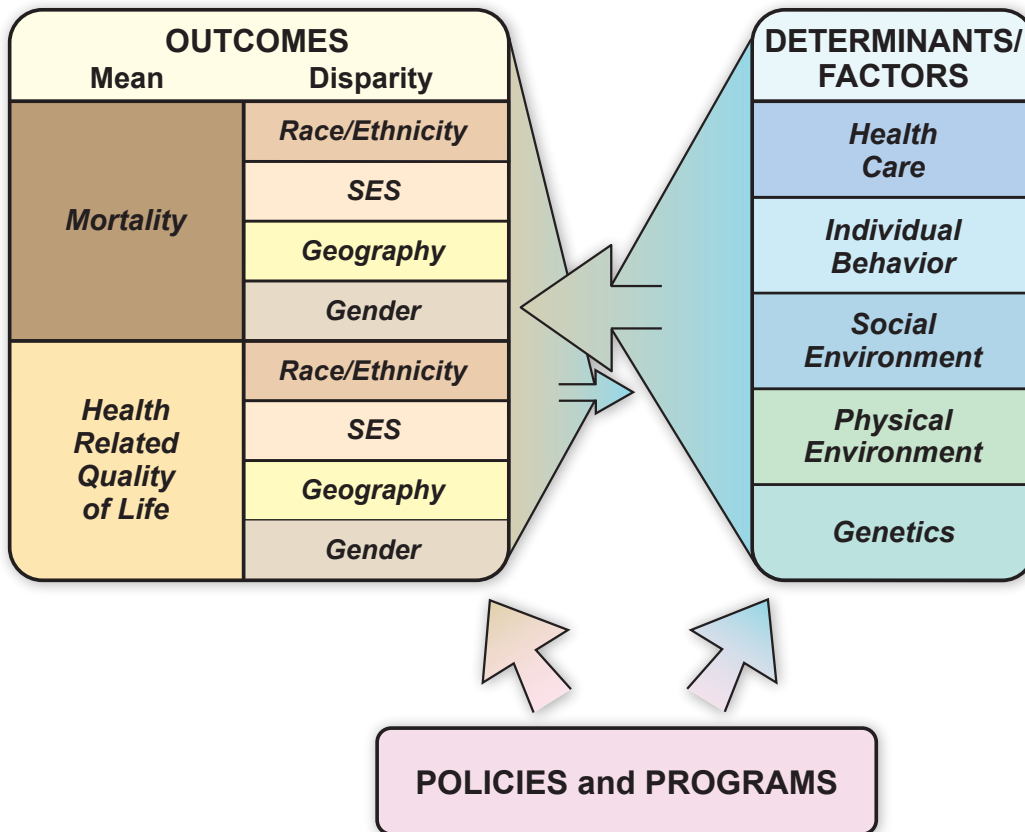


Improving Population Health: Ideas and Action

David A. Kindig, MD, PhD



improvingpopulationhealth.org

David A. Kindig - April 2014



Introduction to the Blog Collection Booklet

In 2010 I began a blog called ImprovingPopulationHealth.org. In the initial post I explained its rationale: *“Why am I starting a blog on issues and perspectives in the field of population health? It is because I believe we are at a “tipping point” in which a convergence of scholarship, policy, and practice initiatives seem poised to bring an overdue population health perspective to thinking about and acting on health and health improvement. The challenge of the next decade will be to find practical ways in which new approaches to financial and non-financial incentives and multi-sectoral partnerships can be applied to improve population health outcomes here and elsewhere”.*

I ceased blogging almost a year ago, but the site continues to get a reasonable number of hits, and I frequently hear from a colleague about one of the ideas that appeared previously. I have therefore decided to publish this electronic collection of a sampling of these posts which I believe continue to have relevance. Most ongoing hits appear in the first chapter called What is Population Health? When Greg Stoddart and I published our *American Journal of Public Health* article with this title in 2003 the term had not yet been formally defined. Today it appears much more widely, even being cited in Wikipedia! On the other hand, with popularity its use is expanding, often in variance with our original meaning. This is most evident in discussions from within the health CARE system, often as the third component of the Triple Aim. This set of blog posts offer a number of perspectives on this topic which may be helpful in both policy and scholarly work. The following three chapters cover selected posts on Population Health Outcomes, Population Health Outcomes, The Multiple Determinants of Population Health, and Population Health Resources and Policy

I wish to thank Kirstin Siemering who served as the blog’s Associate Editor and occasional blogger over the three years. I owe much to her for her sharpening of ideas and clarity of writing, as well as valued collegueship. Bridget Catlin critiqued each one for relevance and persuasiveness, the Robert Wood Johnson Foundation provided financial support through its MATCH grant to the University of Wisconsin Population Health Institute, and Media Solutions assembled the collection. For me it was a great but challenging experience in a new type of writing. I hope this reprinting will provide continued access to some of these ideas in the service of ongoing population health improvement.

David Kindig ~ April 2014

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What is Population Health?

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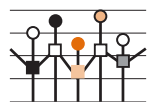
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Is Population Health Finally Coming into Its Own?



Why am I starting a blog on issues and perspectives in the field of population health? It is because I believe we are at a “tipping point” in which a convergence of

scholarship, policy, and practice initiatives seem poised to bring an overdue population health perspective to thinking about and acting on health and health improvement. The challenge of the next decade will be to find practical ways in which new approaches to financial and non-financial incentives and multi-sectoral partnerships can be applied to improve population health outcomes here and elsewhere.

