

## *Improving the Health of Populations through Science and Innovation*

December 14, 2016

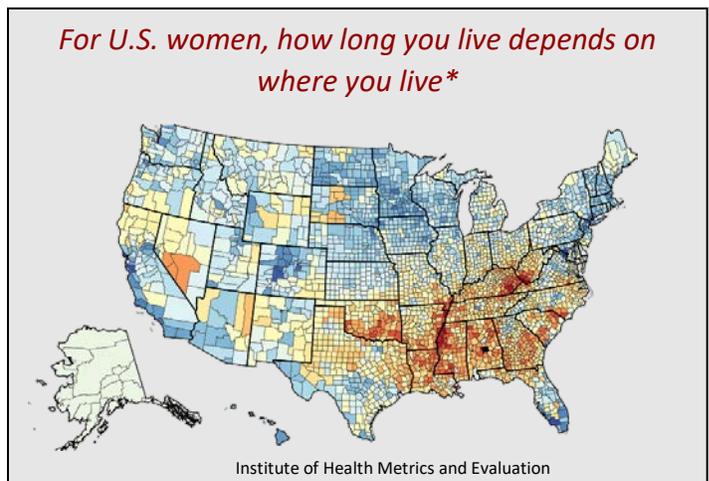
### *Population Health Science: Finding Answers, Improving Health*

#### **America's Health Gap**

The odds of a long and healthy life are unequal in America. In 2010, life expectancy for men living in Fairfax County, Virginia was 82 years. For men from McDowell County, West Virginia, it was 64 – a full 18 years less.\* The odds of premature death, disability, and disease are greater for Americans who are poor or black or American Indian. Even the best off Americans, however, fare worse on some health outcomes than their European counterparts. Can we do better? Policy-makers, scientists, and medical and public health practitioners are looking for ways to improve America's health, but the way forward is still uncertain.

#### **How do we improve health and reduce health disparities?**

For some, the answer is curing disease; for others, it is encouraging healthy behaviors; and for still others, it is creating environments and spaces that promote health. Of course, the answer lies in each of these areas. However, the scientific evidence supporting each of these approaches is often segmented; key components of knowledge are often locked within academic disciplines that seldom speak to each other, much less work side by side on solutions. For example, in the fight against tobacco, neuroscientists studied addiction, psychologists studied behavior, and economists studied taxation. It took an integrated understanding of these domains to inform the strategies that produced lasting reductions in tobacco use.



*The Interdisciplinary Association for Population Health Science (IAPHIS) is dedicated to advancing an integrative understanding of multiple determinants of health—biological, behavioral and societal—and the ways in which they interact to produce health. IAPHIS will provide an interdisciplinary forum in which scientists in the emerging field of population health science can work together toward this goal. It will create value, not only by advancing knowledge, but also by facilitating the translation of research to efforts to improve population health and reduce health disparities.*

*Population health science harnesses the combined power of diverse disciplinary tools to answer complex questions about the sources of health and the causes of illness and disability. It focuses on the level and distribution of health within populations as well as practical approaches for improvement. Population health*

science produces integrated knowledge about the societal, behavioral, and biological causes of health and disease, the mechanisms through which health is produced, and the evidence base for effective policies, health system responses, and public health practices.

Population health science requires scientists from different disciplinary backgrounds to combine their knowledge and expertise to answer questions individual disciplines alone cannot answer – for example, questions about the causes of health disparities, the mechanisms through which toxic stress produces disease, and the reasons as to why specific policies work or fail to improve health.

