-quality, affordable health coverage for everyone in the U.S.

Mr. Pollack's work has been recognized through various honors. The Hill, a weekly newspaper covering Congress and their staffs, named Mr. Pollack one of the nine top nonprofit lobbyists. Modern Healthcare named Mr. Pollack one of the 100 Most Powerful People in Health Care. National Journal named him one of the top 25 players in Congress, the Administration, and the lobbying community on Medicare prescription drug benefits.

Mr. Pollack is the Founding Board Chairman of Enroll America, an organization composed of very diverse stakeholders working together to secure optimal enrollment of uninsured people through effective implementation of the Affordable Care Act.

In 1997, Mr. Pollack was appointed by President Clinton as the sole consumer representative on the Presidential Advisory Commission on Consumer Protection and Quality in the Health Care Industry. In that capacity, Mr. Pollack helped prepare the Patients' Bill of Rights that has been enacted by many state legislatures.

Prior to his current position at Families USA, Mr. Pollack was the Dean of the Antioch School of Law.


Mr. Pollack was also the Founding Executive Director of the Food Research and Action Center (FRAC), a leading national organization focused on eliminating hunger in the U.S. Two of his notable accomplishments at FRAC include: (1) arguing two successful cases on the same day in the U.S. Supreme Court to secure food aid for low-income Americans; and (2) the successful federal litigation that resulted in the creation of the WIC program for malnourished mothers and infants.

Mr. Pollack received his law degree from New York University where he was an Arthur Garfield Hays Civil Liberties Fellow.

## **Lisa Simpson**


Dr. Simpson is the president and chief executive officer of AcademyHealth. A nationally recognized health policy researcher and pediatrician, she is a passionate advocate for the translation of research into policy and practice. Her research focuses on improving the performance of the health care system and includes studies of the quality and safety of care, health and health care disparities and the health policy and system response to childhood obesity. Dr. Simpson has published over 75 articles and commentaries in peer reviewed journals. Before joining AcademyHealth, Dr. Simpson was director of the Child Policy Research Center at Cincinnati Children's Hospital Medical Center and professor of pediatrics in the Department of Pediatrics, University of Cincinnati. She served as the Deputy Director of the Agency for Healthcare Research and Quality from 1996 to 2002. Dr. Simpson serves on the Robert Wood Johnson Clinical Scholars Program National Advisory Council, and the Editorial boards for the Journal of Comparative Effectiveness Research and Frontiers in Public Health Systems and Services Research. In October of 2013, Dr. Simpson was elected to the Institute of Medicine. Dr. Simpson earned her undergraduate and medical degrees at Trinity College (Dublin, Ireland), a master's in public health at the University of Hawaii, and completed a post-doctoral fellowship in health services research and health policy at the University of California, San Francisco. She was awarded an honorary Doctor of Science degree by the Georgetown University School of Nursing and Health Studies in 2013.

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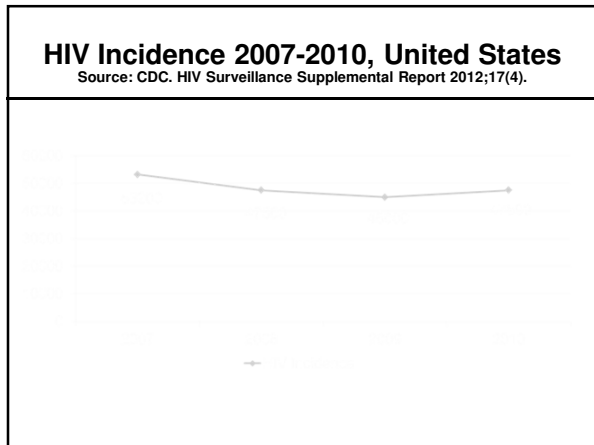
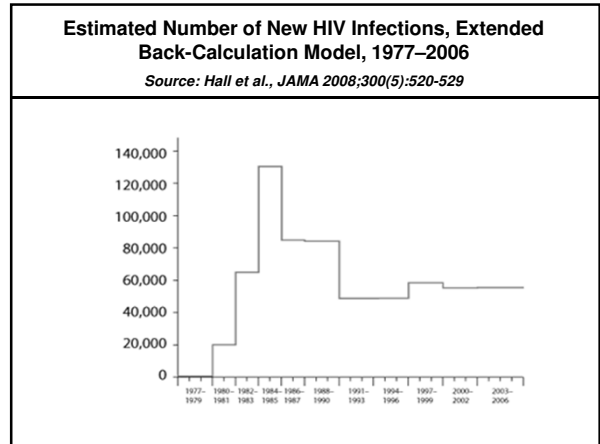
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Department of Health, Behavior & Society  
David Holtgrave, PhD, Professor & Chair



Protecting Health, Saving Lives—*Millions at a Time*

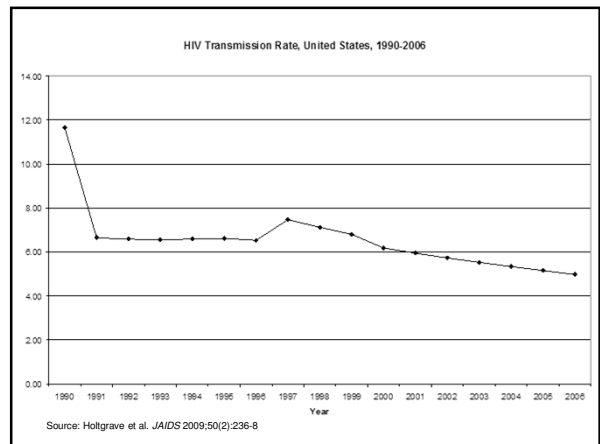
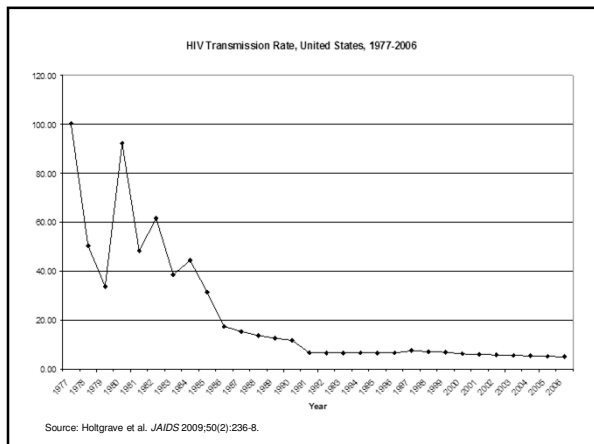
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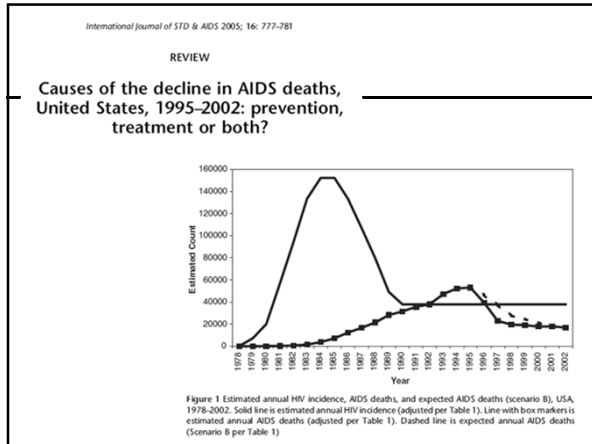