Although the roots of broad population health thinking go back for centuries, in the United States, the second half of the 20th century was dominated by the rise of biomedical science and clinical medicine. Many in public and population health (how are these different?) have been critics of the dominance of health care emphasis and investment, but these advances have been critical and will continue to be so. The end of the century has seen additional growing understanding and support that such behaviors as tobacco use, diet, and exercise also make substantial contributions to the health of individuals and populations. My own population health epiphany came with my exposure in the early 1990s to the thinking of Bob Evans and Greg Stoddart and their population health “field model” from the Canadian Institutes of Advanced Research⁽¹⁾. At once simple and profound, it captured the basic population health principles:

- that **health outcomes** were more than the absence of disease;
- that these outcomes were produced by complex interactions of **multiple determinants** (health care, behaviors, genetics, the social environment, the physical environment); and
- that in a resource-limited world, the relative cost effectiveness of these determinants was critical for policymakers.

While this Canadian work has provided an important framework for international population health scholarship and policy development, the last 15 years in the U.S. have been dominated by such issues as health care access and costs and pressing immediate public health issues like emerging communicable diseases (e.g., HIV-AIDS and H1N1). Periodic activity and reports from government agencies and foundations have addressed parts of the broad issue of outcomes and determinants, but not in visible and sustainable ways. Notable exceptions have been (A) the Institute of Medicine (IOM) and Centers for Disease Control and Prevention’s (CDC) emphasis on a broad public health “system,” (B) the creation of the Robert Wood Johnson Foundation’s (RWJF) **Health and Society Scholars Program** to grow a new generation of multidisciplinary scholars for

this emerging field, (C) the RWJF **Commission to Build a Healthier America**, and (D) the WHO Europe’s 2003 report on the **social determinants of health**. (I will return in a future post to the challenge the social determinants of health pose for policymakers.) In 2010, however, this emerging field has still not matured in either scholarship or policy. However, the last several years have seen growing attention from a policy perspective. Here are some examples:

- Decades of work from the **Dartmouth group** demonstrated how communities that spend the most on health care may not have the highest quality or outcomes.
- The groundbreaking documentary **Unnatural Causes** provided wide exposure to the multiple determinants of health.
- The California Endowment is making a **major long term investment** in the broad health of 10 communities in California.
- The State of Minnesota has invested \$43M in its **State Health Improvement Plan** to create “accountable health communities” that address obesity and tobacco through policy, systems, and environmental changes.
- The Institute for Health Improvement has endorsed population health improvement as one of the three legs of its **Triple Aim** strategy and is considering moving to a regional strategy
- CDC has funded a cooperative agreement with the **National Business Coalition on Health** to work with business-led health coalitions and the business sector on building the capacity of members to be leaders of health reform and advance value based health and health care.
- Concerns about obesity have underscored the complexity of addressing this critical issue (look for a future post on the tension between free will and the social context with regard to behavior choices).
- Obama administration officials have been discussing a “**place-based**” approach for social investments as well as a major **Community Health Data Initiative**.
- The National Quality Forum and the **National Priorities Partnership** are discussing the need for new broad measurement tools such as a national index of health.
- Our own Robert Wood Johnson Foundation MATCH project in February released the first ever National **County Health Rankings** of 3,014 counties in all 50 states according to a broad population health model that **has been used in Wisconsin since 2003**.

When I published *Purchasing Population Health: Paying for Results* in 1996, this list of activities was much shorter. Now every day we learn of some new policy, practice, or research finding that is aimed at population health improvement. Keeping track of and commenting on these exciting developments is the purpose of this blog. We plan to post on a weekly basis, with content from our own team as well as guest posts from prominent policy and practice leaders. The **University of Wisconsin Robert Wood Johnson Health and Society Scholars Program** will each month identify several

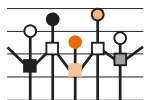
recently published papers that make important contributions to policy, practice, or scholarship. All posts will in some way relate to our underlying **population health model**, including key concepts of outcomes and factors.

(1) Evans R, Stoddart G. (1990). Producing health, consuming health care. *Social Science and Medicine*, 31(12), 1347-63.

Originally posted 5/18/10

What Is Population Health?

What is population health?



The population health perspective taken by this blog is a broad one, as the model below illustrates⁽¹⁾ [This model was adapted from the original Evans and Stoddart field model⁽²⁾ and expands on Kindig and Stoddart⁽³⁾].

Population health is defined as **the health outcomes of a group of individuals, including the distribution of such outcomes within the group.**^(3,4) These groups are often geographic populations such as nations or communities, but can also be other groups such as employees, ethnic groups, disabled persons, prisoners, or any other defined group. The health outcomes of such groups are of relevance to policy makers in both the public and private sectors.

Note that population health is not just the overall health of a population but also includes the distribution of health. Overall health could be quite high if the majority of the population is relatively healthy—even though a minority of the population is much less healthy. Ideally such differences would be eliminated or at least substantially reduced.

The right hand side of the figure indicates that there are many health determinants or factors, such as medical care systems, individual behavior, genetics, the social environment, and the physical environment. Each of these determinants has a biological impact on individual and population health outcomes.

Isn't this so broad to include everything?

Population health, as defined above, has been critiqued as being so broad as to include everything—and therefore not very useful in guiding specific research or policy. The truth is, no one in the public or private sectors currently has responsibility for overall health improvement. Policy managers, for example, tend to have responsibility for a single sector while advocacy groups likewise focus on a single disease or factor.

The inherent value of a population health perspective is that it facilitates integration of knowledge across the many factors that influence health and health outcomes. For population

health research, specific investigations into a single factor, outcome measure, or policy intervention are relevant, and may even be critical in some cases—but they should be recognized as only a part and not the whole.