### ***The need for an integrated science of health***

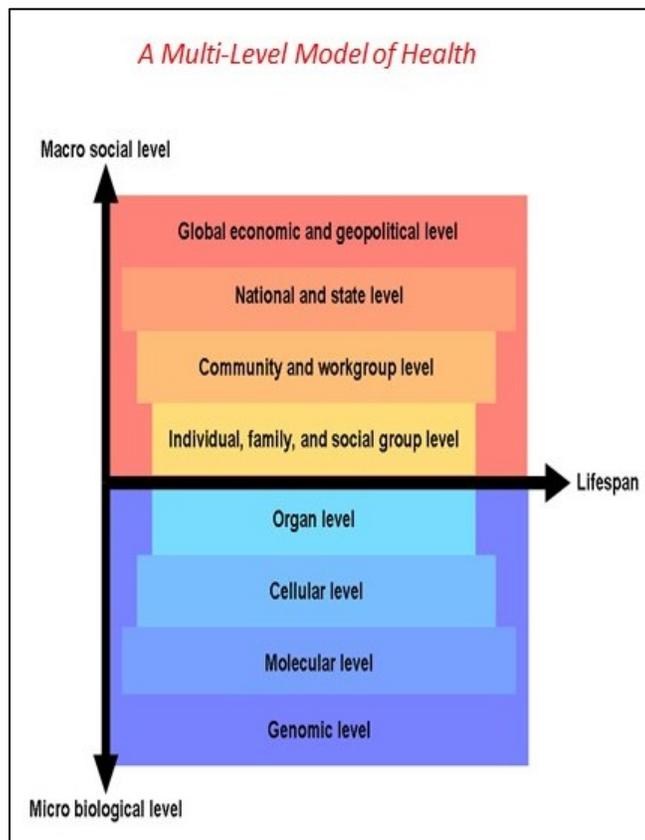
As in the cases of obesity and tobacco, population health challenges are most effectively addressed through an integrated interdisciplinary approach. These challenges include health disparities; cardiovascular diseases; diabetes; asthma; controlling health care costs; and reducing behaviors that put health at risk.

For example, scientists have linked disparities in health across socioeconomic, racial and ethnic groups to genetic factors, medical practices, access to care, and social, economic, and environmental conditions. Understanding the ways in which these

### ***Applying knowledge of social problems to improve care outcomes\****



Social factors such as homelessness, food insecurity and poverty have a large impact on health and health care utilization. Yet, social needs are typically addressed through policy interventions outside the health care delivery system. Population health researchers have proposed a novel multi-tier framework to address social needs through the health care delivery system by focusing on the design and adoption of interventions at the patient, institution, and population levels. Data on social circumstances and needs can be used to better assess disease risk or to decide where social and health services may be co-located.



disparate causes operate “together” to produce disparities is essential for finding solutions. 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 some to dismiss the prospect of improving health by addressing social and economic disadvantage.

“Upstream” determinants of health such as neighborhood safety, housing, industry marketing practices, social services, and educational policy are now widely recognized as important levers for improving population health. The creation of Accountable Care Organizations under the Affordable Care Act offers an organizational platform and incentives for cross-sectoral partnerships for population-wide actions that can both reduce health care costs and improve health among the people they serve. The growing movement for Health in All Policies seeks to ensure that decisions about policies and public investments account for their potential health consequences. Both of these efforts require interdisciplinary scientific knowledge to inform them. Population health science that integrates multiple disciplinary approaches to understanding the causes of health provides the needed evidence base.

*Understanding how zoning affects the health of neighborhoods \**

Built environments that influence health are shaped by urban planning and zoning policies, yet health considerations are often marginal to zoning policies and ordinances. Open spaces, commercial outlet distributions, public lighting, pedestrian orientation, building codes are all elements of healthy environments, regardless of neighborhood income profiles. A team at Johns Hopkins University conducted a health impact assessment of a rezoning effort in Baltimore, Maryland to determine how the existing plans could be modified to improve health. The team assembled expertise and research from medicine, behavioral science, epidemiology, environmental health science, law, sociology and criminology to estimate health impact. Results endorsed health benefits for some already-planned changes and pointed to additional changes that could improve health, such as in the treatment of off-premise alcohol outlets and the incorporation of crime-prevention principles in urban design.

Current efforts to improve population health face a bind. It is easier for policymakers and practitioners to implement simple, straightforward interventions than to tackle the multiple intersecting causes of population health problems. Yet while focusing on single solutions can often produce action, it can also backfire when those solutions ignore other drivers of health and health behaviors. For example, it was only by combining research on food industry marketing, nutrition, obesity, and cognition that we learned how to craft effective approaches to nutritional labeling on restaurant menus. Early efforts uninformed by cognitive science failed.

Interdisciplinary population health science provides the evidence for understanding the interaction of the factors contributing to poorer health and for designing the most effective interventions.

Developing a rigorous interdisciplinary evidence base to address public health problems requires more than providing occasional incentives for disciplinary researchers to collaborate. It requires sustained investment and infrastructure that allows researchers to work together to advance interdisciplinary science on health and establish a culture that values and fosters this endeavor. This is the vision of IAPHS.