HIV Transmission Rate =

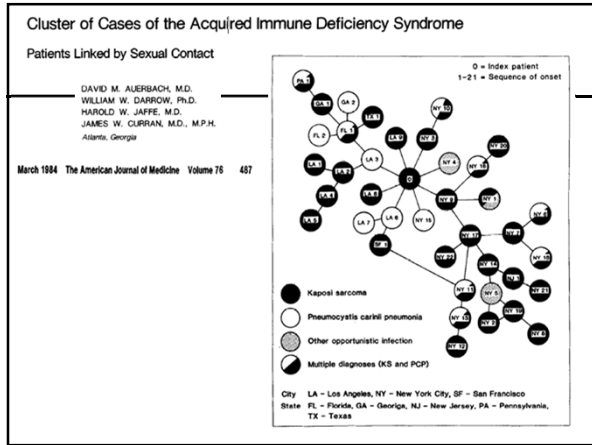
$$(Incidence / Prevalence) * 100$$

(aka, "Incidence-Prevalence Ratio")





- ### What Prevention Tools Were Available Early in the HIV Epidemic in the US?
- Discovery of modes of transmission
  - Social activism
  - Information campaigns (including, Dr. Koop's mailer)
  - Behavioral interventions (esp. promoting condom use)
  - HIV testing coupled with risk reduction counseling
  - Syringe exchange
  - Housing
  - Food security and social support
  - Behavioral factors in care (but earliest treatments were not sufficiently effective; late 1990s to early 2000s regimens were much more effective but highly complex)



### Evidence-Based Risk Reduction Interventions

#### Compendium of Evidence-Based Interventions and Best Practices for HIV Prevention

- NEW Linkage to, Retention in, and Re-engagement in HIV Care (LRC) Chapter
- Medication Adherence (MA) Chapter
- Risk Reduction (RR) Chapter

The Evidence-Based Interventions (EBIs) and Best Practices in the Compendium are identified by the CDC's Prevention Research Synthesis (PRS) Project through a series of ongoing systematic reviews. Each eligible intervention is evaluated against explicit *a priori* criteria (LRC criteria: MA criteria; RR criteria) and has shown sufficient evidence that the intervention works. The PRS project will regularly update this Compendium as new EBIs and Best Practices are identified.

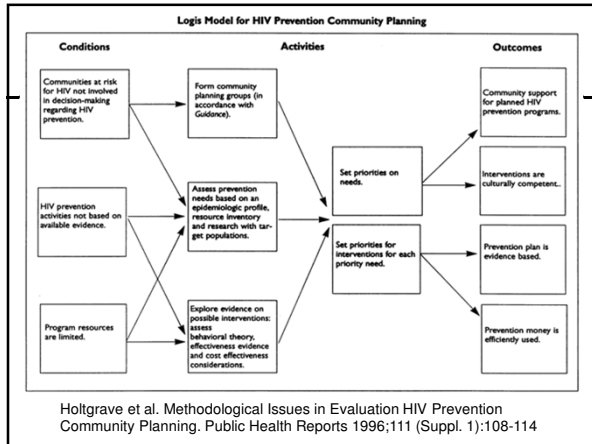
The Compendium comprises three chapters. A complete listing of each chapter can be accessed below.

The NEW Linkage to, Retention in, and Re-engagement in HIV Care (LRC) Chapter of the Compendium includes 9 best practices (4 EBIs; 5 evidence-informed interventions, EIs). (Updated on August 1, 2014)

The Medication Adherence (MA) Chapter of the Compendium includes 10 EBIs. (Updated on April 11, 2014)

The Risk Reduction (RR) Chapter of the Compendium includes 84 behavioral EBIs. (Updated on April 11, 2014)

<http://www.cdc.gov/hiv/prevention/research/compendium/index.html>



### First HIV Antibody Test Licensed in 1985; First Western Blot Blood Test Kit Available in 1987

#### Perspectives in Disease Prevention and Health Promotion Public Health Service Guidelines for Counseling and Antibody Testing to Prevent HIV Infection and AIDS

August 14, 1987 / 36(31):509-515

#### Efficacy of Risk-Reduction Counseling to Prevent Human Immunodeficiency Virus and Sexually Transmitted Diseases

##### A Randomized Controlled Trial

Mary L. Kamb, MD, MPH; Martin Fishbein, PhD; John M. Douglas, Jr, MD; Fen Rhodes, PhD; Judy Rogers, MS; Gail Bolan, MD; Jonathan Zenilman, MD; Tamara Horowitz, PhD; C. Kevin Malotte, DrPH; Michael Iantista, MA; Charlotte Kent, MPH; Andrew Lenz, MPA; Sandra Graziano, PhD; Robert H. Byers, PhD; Thomas A. Peterman, MD, MSc; for the Project RESPECT Study Group

JAMA. 1998;280:1161-1167

**Table 2** Estimated prevalence and rates of HIV transmission attributed to risk behaviors and viral suppression among persons aware of their HIV infection, United States


	Number	Transmission rate
People with HIV		4.4
Incidence	50,125	
Prevalence	1,148,200	
Persons unaware of their HIV infection		10.8
Incidence	22,364	
Prevalence	207,824	
Persons aware of their HIV infection		3.0
Incidence	27,761	
Prevalence	940,376	
Persons with risk behavior (16%)	150,460	18.5
Persons with unsuppressed viral load (63.8%)	599,960	4.6
Persons with risk behavior and unsuppressed viral load	95,994	28.9
No risk behavior		~0
Suppressed viral load		~0
No risk behavior and suppressed viral load		~0

Source: Hall, Holtgrave, Tang, Rhodes. AIDS & Behavior, 2013;17(5):1632-6.

### U.S. Decision Against Funding Needle Plan Draws Fire

Health: Administration agrees exchange program cuts AIDS spread, doesn't foster illicit drug use, but will leave financing to state, local groups.