What is the difference between population health and public health?

The distinction between public health and population health deserves attention since it has been at times both confusing and even divisive. Traditionally, public health has been understood by many to be the critical functions of state and local public health departments such as preventing epidemics, containing environmental hazards, and encouraging healthy behaviors.

The broader current definition of the public health system offered by the Institute of Medicine reaches beyond this narrow governmental view. Its report, *The Future of the Public's Health in the 21st Century*, calls for significant movement in “building a new generation of intersectoral partnerships that draw on the perspectives and resources of diverse communities and actively engage them in health action⁽⁵⁾.”

However, much of U.S. governmental public health activity does not have such a broad mandate even in its “assurance” functions, since major population health determinants like health care, education, and income remain outside public health authority and responsibility. Similarly, current resources provide inadequate support for traditional—let alone emerging—public health functions. Yet for those who define public health as the “health of the public,” there is little difference from the population health framework of this blog.

(1) Kindig D, Asada Y, Booske B. (2008). A Population Health Framework for Setting National and State Health Goals. *JAMA*, 299, 2081-2083.

(2) Evans R, Stoddart GC. (1990). Producing Health, Consuming Health Care. *Soc. Sci. Med.* 33, 1347-1363.

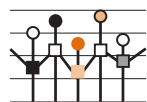
(3) Kindig, DA, Stoddart G. (2003). What is population health? *American Journal of Public Health*, 93, 366-369.

(4) Kindig DA. (2007). Understanding Population Health Terminology. *Milbank Quarterly*, 85(1), 139-161.

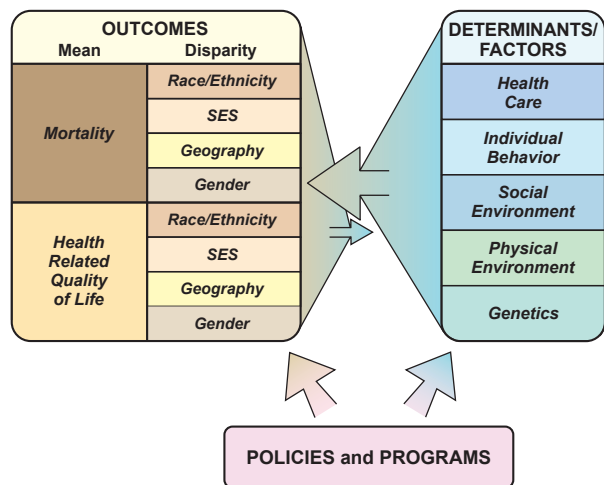
(5) Institute of Medicine. (2002). *The Future of the Public's Health in the 21st Century*. Washington, DC, *The National Academies Press*.

Originally posted 5/18/10

What Are Population Health Outcomes?



Many health improvement models have identified two broad outcome goals:



increasing overall or mean population health and eliminating disparities within the population. The outcomes component of our population health model is shown in the left hand side of the figure above.

For overall or mean population health, two components are displayed: mortality (length of life), and health-related quality of life, or morbidity. Healthy People 2010 defined health-related quality of life as “a personal sense of physical and mental health and the ability to react to factors in the physical and social environments.” Simply put, one goal of population health improvement is to increase years of life and the quality of those life years.

Another goal is to reduce the differences or disparities in these health outcomes among different subgroups in the population. The figure indicates a number of subgroups that are associated with significant differences or disparities in both mortality and health-related quality of life. Those featured here are race/ethnicity, socioeconomic status (SES), gender, and geography. Many other subgroups besides these are associated with population health disparities. All differences are not necessarily of policy interest or are equally important in all situations.

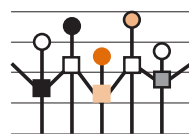
It is important to note that in this figure each quadrant is arbitrarily sized equally, as are the components within disparities (i.e., race/ethnicity, SES, geography, and gender). The relative importance of each cell is not a research question but a value choice for different nations, states, or other population groups to make. Some may focus more on years of life and others more on the quality of those years. Some may think that socioeconomic disparities are the most

important while others could prioritize disparities of gender or geography. In the **Health of Wisconsin Report Card**, an overall grade for health disparity was given based on a multidomain index across four disparity domains. Yukiko Asada has done pioneering work on how to develop such a multidomain disparity measure more fully.

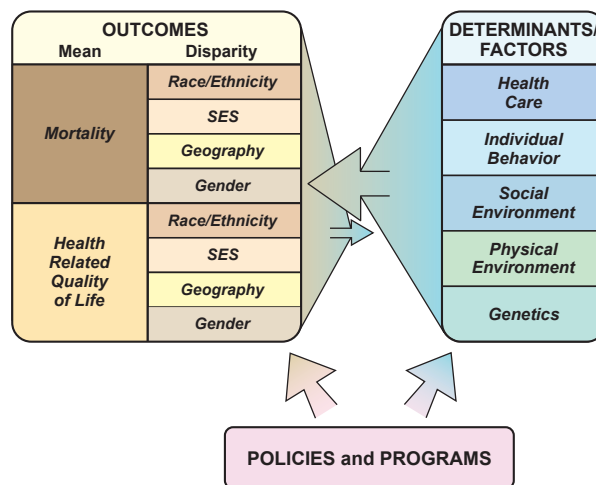
- (1) Kindig, DA. (2007). *Understanding Population Health Terminology. Milbank Quarterly*, 85(1), 139-161.
- (2) Kindig DA, Asada, Y, Booske B. (2008). *A Population Health Framework for Setting National and State Health Goals. JAMA*, 299(17), 2081-2083.
- (3) **Healthy People 2010**. Office of Disease Prevention and Health Promotion. US Dept. of Health and Human Services. <http://www.healthypeople.gov>. Accessed April 19, 2010.
- (4) Kawachi I, Subramanian SV, Almeida-Filho N. (2002). *A Glossary for Health Inequalities. Journal of Epidemiology and Community Health*, 56:647-52.
- (5) Graham H. (2004). *Social Determinants and Their Unequal Distribution: Clarifying Policy Understandings. Milbank Quarterly*, 82(1):101-24.
- (6) Booske BC, Rohan AM, Kindig DA, Remington PL. (2010). *Grading and reporting health and health disparities. Preventing Chronic Disease*, 7(1).
- (7) Asada Y. A summary measure of health inequalities for a pay-for-population health performance system. *Prev Chronic Dis* 2010;7(4). http://www.cdc.gov/pcd/issues/2010/jul/09_0250.htm.