***IAPHS: Mission and Vision***

The Interdisciplinary Association for Population Health Science is dedicated to fostering scientific innovation and discovery to improve the health of populations and reduce health disparities. The **IAPHS mission** is to provide a forum that will connect population health scientists across disciplines and sectors, advance the development of population health science, and promote its application. An approved charitable (501(c)(3)) organization, IAPHS was founded by a community of population health scientists in January 2015 and became a member-led organization in September 2016.

*Improving our food marketplaces\**

Healthier choice



Ok choice



less healthy choice

Providing nutrition information for food can encourage consumers to make healthier choices, but only if the information is accessible and easy to understand. New research that integrates insights from psychology, neuroscience, and behavioral economics with nutrition and food science shows that simpler and more meaningful symbols can encourage healthier choices. Traffic light labels signaling red (for stop) and green (for go) have promoted healthier choices in cafeteria settings. Adolescents purchase fewer sugary drinks when labels highlight the amount of exercise needed to burn off the calories in the drink. And when calorie labels on restaurant menus are placed in the context of recommended daily caloric requirements, it maximizes their benefit. These studies have informed parts of the Patient Protection and Affordable Care Act, policy discussions on front-of-package labeling in the United States, and industry efforts to promote healthier products.

IAPHS's audiences include all those scientists who contribute to knowledge about population health and the means of population health improvement, and individuals and organizations engaged in policy and practice that can benefit from rigorous interdisciplinary science on population health.

#### The IAPHS vision is to create the conditions for:

- **Deeper understanding.** Discovery derives from an integrated science that more accurately reflect the dynamic systems that produce health outcomes.
- **Advanced scientific methods.** Rigorous methods and innovative tools are developed to better accommodate the need for interdisciplinary theories, perspectives, and investigative approaches.
- **Stronger research agendas.** Research moves towards opportunities made possible through interdisciplinary collaboration and questions that inform real-world strategies.
- **Skilled scientific workforce.** A larger community of scientists develops the skills and comfort levels to work on complex problems in a rigorous, interdisciplinary fashion.
- **Accelerated communication.** Capacity expands for communication and collaboration within the scientific community and between the population health scientific community and those designing, shaping, implementing, and evaluating population-wide interventions.
- **More effective action.** By virtue of stronger, more relevant, research and accelerated communication, scientists contribute to earlier stage and more effective efforts to improve population health and reduce health disparities.

#### IAPHS carries out its mission by pursuing three objectives:

- *Advancing population health science* - convening scientists from different disciplines and sectors; providing structured opportunities for discussion and debate; and facilitating learning about new methods, theory, and research.
- *Promoting the communication and application of population health science* - building skills and infrastructure for science communication; fostering engagement among population health scientists, policymakers, practitioners, and the media; and supporting research synthesis and dissemination.
- *Supporting population health scientists in their careers* - providing opportunities to explore new ideas and approaches; facilitating collaborations; advancing scholarship through peer feedback and review; and supporting the professional development of early-career scientists through networking, mentoring, information dissemination, and training opportunities.

#### *IAPHS Activities*

- Annual conferences
- Web & social media platforms that facilitate exchange among researchers and between researchers, policy-makers and practitioners
- Resources for fostering the communication, translation, and application of population health sciences
- Mentoring, workshops and other professional development activities
- Resources for identifying and contacting experts in population health
- Awards to recognize high impact research and innovative research in action projects.

IAPHS grew out of the vision of a growing cadre of early-career and senior scientists committed to building an integrated science of health and inspired by the calls for population health approaches to improving health and reducing disparities. It has advanced through the joint efforts of many individuals and organizations. Important contributors have included the Robert Wood Johnson Foundation and its Health & Society Scholars program (the alumni of which played a major role in building IAPHS), the New York Academy of Medicine, the National Academy of Medicine, and numerous University-based programs (see [www.iaphs.org/support-our-efforts/](http://www.iaphs.org/support-our-efforts/) for a complete list).

IAPHS is creating a national infrastructure that solidifies, supports, and institutionalizes the growing network of scientists, policy-makers, and practitioners concerned about population health. IAPHS will support the development of interdisciplinary population health science and a rigorous evidence base for improving health.

To learn more about IAPHS or to become a member, visit our Website at [www.iaphs.org](http://www.iaphs.org) or contact us at: [info@iaphs.org](mailto:info@iaphs.org). \*Click [here](#) for available references to this brochure.