April 21, 1998 | MARLENE CIMONS and ELIZABETH SHOENIG | TIMES STAFF WRITERS



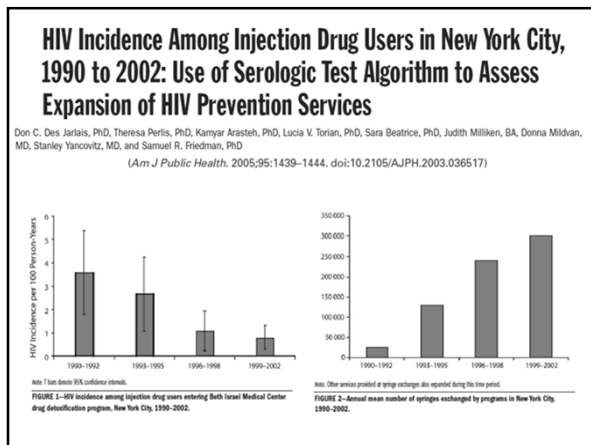
Syringe Exchange Programs --- United States, 2008

Weekly  
November 19, 2010 / 59(45):1488-1491

Morbidity and Mortality Weekly Report (MMWR)

SEP size	No. of syringes exchanged per SEP	No. of SEPs	Total no. of syringes exchanged	% of total syringes exchanged
Small	<10,000	20	67,993	0.2
Medium	10,000-55,000	33	962,317	3.4
Large	55,001-499,999	24	9,894,182	34.1
Very large	≥500,000	15	18,113,914	62.3
<b>Total</b>		<b>122*</b>	<b>29,038,006</b>	<b>100.0</b>

\* One of 123 programs responding to the survey did not track the number of syringes exchanged in 2008.



## NATIONAL HIV/AIDS STRATEGY for the UNITED STATES:

UPDATED TO 2020

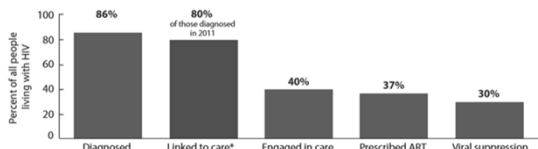
JULY 2015



### How do we monitor the need for care?

- The **prevalence-based HIV care continuum** shows each step of the continuum as a percentage of the total number of people living with HIV ("HIV prevalence"). Prevalence includes estimates of people whose infection has been diagnosed and people who are infected but don't know it ("undiagnosed").

Example 1: Prevalence-Based HIV Care Continuum, 2011



[http://www.cdc.gov/hiv/pdf/DHAP\\_Continuum.pdf](http://www.cdc.gov/hiv/pdf/DHAP_Continuum.pdf)

### NATIONAL HIV/AIDS STRATEGY: UPDATED TO 2020

## 5 MAJOR CHANGES SINCE 2010

Since the first National HIV/AIDS Strategy was released in 2010, major advances have transformed how we respond to HIV, provided new tools to prevent new infections, and improved access to care. With a vision for the next five years, our National HIV/AIDS Strategy has been updated to leverage these achievements and look ahead to 2020.

<p><b>Our prevention toolkit has expanded.</b></p> <p><b>Pre-Exposure Prophylaxis (PrEP)</b></p> <p>A daily pill to prevent HIV. When taken consistently, can reduce the risk of HIV by up to <b>92%</b>.</p>	<p><b>The Affordable Care Act has transformed health care access.</b></p> <p>Millions more individuals now have <b>affordable, quality health coverage</b>.</p> <p>There is <b>no denial of coverage for pre-existing conditions, like HIV</b>.</p> <p>Preventive services, including HIV testing, are covered without co-pay.</p> <p>Protections against sex or disability discrimination in health care.</p>	<p><b>HIV testing and treatment are recommended.</b></p> <p>Federal Guidelines now recommend <b>routine HIV screening</b> for people aged <b>15 to 65</b>.</p> <p>CDC updated recommendations for HIV testing to help find detect infections earlier.</p> <p>Federal HIV treatment guidelines now recommend <b>antiretroviral therapy for all people living with HIV</b>.</p>	<p><b>Improving HIV Care Continuum outcomes is a priority.</b></p> <p>President Obama's <b>HIV Care Continuum Initiative</b> directed Federal departments to increase the number of people with HIV who are:</p> <ul style="list-style-type: none"> <li>diagnosed with HIV</li> <li>linked to HIV care</li> <li>retained in HIV care</li> <li>prescribed HIV treatment</li> <li>virally suppressed (having very low levels of HIV in their body).</li> </ul>	<p><b>Research is unlocking new knowledge and tools.</b></p> <ul style="list-style-type: none"> <li>Evidence that <b>starting HIV treatment early</b> lowers the risk of developing AIDS or other serious illnesses.</li> <li><b>New HIV testing technologies</b>, including <b>new diagnostic tests</b>.</li> <li><b>New HIV medications</b> with fewer side effects, less frequent dosing, and a lower risk of drug resistance.</li> <li><b>Continued investigation</b> of long-acting drugs for HIV treatment and prevention, an HIV vaccine, and, ultimately, a cure.</li> </ul>
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THE UPDATED STRATEGY DETAILS 11 STEPS AND 37 ACTIONS THAT FOCUS ON  
**RIGHT PEOPLE, RIGHT PLACES, RIGHT PRACTICES**

**RIGHT PEOPLE**  
 KEY POPULATIONS

- **Gay, bisexual, and other men who have sex with men of all races and ethnicities** (noting the particularly high burden of HIV among Black gay and bisexual men)
- **Black women and men**
- **Latino men and women**
- **People who inject drugs**
- **Youth aged 13 to 24 years** (noting the particularly high burden of HIV among young Black gay and bisexual men)
- **People in the Southern United States**
- **Transgender women** (noting the particularly high burden of HIV among Black transgender women)

**RIGHT PLACES**  
 PRIORITY AREAS

- **Major metropolitan areas** have higher rates of HIV than other areas of the country.
- **Southern United States:** more than 1/3 of the population lives in southern states, but the region accounts for more than 1/2 of all HIV diagnoses.



**RIGHT PRACTICES**

- **Widespread HIV testing and linkage to care** enabling people living with HIV to access treatment early.
- **Full access to PrEP services** for those whom it is appropriate and desired, with support for medication adherence.
- **Broad support for people living with HIV** to remain engaged in comprehensive care, including support for treatment adherence.
- **Universal viral suppression** among people living with HIV.