Originally posted 5/18/10

What Are Population Health Determinants or Factors?



Health outcomes, however defined and measured, are produced by determinants or factors. They often are sorted into the five categories presented on the right in the following model- health care,



individual behavior, social environment, physical environment, and genetics **Health care determinants** generally include access, cost, quantity, and quality of health care services. **Individual behavior determinants** include choices about lifestyle or habits (either spontaneously or through response to incentives) such as diet, exercise, and substance abuse. Social environment determinants include elements of the social environment such as education, income, occupation, class, social support. **Physical environment determinants** include elements of the natural and built environment such as air and water quality, lead exposure, and the design of neighborhoods. **Genetic determinants** include the genetic composition of individuals or populations.

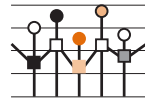
The subcomponents of these determinants or factors can be measured in many different ways. The **County Health Rankings** includes many such measures in each category that are available at the county level. A series of articles commissioned by the **MATCH project**, to be published in the online journal *Preventing Chronic Disease* starting in June 2010, outline current thinking regarding conceptualizing and measuring each of these categories.

In the model above, each category is depicted as the same size, implying that they each contribute equally to health outcomes. Although useful for illustration, in reality those determinants will carry different weights (and hence would be different sizes). Differences exist depending on the population studied, and because cross-sectoral analysis is complicated by interactions between determinants and the latency over time of their effects. In the **MATCH County Health Rankings**, health care is weighted 20%, behaviors 30%, the social environment 40%, and the physical environment 10%. An explanation of the process used to assign these particular weights is **available**. However, determining the correct weights for each category and the policies and programs underpinning them remains a major challenge for population health research.

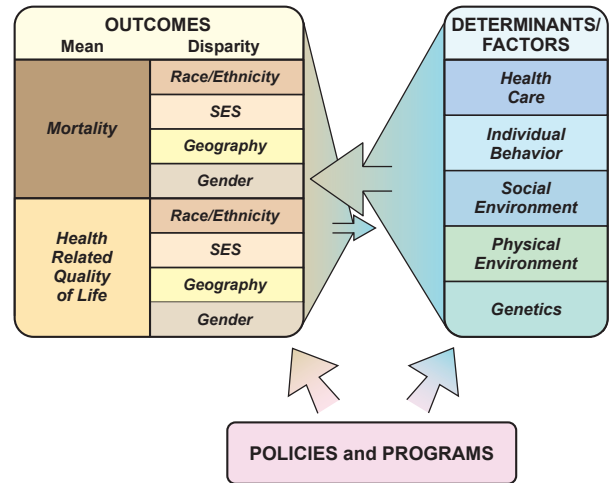
It is important, too, to realize the presence of “reverse causality,” which is why there is a small arrow in the above model going from outcomes to determinants/factors. This reflects the fact that outcomes such as morbidity can produce a change in a determinant or risk factor. For example, childhood illness can be responsible for lower educational attainment. In this case, the definitions of outcomes and determinants are reversed; morbidity would be the determinant or factor and educational attainment the outcome. Separating out the different directions of causality is an important and difficult research challenge.

Originally posted 5/18/10

Population Health Policies and Programs



As the model below shows, policies and programs play an important role in health improvement through their influence on health factors as well as health outcomes.



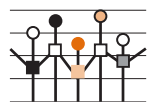
The finite and generally scarce nature of available resources for population health improvement creates an imperative for focusing on those policies and programs that have been shown to be most effective. However, because tight resources also limit the quantity and quality of evidence on any given policy or program, it can be very challenging for those working to improve health to determine the best course of action. Fortunately, a growing number of **online resources** help point to recommended policies and programs.

Policies can be implemented at many different levels, from an individual school or worksite to municipalities, regions, states, and even the national level. Examples of effective health policies include smoking bans, excise taxes on cigarettes and alcohol, seat belt laws, water fluoridation, and restaurant menu labeling. There is an increasing call for a “**health in all policies**” approach among population health academic and practice leaders. Emerging in response to a growing understanding and recognition of the many different factors that influence health, “health in all policies” underscores the need for policymakers in various sectors such as education, housing, transportation, agriculture, development, environment, and others to carefully examine the health implications of the policies they put into place.

Programs aimed at population health improvement are extremely diverse and address the full range of health determinants/factors. They not only encompass efforts to improve access to health care and individual behavior but also work to create healthy options and opportunities in the environments where people live, learn, work, and play.

Originally posted 5/18/10

Population Health: If It's Everything, Is It Nothing?



As you know, I'm new to blogging, and still getting used to it from a career of more academic writing. Several of you, as well as our MATCH staff, have observed that the topics seem to be a bit random and "out of the blue" from week to week. In addition, a respected colleague emailed a response to the post on **advance directives** that "it could imply that everything is about population health (which, as you and I agree, I hope) doesn't do much to advance the cause of purchasing population health."

Hmmm...if it's everything, is it nothing? A look at the **population health model** underpinning this blog and all I work on in population health, suggests that indeed it is perhaps everything: a broad set of outcomes produced by a comprehensive set of determinants which are influenced or activated by programs and policies in the public and private sectors.

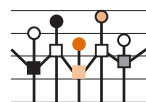
You will not, however, find me blogging on each and every micro-determinant or program/policy that theoretically and actually has some detectable impact on population health outcomes. What is then the decision rule that makes a topic of program or policy of importance not only for this blog but for public and private policy makers?

In this resource-limited world, I believe the criterion should be largely based on economics, and in particular, the relative effectiveness and cost-effectiveness of the determinant or the program and policy on health outcomes. I have previously noted that we do not yet have adequate evidence to make this an easy exercise. **Research is needed** to explore the effectiveness and cost effectiveness of broad policies and programs designed to effect health improvement at the population level. Some investments have an evidence base, like smoking cessation and immunization and early childhood programs. Other investments, such as removing the LAST microgram of a toxic substance in a Superfund site, would probably have some marginal effectiveness but extremely low cost-effectiveness.

Of course, determining what action to take toward health improvement is hardly straightforward. Decision makers must weigh not only on available evidence on effectiveness and cost-effectiveness but must also take into account many other factors, especially resource (financial and nonfinancial) and political supports and constraints.

Originally posted 8/9/10

Obstacles to Population Health Policy: Is Anyone Accountable?



Population health policy has been slow to emerge as a useful way to catalyze action regarding community health improvement. What are the barriers between population health knowledge and action, and how can we overcome them? There are no easy solutions, but certainly addressing these obstacles is an essential task for the field over the coming decade.

One critical obstacle is that the **multiple factors** determining **population health**—health care, behaviors, genetics, social factors, physical environment, public health—can be seen as so broad as to be overwhelmingly inclusive and therefore resistant to realistic policy action or even scholarly analysis.

This is a significant challenge for population health policy. The "inconvenient truth" is that since the actors for this range of factors are spread across the public and private sectors (government at all levels, employers, health care organizations, school boards, community organizations), there is no one actor or agent accountable and responsible for such broad **population health outcomes** as mortality, morbidity, and disparities.

While governmental public health defines its role as assuring the conditions that make us healthy, in this era of shrinking resources, it is increasingly difficult for local public health agencies to carry out their own **essential services** (much less broader policies such as health care costs, early childhood programs, and economic competitiveness). While some have suggested mechanisms such as a **public health "system"**, public-private partnerships, **health outcomes trusts**, and an **integrator function for healthcare organizations**, none of these mechanisms have been established beyond theory or taken to scale. Obstacles to systematic transformation include not only the inherent tension between "bottom-up" local community approaches and more centralized state or federal "top-down" planning perspectives, but also communities' unique strengths and challenges across a broad spectrum of health-related issues.

The bottom line is that no one-size-fits-all formula exists to guide population health improvement through resource allocation and activities across multiple sectors and multiple levels. Communities find their own solutions, by figuring out what their most pressing problems are and then working to address them. Thus, we focus on piecing together only discrete, easily defined sections of the population health policy puzzle (i.g., tobacco use, obesity, child vaccinations, etc.), while leaving—quite understandably—perhaps more root cause and comprehensive solutions unaddressed.

Few would argue against the pragmatism of concentrating effort on a single or several initiatives. In fact, there is some evidence to support such an approach. As Conrad and colleagues' assert, "Very clearly focused interventions targeted to a clearly defined community population, and implemented and managed by a small number of clearly accountable organizational entities, are more likely to produce community health improvement⁽¹⁾."

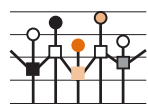
That said, we must recognize that in this resource-limited world, implementation of a broader set of the most cost effective interventions will be necessary to achieve the best outcomes. The 467 objectives in Healthy People 2010 are not ranked in any way, implicitly suggesting that all are equally important—which of course cannot be the case. Highest performance on an individual policy in a given community could become an end in itself rather than a means to the population health outcome goal. It is possible, I suppose, that each individual sector (health care, public health, schools, employers) will arrive at the most robust set of cost effective investments and incentives possible under its control. However, this is unlikely to happen, given that available evidence suggests that "the broader the intervention focus and the more varied the target population, the more achievement of positive community health outcomes will depend on the integration of separate program components⁽¹⁾."

Hope remains, however, in the potential of cross-sectoral integrating mechanisms. To return to the title of this post, I believe that no one entity today has accountability for population health outcomes. However, there are significant problems both with individual sector solutions described above as well as multisectoral partnerships unless they can be brought to scale and demonstrate effectiveness. Resolving this challenge will be one of several critical tasks as a population health policy framework emerges in the coming decades.

(1) Conrad DA, Cave SH, Lucas M, Harville J, Shortell SM, Bazzoli GJ, Hasnain-Wynia R, Sofaer S, Alexander JA, Casey E, Margolin F. (2003). **Community care networks: linking vision to outcomes for community health improvement.** *Med Care Res Rev*, 60(4 Suppl), 95S-129S.

Reorder 6/7/10

Is Population Medicine Population Health?



population health.

Terminology can be tricky; a word or phrase can sometimes mean different things to different people. This is currently the case with both *population medicine* and

On this blog we have been explicit in our definition of *population health*, from the 2003 article I wrote with Greg Stoddart: "the health outcomes of a group of individuals, including the distribution of such outcomes within the group." *Population health* also encompasses the multiple determinants of health that produce these outcomes.