**THE OUTCOMES BY 2020**

- Increase the percentage of people living with HIV who know their serostatus to at least **90 percent**.
- Reduce the number of new diagnoses by at least **25 percent**.
- Reduce the percentage of young gay and bisexual men who have engaged in HIV-risk behaviors by at least **10 percent**.
- Increase the percentage of newly diagnosed persons linked to HIV medical care within one month of their HIV diagnosis to at least **85 percent**.
- Increase the percentage of persons with diagnosed HIV infection who are retained in HIV medical care to at least **90 percent**.
- Increase the percentage of persons with diagnosed HIV infection who are **virally suppressed** to at least **80 percent**.
- Reduce the percentage of persons in HIV medical care who are **homeless** to no more than **5 percent**.
- Reduce the **death rate** among persons with diagnosed HIV infection by at least **33 percent**.
- Reduce **disparities in the rate of new diagnoses** by at least **15 percent** in the following groups: gay and bisexual men, young Black gay and bisexual men, Black females, and persons living in the Southern United States.
- Increase the percentage of youth and persons who inject drugs with diagnosed HIV infection who are **virally suppressed** to at least **80 percent**.

Learn more about the National HIV/AIDS Strategy: Updated to 2020 at [AIDS.gov/2020](https://aids.gov/2020) #HIV2020

**As President Obama said on July 13, 2010....**

***“The question is not whether we know what to do, but whether we will do it.”***



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- NIH Researchers Recall the Early Years of AIDS. <https://history.nih.gov/NIHInOwnWords/index.html>
- Curran JW, Jaffe HW. AIDS: the Early Years and CDC's Response. MMWR Supplements. October 7, 2011;60(04):64-69.
- KFF. HIV Testing in the United States. <http://kff.org/hivaids/fact-sheet/hiv-testing-in-the-united-states/>

**IOM Roundtable on Population Health Improvement**  
**Advancing the Science to Improve Population Health: A Workshop**

Resources/Readings

September 2015

***Items shared by workshop speakers***

Maqbool, N. J. Viveiros, and M. Ault. 2015. A primer -- The Impacts of Affordable Housing on Health: A Research Summary: [http://media.wix.com/ugd/19cfbe\\_d31c27e13a99486e984e2b6fa3002067.pdf](http://media.wix.com/ugd/19cfbe_d31c27e13a99486e984e2b6fa3002067.pdf)

Meltzer, R. & A. Schwartz. 2015. Housing Affordability and Health: Evidence From New York City. Analysis of housing costs' association with postponed health care -- Housing Affordability and Health. *Housing Policy Debate* DOI: 10.1080/10511482.2015.1020321 (see attached).

Gilhuly, K., S. DeVuono-Powell, L. Farhang, A. N. Freeman, A. Sinha, L. R. Murray. 2012. An Example of the Challenges of Research in Practice -- the Health Impact Assessment of the Rental Assistance Demonstration (Executive Summary): <http://www.humanimpact.org/downloads/the-rental-assistance-demonstration-project-2012/>

Nyhan, B., J. Reifler, S. Richey, and G. L. Freed. 2014. Effective Messages in Vaccine Promotion: A Randomized Trial. *Pediatrics* 133:1–8. <http://pediatrics.aappublications.org/content/early/2014/02/25/peds.2013-2365.full.pdf+html>

***Individually-authored perspectives published under the auspices of this (and another) IOM roundtable***

Schwartz, P., S. Rauzon, and A. 2015. Cheadle Dose Matters: An Approach to Strengthening Community Health Strategies to Achieve Greater Impact. [http://nam.edu/wp-content/uploads/2015/08/Perspective\\_DoseMatters.pdf](http://nam.edu/wp-content/uploads/2015/08/Perspective_DoseMatters.pdf)

Dose Matters describes the concept of “population dose”—an approach to strengthening and evaluating the impact of complex multisector, multilevel, place-based initiatives. This discussion paper reports on what is promising about the approach while recognizing the measurement and other challenges that still lie ahead. The concept emerged from ongoing evaluations of Kaiser Permanente’s Community Health Initiative investments, conducted by the Center for Community Health and Evaluation (CCHÉ) at the Group Health Research Institute in collaboration with partners at the University of California. Following an overview of the Community Health Initiative, this report describes the concept in more detail and explains how it can be used to estimate the population-level impact of a set of related interventions. The estimated impact or dose of an intervention is the product of reach (the number of people touched by the intervention) and strength (the effect size or impact on each person reached). The dose concept can also be used in planning and implementation to yield greater impact. We hope that Dose Matters will introduce the concept of population dose in enough detail that a broad audience of community health researchers, evaluators, practitioners, and planners will be both prepared and eager to apply these analyses and approaches to their own work. Additional

guidance is available in the form of an interactive toolkit developed by CCHE and Kaiser Permanente (see the Related Resources box). Together, Dose Matters and the toolkit will describe in detail the uses of dose for both evaluators and researchers, who will use the quantitative calculations, and community-based organizations and funders, who will apply the overall concept to strengthen every phase of improving community health outcomes, from planning to implementation to evaluation.

Chanfreau-Coffinier, C., S. M. Teutsch, and J. E. Fielding. 2015. Assessing the Population Impact of Published Intervention Studies. Discussion paper; <http://nam.edu/perspectives-2015-assessing-the-population-impact-of-published-intervention-studies/>

Not only does the United States spend more per capita on medical care than any other nation, and more than twice as much as the average for all other countries in the Organisation for Economic Co-operation and Development, it spends more on medical research as well. Yet despite the high level of spending, our health outcomes are mediocre at best; the United States ranks 26th in life expectancy and 31st in infant mortality among developed nations. This discrepancy raises the question about the value derived from the governmental and nongovernmental investments in medical research. In contradistinction to basic science research, for which the goal is arguably to advance science for the development of knowledge, translational science seeks to improve health through the development of bench-to-bedside interventions and to assure their use in patients and populations that would benefit from them. To improve health measurably, translational research needs to focus on identifying interventions that are likely to provide the greatest population health benefit as well as interventions that are widely used but are ineffective or harmful.

We believe that research priorities should be heavily informed by the potential population health impact and that researchers, proposal reviewers, and funders need to understand those impacts before intervention studies are initiated. This approach was recently used to estimate the expected value of a proposed study and to justify the undertaking of a new controlled trial. To that end, we recommend that the information necessary to estimate the impact of the proposed intervention be uniformly included in research proposals and reports.

Zimmerman, E. and S. H. Woolf. 2014. Understanding the Relationship Between Education and Health. Discussion paper; <http://nam.edu/perspectives-2014-understanding-the-relationship-between-education-and-health/>.