The term *population medicine* has recently come into use. I was privileged to spend a few days last month in the Harvard Pilgrim Department of Population Medicine where our agenda included discussion of these definitions. They have defined *population medicine* as "...the specific activities of the medical care system that, by themselves or in collaboration with partners, promote population health beyond the goals of care of the individuals treated." Much of the discussion centered on how a health care organization, whose day-to-day work is closely tied to clinical practice, can also take action on the broader determinants of health. I think their definition gets it right. *Population medicine* is primarily concerned with clinical or health care determinants of health, but acknowledges the vital role of multi-sector partnerships (such as with public health, education, business, and social services) to influence health more broadly.

A colleague in Minnesota has taken this idea a bit further. As a part of the 2014 strategic planning process at HealthPartners in Minneapolis/St. Paul, George Isham worked with staff and board members to identify and commit to those traditional responsibilities over which the organization has influence or control (i.e., healthcare and health behavior). But they are also seeking other opportunities aligned with their mission for which they (as a health care organization) have limited opportunity for direct influence. They are therefore developing partnerships with others to expand the scope of their influence beyond clinical care and health behaviors to the socioeconomic factors and the physical environment. Specific three-year goals were set for these partnership activities in the same way as was done for the traditional health care cost and quality goals of the organization.

Occasionally I hear *population health* being used to describe the clinical, often chronic disease, outcomes of patients enrolled in a given health plan. Certainly an enrolled patient group can be thought of and managed as a population, but defining *population health* in terms of patient populations undermines our goal of emphasizing the critical role that non-clinical factors such as education and income play in producing health. Such a view is even more limiting than *population medicine*, and certainly is not appropriately termed *population health* from a modern policy framework.

In a recent and very thoughtful **policy paper for the National Quality Forum** Jacobson and Teutsch address these issues and recommend that "current use of the abbreviated phrase *population health* should be abandoned and replaced by the phrase *total population health*." They state that "this will avoid confusion as the clinical care system moves rather swiftly toward measuring the health of the subpopulations

they serve. Geopolitical areas rather than simply geographic areas are recommended when measuring total population health since funding decisions and regulations are inherently political in nature.”

I think we should use the term *population medicine* to describe and promote efforts by leading clinical organizations to use their professional and financial base to actively participate and partner in improving total population health through a multi-sectoral approach to address broad health outcomes and disparity reductions.

Originally posted 6/13/12

More Perspectives on “Population Medicine”



My previous post on *population medicine* prompted a number of thoughtful responses which I’d like to share. This is not simply a terminology discussion. The breadth of the population health view we espouse here can be undermined if it is confused with chronic disease management of enrolled patients.

Emma Eggleston, MD, MPH Instructor, Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA

Population medicine...takes a population perspective from a healthcare system base. It encompasses the intersection between the health care system and other determinants of (and partners in) population health e.g. public health, communities, the built and social environments, etc. In other words, it is the sum of 1) the population-specific activities of the health care system itself and 2) the intersection of the health care system with other determinants of population health. While the population-specific activities of the health care system are important and arguably easier to delineate and act upon, the exciting potential for long-term innovation and impact is in the intersection.

Marc Gourevitch, MD, MPH Chair, Department of Population Health, New York University Medical Center, New York, NY

Defining these terms helps by providing guideposts to the broad spectrum of approaches currently in play that focus on aggregate outcomes, ranging from the most narrowly-construed version of ‘panel management’ within a specific delivery system, on the one hand, to a broadly framed health-in-all-policies approach adopted by a large city or state, on the other. Yet for many academic medical centers, incentive or reimbursement structures to support efforts to engage more broadly in non-clinical determinants of health lags behind understanding of the value of doing so. For this

reason, while many engage in a limited fashion with the other determinants, others are more robustly addressing other determinants unrelated to their systems of care. The value of these definitional frameworks is anchoring the various interventions and approaches that are evolving in parallel across the country.

George Isham, MD, MS Senior Advisor, Health Partners, St. Paul, MN

I think of these concepts as overlapping. Beyond individual care, broader activity that improves preventive services and acute or chronic care for populations of individuals could be thought of as “population medicine” and could also contribute to the overall health of the population. This is a particularly useful concept now because many care systems are now figuring out how to provide better preventive care, acute and chronic care to defined populations using activities such as Medical Homes, outreach, case management and other techniques. It’s important to have health care organizations think about their relationship to the other determinants of health beyond health care because of the bigger potential impact of those other factors and the need to reallocate resources from health care to those other determinants. As significant community citizens, health care has the obligation, in my view, to positively impact the behavioral, socio-economic and environmental determinants of health.

Geoffrey Swain, MD, MPH Chief Medical Officer and Medical Director, City of Milwaukee Health Department, Milwaukee, WI

Words and definitions do matter a lot. But I admit to remaining a bit confused. If a) Population Health is ‘the health outcomes of a group of individuals, including the distribution of such outcomes within the group’, and b) Population Medicine is ‘...the specific activities of the medical care system that, by themselves or in collaboration with partners, promote population health beyond the goals of care of the individuals treated’, then c) what do we call ‘the specific activities’ of anyone else (other than the medical care system) ‘that, by themselves or in collaboration with partners, promote population health’? In other words, why are activities that address socioeconomic or physical environmental drivers of health called ‘population medicine’ when the health care sector does them, but not when others do them? Or, more bluntly, why should only the medical care sector get a special name for its activities in these areas?’

Many thanks to Emma, Marc, George, and Geof for joining the conversation. Geof raises a great question, to which I would only note that the health care system is so strong and powerful that some special attention to the activities moving outside of the clinical arena is useful. This is not to diminish the health promoting activities of other sectors like public health and business and social service agencies. For these the term “population health” or even “total population health” seems appropriate. I agree with Marc that a bit of definitional conversation is useful to keep our eye on how all of us can

contribute to the overall population health goal. It helps keep us on track, and prevents the fundamental aspects of the population health model from getting lost in translation.

Originally posted 7/18/12

Population Health Outcomes

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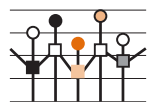
The IOM Reports on Investing in a Healthier Future

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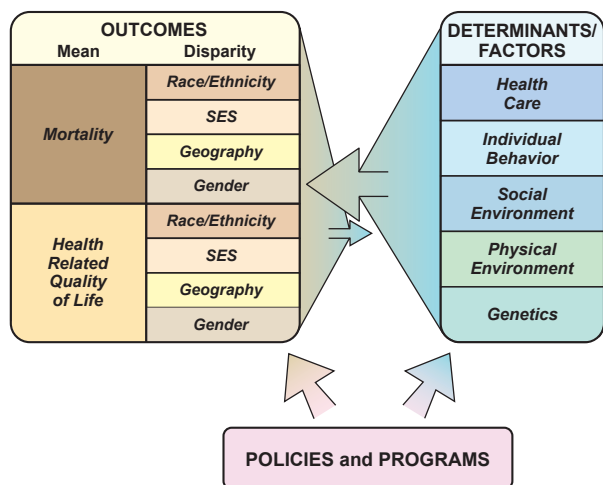
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What Are Population Health Outcomes?



Many health improvement models have identified two broad outcome goals: increasing overall or mean population health and eliminating disparities within the population. The outcomes component of our population health model is shown in the left hand side of the figure below.



For overall or mean population health, two components are displayed: mortality (length of life), and health-related quality of life, or morbidity. Healthy People 2010 defined health-related quality of life as “a personal sense of physical and mental health and the ability to react to factors in the physical and social environments.” Simply put, one goal of population health improvement is to increase years of life and the quality of those life years.

Another goal is to reduce the differences or disparities in these health outcomes among different subgroups in the population. The figure indicates a number of subgroups that are associated with significant differences or disparities in both mortality and health-related quality of life. Those featured here are race/ethnicity, socioeconomic status (SES), gender, and geography. Many other subgroups besides these are associated with population health disparities. All differences are not necessarily of policy interest or are equally important in all situations.

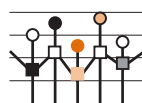
It is important to note that in this figure each quadrant is arbitrarily sized equally, as are the components within disparities (i.e., race/ethnicity, SES, geography, and gender). The relative importance of each cell is not a research question but a value choice for different nations, states, or other population groups to make. Some may focus more on years of life and others more on the quality of those years. Some may think that socioeconomic disparities are the most important while others could prioritize disparities of gender or geography. In the **Health of Wisconsin Report Card**, an overall grade for health disparity was given based on a

multidomain index across four disparity domains. Yukiko Asada has done pioneering work on how to develop such a multidomain disparity measure more fully.

- (1) Kindig, DA. (2007). **Understanding Population Health Terminology.** *Milbank Quarterly*, 85(1), 139-161.
- (2) Kindig DA, Asada, Y, Booske B. (2008). **A Population Health Framework for Setting National and State Health Goals.** *JAMA*, 299(17), 2081-2083.
- (3) **Healthy People 2010.** Office of Disease Prevention and Health Promotion. US Dept. of Health and Human Services. <http://www.healthypeople.gov>. Accessed April 19, 2010.
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- (5) Graham H. (2004). **Social Determinants and Their Unequal Distribution: Clarifying Policy Understandings.** *Milbank Quarterly*, 82(1):101-24.
- (6) Booske BC, Rohan AM, Kindig DA, Remington PL. (2010). **Grading and reporting health and health disparities.** *Preventing Chronic Disease*, 7(1).
- (7) Asada Y. **A summary measure of health inequalities for a pay-for-population health performance system.** *Prev Chronic Dis* 2010;7(4). http://www.cdc.gov/pccd/issues/2010/jul/09_0250.htm.

Originally posted 5/18/10

Assessing Today's Health... and Tomorrow's



Today I'm starting a new series on population health measurement, motivated by the idea that “you can't manage what you can't measure.” While there is no shortage of measures and rankings, there's actually little consensus on what metrics are best suited to assess progress in population health improvement. Last week I urged Triple Aim architects to clarify how population health is defined in their model, but they're not the only ones with definitional issues.

Metrics can assess a single item, such as infant mortality rates, or be bundled into groups to create summary measures. **America's Health Rankings (AHR)** and the **County Health Rankings (CHR)** both use summary measures to annually rank, respectively, the health of states and counties within states. AHR has been ranking the health of states since 1990 and released its most recent rankings in December 2010. This important national resource informed work by the University of Wisconsin Population Health Institute to rank the health of Wisconsin counties beginning in 2003 and, for the first time in 2010, counties in every state. Dr. Pat Remington and I are proud to serve on AHR's Scientific Advisory Committee.

The AHR and CHR share a common goal of population health improvement and both projects take pride in their deliberate,

systematic, and transparent approaches. Both projects create summary measures for health outcomes (using metrics such as premature death, quality of life, and poor birth outcomes) and health factors or determinants (using metrics that capture health behaviors, clinical care, and social/economic/physical/policy environments). However, while CHR uses the health outcomes summary measure to identify the healthiest counties, AHR creates its overall rankings based on both outcomes and determinants.