In their discussion paper, Zimmerman and Woolf provide an overview of the large body of evidence that links education and health. They discuss education in the context of a socioecological model of health, that illustrates the social and other determinants of health, and explain that the relationship between educational attainment (for example, years of education) and health is not entirely linear. Education influences multiple skills and traits that mediate its relationship to health. These skills and traits include problem solving ability, literacy, and personal control, and some provoke physiologic responses or lead to greater ability to manage one's health. Education is also likely to increase individuals' access to earnings and wealth, and to social networks and support. Zimmerman and Woolf describe a range of community characteristics that appear to be linked with health outcomes and educational attainment. For example, people who are more educated are more likely to live in neighborhoods that have parks and green spaces, good access to high quality foods, greater safety/lower crime rates, and lower environmental exposures (less proximity to power plants, highways, factories, etc.). The

authors explore the social policies that influence educational outcomes, especially those that shape early childhood experiences and address problems that occur along biological pathways known to be linked with poor health and educational outcomes.

Adler, N, C Bachrach, M Frisco, D Daley. 2013. Building the Science for a Population Health Movement. Discussion paper; <http://nam.edu/wp-content/uploads/2015/06/BPH-BuildingTheScience.pdf>.

A movement for population health starts with a basic understanding that health is determined by far more than health care and that the focus of health investments must go beyond health care alone. It follows that we need to invest in healthy environments, in efforts to ameliorate social and economic disparities and their impacts on health, and in creating a positive “culture of health” that both recognizes and encourages health-promoting action on the part of individuals and institutions. 2 A corollary of the population health movement is that health policy cannot be limited to health care policy. Instead, what is needed is a rallying call for “health in all policies.” Although the central tenet of population health and its policy-related corollary have gained some traction, there are a number of challenges to institutionalizing these. The framing of the quest to do so as a “movement” rather than a “paradigm change” acknowledges the political as well as intellectual components of population health. Some of the challenges to establishing population health derive from political and social concerns, while others derive from intellectual and scientific ones. In this discussion paper, we consider how the growing field of population health research can contribute to the movement for population health action. We argue that a population health movement will be most effective if it integrates both research and action and finds new ways to ensure that each informs the other.

### ***Research funding program***

Evidence for Action (<http://www.evidenceforaction.org/>)

Evidence for Action is a program for investigator-initiated research to build a culture of health. Evidence for Action National Program Office is housed in the Center for Health and Community at the University of California, San Francisco. The program supports the Robert Wood Johnson Foundation’s vision to build a Culture of Health across the United States.

### ***Relevant reports from the National Academies of Sciences, Engineering, and Medicine***

NRC and IOM. 2013. U.S. Health in International Perspective: Shorter Lives, Poorer Health. Washington, DC: National Academies Press. <http://www.nap.edu/catalog/13497/us-health-in-international-perspective-shorter-lives-poorer-health>

The United States is among the wealthiest nations in the world, but it is far from the healthiest. Although life expectancy and survival rates in the United States have improved dramatically over the past century, Americans live shorter lives and experience more injuries and illnesses than people in other high-income countries. The U.S. health disadvantage cannot be attributed solely to the adverse health status of racial or ethnic minorities or poor people: even highly advantaged Americans are in worse health than their counterparts in other, “peer” countries.

In light of the new and growing evidence about the U.S. health disadvantage, the National Institutes of Health asked the National Research Council (NRC) and the Institute of Medicine (IOM) to convene a panel of experts to study the issue. The Panel on Understanding Cross-National Health Differences Among High-Income Countries examined whether the U.S. health disadvantage exists across the life span, considered potential explanations, and assessed the larger implications of the findings.

U.S. Health in International Perspective presents detailed evidence on the issue, explores the possible explanations for the shorter and less healthy lives of Americans than those of people in comparable countries, and recommends actions by both government and nongovernment agencies and organizations to address the U.S. health disadvantage

NRC (National Research Council). 2006. A letter report to Sir Michael Marmot on the social determinants of health. Washington, DC: National Academies Press. <http://www.nap.edu/catalog/11810/letter-report-to-sir-michael-marmot-on-the-social-determinants-of-health>

“At the request of the National Institute of Aging and following discussions between you and Dr. Richard Suzman, director of the Division of the Behavioral and Social Research Program at the National Institute on Aging, the U.S. National Research Council’s Committee on Population convened a panel of leading social and behavioral researchers with expertise in population aging and adult health to review the initial analytical and strategic documents of the Commission’s nine “knowledge networks.” (See [Attachment A](#) for the list of panel members.) The panel was specifically asked to identify additional recent studies on adult health at older ages that might bear on the Commission’s deliberations and identify potential areas of interventions aimed at moderating the effects of the social determinants of health among older people.” (page 1)

“Below we discuss five areas that the panel believe are promising for improving the health and quality of life of older persons through greater investment in interventions at the individual, community, or national level: (1) early life endowments; (2) social and economic security; (3) health care systems and the management of chronic conditions; (4) health behaviors; and (5) the physical and social environment. Following the brief reviews of the literature in these areas, the last section of the letter provides suggestions for interventions aimed at reducing the social gradient in older people’s health.” (pages 2 and 3)

Over the past several decades, numerous interventions have been designed with the aim of helping people live longer and improving the quality of their later life. Thus, the panel considered various types of intervention that potentially could moderate the effects of social factors on adult health. We identified five broad types of intervention: (1) *legal actions*, such as anti-age discrimination laws; (2) *public education and policy* on the human valuation of aging, including the importance of including measures of health improvements in national income accounts; (3) *economic interventions*, specifically, to reduce poverty and open markets for poor countries or alter the economic costs associated with certain poor health behaviors such as smoking; (4) *technological interventions* such as home modifications or assistive devices; and (5) *individual, community, and national-level behavioral health interventions* designed to either reduce particular health risks, such as falling, reduce certain risk behaviors, such as smoking or drinking, or promote beneficial health behaviors, such as maintaining a balanced diet or exercising regularly.” (page 7)

***Bibliography provided by Dr. Nancy Krieger, workshop keynote speaker (attached)***



### Suggested readings for:

**Krieger N. Embodied history + structured chance + flexible phenotype =  $\sum$  “causes” always >100%. Invited presentation for the Workshop of the Roundtable on Population Health Improvement, Board on Population Health and Public Health Practice, The National Academies of Sciences • Engineering • Medicine, Washington, DC, September 30, 2015.**

### ***Ecosocial theory, embodied histories, populations, & health inequities***

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Krieger N. Theories for social epidemiology in the 21<sup>st</sup> century: an ecosocial perspective. *Int J Epidemiol* 2001; 30:668-677.

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Krieger N. Ladders, pyramids, and champagne: the iconography of health inequities. *J Epidemiol Community Health* 2008; 62:1098-1104.

Krieger N. The real ecological fallacy: epidemiology and global climate change. *J Epidemiol Community Health* (published Online First: 17 November 2014); doi:10.1136/jech-2014-205027

### **Public Health Disparities Geocoding Project: putting health inequities on the map**

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Chen JT, Rehkopf DH, Waterman PD, Subramanian SV, Coull BA, Cohen B, Ostrem M, Krieger N. Mapping and measuring social disparities in premature mortality: the impact of census tract poverty within and across Boston neighborhoods, 1999-2001. *J Urban Health* 2006; 83:1063-1085.

### ***Racial discrimination, Jim Crow, policing, and health***

#### Conceptual

Krieger N. Discrimination and health inequities. In: Berkman LF, Kawachi I, Glymour M (eds). *Social Epidemiology*. 2<sup>nd</sup> ed. New York: Oxford University Press, 2014; 63-125.

Krieger N. Methods for the scientific study of discrimination and health: from societal injustice to embodied inequality – an ecosocial approach. *Am J Public Health* 2012; 102:936-945.

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Krieger N, Rowley DL, Herman AA, Avery B, Phillips MT. Racism, sexism, and social class: implications for studies of health, disease, and well-being. *Am J Prev Med* 1993; 9 (Suppl):82-122.

#### Empirical: Jim Crow

Krieger N, Chen JT, Coull B, Waterman PD, Beckfield J. The unique impact of abolition of Jim Crow laws on reducing health inequities in infant death rates and implications for choice of comparison groups in analyzing societal determinants of health. *Am J Public Health* 2013; 103:2234-2244.

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## Empirical: Policing, including death due to legal intervention

Guardian website: "The Counted" – see:

<http://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-police-killings-us-database#>

Krieger N, Kiang MV, Chen JT, Waterman PD. Trends in US deaths due to legal intervention among black and white men, age 15-34 years, by county income level: 1960-2010. *Harvard Public Health Review*, volume 3, January 2015; available at: <http://harvardpublichealthreview.org/190/>

Cooper H, Moore L, Gruskin S, Krieger N. Characterizing perceived police-related violence: implications for public health. *Am J Public Health* 2004; 94:1109-1118.

### **"Nature" vs. "nurture" versus the "interdependence of nature and nurture," chance, and flexible phenotypes**

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Richardson SS, Stevens H. *Postgenomics: Perspectives on Biology and the Genome*. Durham, NC: Duke University Press, 2015.

### **Debates over population attributable fractions, cancer, and causation**

*Works which explicitly or implicitly add up PAF to 100%*

County Health Rankings & Roadmap: Building a Culture of Health, County by County. Our Approach. A Robert Wood Johnson Foundation Program/University of Wisconsin Population Health Institute, School of Medicine and Public Health. Available at: <http://www.countyhealthrankings.org/our-approach> ; accessed: July 25, 2015.

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World Health Organization. *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*. Geneva: WHO, 2002.

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Poole C. A history of population attributable fraction and related measures. *Annals Epidemiol* 2015; 25:147-154.

Rothman KJ, Greenland S. Causation and causal inference in epidemiology. *Am J Public Health* 2005; 95:S144-S150.

# Building the Science for a Population Health Movement

Nancy Adler, Christine Bachrach, Dorothy Daley, and Michelle Frisco\*

December 4, 2013

*\*Participants in the activities of the IOM Roundtable on Population Health Improvement*

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*The views expressed in this discussion paper are those of the authors and not necessarily of the authors' organizations or of the Institute of Medicine. The paper is intended to help inform and stimulate discussion. It has not been subjected to the review procedures of the Institute of Medicine and is not a report of the Institute of Medicine or of the National Research Council.*

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# Building the Science for a Population Health Movement

Nancy Adler, University of California, San Francisco;  
Christine Bachrach, University of Maryland; Dorothy Daley, University of Kansas;  
and Michelle Frisco, The Pennsylvania State University<sup>1</sup>

A movement for population health starts with a basic understanding that health is determined by far more than health care and that the focus of health investments must go beyond health care alone. It follows that we need to invest in healthy environments, in efforts to ameliorate social and economic disparities and their impacts on health, and in creating a positive “culture of health” that both recognizes and encourages health-promoting action on the part of individuals and institutions.<sup>2</sup> A corollary of the population health movement is that health policy cannot be limited to health care policy. Instead, what is needed is a rallying call for “health in all policies.”

Although the central tenet of population health and its policy-related corollary have gained some traction, there are a number of challenges to institutionalizing these. The framing of the quest to do so as a “movement” rather than a “paradigm change” acknowledges the political as well as intellectual components of population health. Some of the challenges to establishing population health derive from political and social concerns, while others derive from intellectual and scientific ones. In this discussion paper, we consider how the growing field of population health *research* can contribute to the movement for population health *action*. We argue that a population health movement will be most effective if it integrates both research and action and finds new ways to ensure that each informs the other.

## WHAT IS POPULATION HEALTH RESEARCH?

Kindig and Stoddart (2003) define population health as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group.” Population health research has evolved to include a broad range of disciplines, scientific methods, and theories that contribute to understanding the mechanisms through which these outcomes and their distributions can be understood and improved. Most descriptions of the field include one or more of the following characterizations<sup>3</sup>:

- Population health research is interdisciplinary and focuses on the health outcomes of groups of individuals, which can be defined in multiple ways (e.g., workers at a workplace, residents of a neighborhood, people sharing a common race or social status, or the population of a nation).
- Population health researchers conduct studies that seek to characterize, explain, and/or influence the levels and distributions of health within and across populations.
- Population health researchers view health as the product of multiple determinants at the biologic, genetic, behavioral, social, and environmental levels and their interactions among individuals, communities, time, and place.

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<sup>1</sup> Participants in the activities of the IOM Roundtable on Population Health Improvement.

<sup>2</sup> See the Robert Wood Johnson Foundation’s (RWJF’s) [Culture of Health blog](#).

<sup>3</sup> See [“What Is Population Health Research?”](#) RWJF Health and Society Scholars .

- The field addresses health outcomes, health determinants, and policies and interventions that link the two in efforts to improve population health and ameliorate health disparities.

Population health research addresses a diverse set of outcomes. Some are risk factors for reduced population health, such as biological markers of physiological functioning, health-related behaviors, and specific diseases. Other important outcomes are global indicators of health, such as overall well-being, healthy life expectancy, and mortality.

### **HALLMARKS OF THE FIELD**

The “field” of population health is defined less by its boundaries than by its core purpose—to develop answers to complex questions about the drivers of health in a population. The foundations of population health research are found in many disciplines. For example, the study of population mortality trends and differentials has always been a core feature of demography, and that of disease incidence and prevalence at the population level a core feature of epidemiology. One of the hallmarks of the field is its attention to the social causes of disease and health, an insight pioneered by early scholars from Quetelet to Durkheim, institutionalized in the field of social epidemiology (Berkman and Kawachi 2000), and, increasingly, examined in other fields that historically have had minimal interest in health as an outcome. Social and behavioral scientists of all stripes have now joined in the study of the determinants of health. Sociologists bring the study of institutions, stratification, discrimination, social networks, and the life course to bear on health outcomes; anthropologists bring the study of culture and practice; economists bring research on micro-level forces shaping individual actions and health outcomes and macro-level conditions shaping national investment and health outcomes; political scientists bring analysis of formal and informal decision-making processes that lead to health policy; historians bring the evolution of our health systems; and psychologists bring the cognitive, affective, and behavioral mediators of social environments on health. Among others, geographers, ecologists, environmental scientists, urban planners, health professionals, geneticists, and neuroscientists also contribute to answering questions about population health.

The major advance in population health research has been to integrate the contributions of these fields to build a multilevel understanding of health, from cells to society. This includes not only the “upstream” causes of health (from the social to the physical and chemical environment) but also the behavioral and biological pathways that link these to population health. Population health scientists typically begin with a complex problem and then assemble the disciplines and perspectives needed to provide a full understanding. Such efforts have already been made in the area of tobacco use and smoking through programs such as the [Transdisciplinary Tobacco Use Research Centers](#) at eight U.S. universities. These centers, funded by multiple National Institutes of Health (NIH) agencies and the Robert Wood Johnson Foundation (RWJF), were motivated by the recognition that it would take scientists from multiple backgrounds working together and recognizing the contributions of those outside their field to solve the nation’s tobacco issues. Similar efforts will be necessary to tackle the obesity epidemic and improve population health more generally.

## MANY CONTRIBUTIONS TO DATE

Population health research has already contributed substantially to the population health movement. It has provided the foundation for reports such as RWJF's [Commission to Build a Healthier America](#), the report of the World Health Organization's Commission on the Social Determinants of Health, [Closing the Gap in a Generation](#), and many recent reports from the National Academy of Sciences.<sup>4</sup> It has provided the basis for ratings systems such as the [County Health Rankings & Roadmaps](#) project. Evidence documenting the importance of upstream determinants of health has motivated key institutions to adopt multisectoral approaches to improving population health; examples include RWJF's programs on obesity, The California Endowment's "Building Healthy Communities" commitment, [the Federal Reserve Bank's initiative on healthy communities](#), the [Centers for Disease Control and Prevention's Health Community Design Initiative](#), and the Obama administration's [place-based initiatives](#). Although the National Institutes of Health remains primarily focused on finding cures for disease, many of its components have also adopted programs directed at multisectoral, upstream interventions to improve health.<sup>5</sup>

The [Health in All Policies initiative](#) of the National Association of County and City Health Officials is also grounded in population health research. Health impact assessment necessarily draws on the tools and findings of population health scientists, both to recognize what policies can potentially impact health and to design studies that can rigorously identify policy impacts. Population health researchers' work relating early childhood experience to later health provides an example. Investments in early childhood education are not intuitively health-related, yet population health researchers have begun to tease out the social, economic, and biological pathways that link the early development of cognitive and non-cognitive skills to later health.

## WHAT ARE THE MOST PRESSING QUESTIONS IN POPULATION HEALTH?

Despite widespread efforts to address the upstream causes of poor health, the imbalance in health investment in the United States has not been fundamentally altered. We still invest disproportionately in curing and managing diseases that could have been prevented with investments in prevention and population health. Achieving the goal of maximizing population health depends not only on convincing the public and policy makers to do the right thing, but also on providing data to guide choices about the most effective levers for improving population health, demonstrating the return on investment for manipulating them, specifying the conditions under which they are most effective, and identifying the mechanisms producing their effects. We believe that existing research provides a sound basis for moving forward to improve population health in many areas. However, we also believe that research and action must go hand in hand to solidify the evidence base and achieve maximal impact. The public and policy makers have experienced the failure of "commonly accepted scientific knowledge" and "programs we know will work" too many times to proceed without undertaking new research. Moving forward on the basis of existing knowledge will produce successes and failures; integrating action and research will uncover new knowledge that pushes us toward greater success.

One of the clearest findings in population health research is the ubiquitous nature of socioeconomic disparities in health, but we lack a rigorous understanding of the mechanisms

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<sup>4</sup> Recent examples include IOM (2012a,b); IOM and NRC (2013); and NRC (2009).

<sup>5</sup> For examples, see the National Heart, Lung, and Blood Institute–led [Healthy Communities Study](#) and the National Cancer Institute–led program of [Research on Population Health and Health Disparities](#).

involved in producing these. We still cannot explain with confidence how social and economic disadvantage “gets under the skin” to affect health outcomes. This makes the process of ameliorating disparities dependent on one’s favorite hypothesis, or, on the other hand, makes it easy for nonbelievers to dismiss as fantasy the prospect of improving health by eliminating social and economic disadvantage. The turn in population health research from documenting disparities to understanding the causal pathways creating them is relatively recent (Adler and Stewart, 2010). There is still much work to be done to identify the pathways that are responsive to effective intervention.

A different problem exists in the realm of environmental exposures, be they chemical toxins, neighborhood crime, or food deserts. The language of “exposure,” adopted from epidemiology and environmental science, discounts the very important role of human and institutional agency in creating the environments we are exposed to and in shaping the choices people make about where to live and how to behave. We have come only so far in learning how to isolate the effects of a single aspect of the environment from the multiple confounding effects of the social system in which it is embedded.<sup>6</sup> We have also made limited progress in capturing complex sets of exposures over time and place. Recent efforts are under way at the [Environmental Protection Agency](#) to support research on cumulative risk assessment methods that integrate social and behavioral information with toxicity and exposure data to better understand how multiple environmental hazards affect the health of individuals in a community. This type of decision-making tool is in its infancy, and significant challenges lie ahead, including the sheer volume of information needed to conduct this type of assessment and the complexities of interpreting and integrating disparate information (Lewis et al 2011).

Changing patterns of population health also pose new questions. For example, we have few explanations for the alarming finding that mortality is increasing for those lacking a high school degree, especially among white women (Kindig and Cheng, 2013; Montez and ZaJacova, 2013; Olshansky et al., 2012). Finding out why this is happening is a critical question for population health, but we do not understand the relevant mechanisms.

Research will also be needed to facilitate ambitious goals, such as RWJF’s laudable proposal to create a new “culture of health.” Such an initiative requires modifying or replacing our existing, medicine-dominated culture of health. Immersion in the current culture makes it more challenging to introduce a new one. Social movements research can help to overcome this difficulty, as can research on our current culture, its distribution across space and groups, its evolution over time, and the relation of its key elements to health behaviors, use of medical services, and public investments.

## **A RAPIDLY EXPANDING FIELD**

The field of population health is growing fast. This growth is evident in the many schools of medicine and public health that have established departments with a population health focus; the establishment of new interdisciplinary disciplines, such as social epidemiology and population neuroscience (Falk et al., 2013); the movement of disciplinary scholars into interdisciplinary departments focused on health; the expansion of social science surveys to include markers of health and disease; and the growth, within disciplinary journals, of population health content. In the two

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<sup>6</sup> For example, little research that measures the effect of built and chemical environments adequately takes into account the mobility processes that lead people to live in the environments under study or the processes through which community residents shape their exposures.

decades between 1970 and 1989, less than 1 percent of articles published in the flagship journals of demography and sociology were about health; since 2000, 31 and 10 percent, respectively, have focused on health.<sup>7</sup> Special features about the contributions of social science to understanding gene–environment interactions have appeared in the *American Journal of Sociology* (2008) and the *American Journal of Public Health* (2013).

This growth has occurred for many reasons: increasing awareness of the economic costs of our population’s poor health and the need for population health action, the lure of research funding from NIH, the promotion of interdisciplinary science by NIH and other science funders, and the fact that the field offers a wealth of important and novel challenges that have real import for society. RWJF has been a major force in the growth of the field, largely through its [Health and Society Scholars program](#). The foundation launched this program more than a decade ago to equip scientists with the skills for tackling such complex interdisciplinary questions. So far, the program has graduated 157 scholars, who now hold positions in research, policy, and the private sector in institutions all over the United States. Alumni of the program are enriching existing fields of study with new questions, new methods, and interdisciplinary perspectives; training new population health scholars; and recruiting many disciplinary scientists into population health research. They are also promoting an enhanced vision for how academic research can have an impact on health via dissemination, policy, and practice—as well as a vision for the types of questions that need to be answered more effectively in the service of a population health movement.<sup>8</sup>

## MEETING CHALLENGES

New interdisciplinary fields rarely grow without facing serious challenges, and the field of population health research is no exception. One lingering challenge for the field is the lack of consensus on a clear definition.<sup>9</sup> Because the field is defined less by boundaries than by goals and the field encompasses everything that affects health, it sometimes seems to beg the question, What is *not* population health? Also, the term “population health” has been used in diverse ways by different communities. The medical community typically uses it to signify a group of patients to whom they are delivering care; others, including the authors of this paper, use it to refer to the health status of whole communities or nations. These differences need to be bridged and clarified.<sup>10</sup>

Challenges also result from the nature of traditional academic structures. The production and dissemination of knowledge tends to be the domain of well-established disciplines. Fragmented knowledge housed in many different disciplinary homes creates challenges for widespread knowledge accumulation and application in population health. Applied research is often disparaged in disciplines with a basic focus. Science in areas of inquiry that bridge disciplines tends to face systematic challenges in getting published because most peer-reviewed journals reflect disciplinary boundaries. As the number and prestige of diverse, interdisciplinary publication outlets grows, population health science will also expand. But disciplinary departmentalization in higher education

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<sup>7</sup> Authors’ own calculations based on a search of [Web of Science](#).

<sup>8</sup> A few examples of work by alumni of the program include economic analysis of the impact of taxes on sugary sodas (Fletcher et al., 2010), working to integrate analysis of health impacts in community development (Jutte et al., 2011), and development of a private firm providing technologies for tracking asthma attacks in time and space (van Sickle et al., 2013).

<sup>9</sup> This is not unusual. In his classic textbook on social psychology, Roger Brown (1965) critiqued the existing definitions of the field (e.g., the linkage between psychology and sociology) and finally defined it as “that set of activities that people who call themselves Social Psychologist do.”

<sup>10</sup> See Kindig (2012) on the difference between population health and population medicine.

remains. A population health research movement must pursue a dual strategy that works both within existing disciplines that have new insights necessary for improving population health and outside disciplines to create new professional spaces that link researchers in productive ways and allow them to study persistent population health challenges.

Challenges also accompany the way population health research is funded. Just as the structure of academic institutions is siloed by disciplinary departments, the structure of the major funder of health research, NIH, is siloed by disease type. There are a few cross-cutting units, such as the Office of Behavioral and Social Sciences Research, the National Institute on Aging, and the Institute for Minority Health and Health Disparities, but these control a small share of NIH resources. At a time of flat or diminishing funding, the lack of support is particularly worrisome.

### **HOW CAN POPULATION HEALTH RESEARCH ADVANCE POPULATION HEALTH ACTION?**

We argue above that research and action must go hand in hand in the movement for population health. Although there are undeniably many challenges in making this happen, there are exciting opportunities as well.

The biggest challenge is to develop better bridges between basic and applied research and among researchers, policy makers, and practitioners. In a society increasingly skeptical of experts and expert knowledge,<sup>11</sup> it is critically important to develop agile institutional mechanisms that link population health science and practice. As the evidence base grows and as research results suggest explanations that have practical applications, it will be important to establish clear processes that can capitalize on this evidence. Similarly, when research results are put into practice, it will be important for organizations to have sufficient resources to evaluate the integration of this research in an applied setting and to have a process to inform population health researchers about the application. This type of interdependent relationship, if done well, can create an innovative learning environment that is mutually beneficial—an environment in which corrective actions based on the emergence of new scientific evidence build public trust, rather than corrode it.

New developments in research and practice may facilitate such bridges. The evolution of electronic medical records, electronic sensing devices, and technologies for capturing everyday social and economic transactions are now making possible the development of continuously operating integrated population data platforms that link timely information on the environmental, policy, socioeconomic, behavioral, and health system factors that interact to produce health outcomes for a community. Such “big data” platforms are already being developed in communities across the country and provide a nexus for linking research and practice (Barrett et al., 2013). With appropriate privacy protections, these new data systems will provide an unprecedented resource for systems approaches to understanding how the multiple determinants of population health interact. They will also be a critical resource for health impact assessment and the evaluation of population health interventions. This work would be facilitated by agreement within the field about the best metrics for assessing overall population health.

Research alone will not produce the change that we all seek in the nation’s health investments and health outcomes. Much scholarship demonstrates that “evidence” is a marginal factor in public decision making, yet, over time, as accumulated evidence affects public awareness and credibility, policy makers heed it. A population health movement built around sound strategies to change the nation’s culture of health will facilitate this process. Putting in place an effective

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<sup>11</sup> The movement to resist vaccination programs is an example.

partnership between research and action—a mutually interdependent system that is continuously updated—will help to ensure that the movement achieves substantial and lasting improvements to the nation’s health.

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