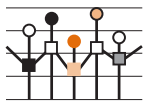
So what does this look like in action? From 2009 to 2010, Wisconsin dropped from 11 to 18 in AHR overall rankings. But, a look at separate outcomes and determinants rankings over the same time period tells a slightly different story. Our determinants ranking is identical to the overall ranking (we dropped from 11 to 18). However, our health outcomes ranking improved slightly, from 16 to 15.

Why is this important? In general, we think of outcomes as a reflection of our current health and determinants as a predictor of our future health. The two summary measures often move in the same direction, but not always. When we launched the national CHR in 2010 with support from the Robert Wood Johnson Foundation, some wanted to know why our rankings didn't have an overall score like AHR. The answer has to do with how the results are communicated and their implications for action. We felt strongly in the value of the two different measures to communicate different but equally important concepts about population health, particularly for policy makers.

Places with determinants better than outcomes are on the right track toward health improvement. But, for those such as Wisconsin with declining determinants, unless we act to reverse the trend, there is cause for concern about potential declines in health outcomes. It is the outcomes we are trying to improve, and the determinants that will get us there.

Originally posted 11/18/11

Which Outcomes Should We Improve?



I recently argued on the importance of keeping population health outcomes and determinants separate, since the former represents today's health and the latter

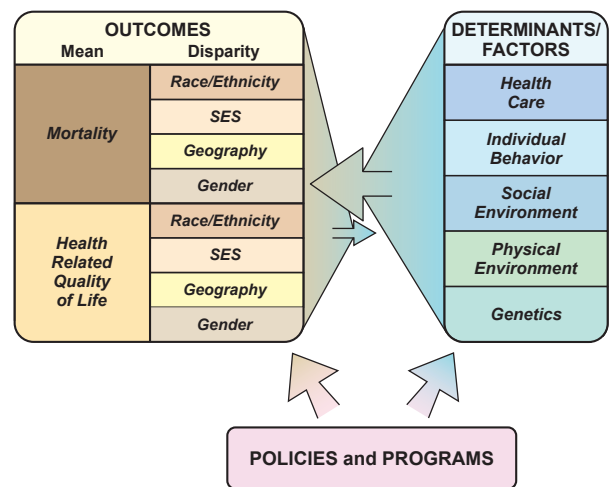
tomorrow's health. This week and next, I'll be digging a bit deeper to look first at outcomes and then later at determinants.

Health outcomes have been defined as "all the possible results that may stem from exposure to a causal factor from preventive or therapeutic interventions." As Gib Parrish noted in his 2010 award-winning article, there are many different ways to measure health outcomes. These include:

- Life expectancy from birth
- Age-adjusted or age-specific mortality rates
- Condition-specific changes in life expectancy and mortality rates
- Self-reports such as general level of health

Parrish notes that outcome metrics should present both the overall level of health of a population and the distribution of health among different geographic, economic, and demographic groups in the population.

The MATCH population health model underpinning this blog reflects much of this perspective. The 2X2 outcome diagram below includes both mortality and non-mortality (i.e., health related quality of life) components, as well as both population mean and population disparity metrics. This makes sense conceptually, but poses issues and choices in practice.



Of course, it is possible to separately track outcome measures in these four (or more) spaces. This is what many health-planning exercises do, such as the recently released Healthy People 2020 (HP2020). In this important national process, a large number of individual measures of general health status as well as health related quality of life and health disparities will be monitored and reported on periodically.

One HP2020 indicator is "Healthy Life Expectancy," which will be assessed through three distinct measures:

- expected years of life in good or better health
- expected years of life free of limitation of activity
- expected years of life free of selected chronic diseases

These three metrics are "summary" health outcome measures, combining mortality and health related quality of life together. In a similar approach, our County Health Rankings' summary outcome measure assigns 50% to years of potential life lost before age 75 and 50% to 4 non-mortality measures. These weights reflect our interpretation and judgement of the relative importance of the components, but we recognize that not everyone would agree with our choices. There is

no empiric “right” answer to the question “Which Outcomes Should We Improve?”. This is a question of values; decisions weighting length of life versus quality of life should be made by individuals and communities.

Why does this matter? Different outcome choices require different patterns of investment in the determinants of such health outcomes. I’d like to see a web-based tool that allows communities to explore a broad set of outcomes and that leads them through a process of selecting outcome priorities that have local meaning and relevance. Having a clear sense of place-based outcome goals should help establish policy priorities and guide resource allocation.

As readers of this blog know, we don’t yet precisely know which programs and policies are most cost effective for overall population health improvement – let alone those that reduce disparities (stay tuned for more soon on this topic). But we are hopelessly lost if we aren’t clear on where we are going, and what our targets are. Clear and transparent choices about outcomes have tremendous promise, serving as a sort of population health compass to guide us step by step toward a healthier tomorrow.

Originally posted 2/1/11

Is Chronic Disease Burden a Population Health Outcome?



Responding to last week’s post on **which outcomes we should improve**, Matt Stiefel from Kaiser Permanente asked about using the incidence or prevalence of chronic illness as a population health outcome measure. Matt’s important question prompts me to continue the conversation this week.

The Institute of Medicine’s 2008 **State of the USA Health (SUSA) Indicators report** (I served on this committee), called for an index of chronic disease prevalence among its seven other health outcome measures that “reflect the overall health of the nation and the efficiency and efficacy of U.S. health systems” such as life expectancy at birth, infant mortality, and unhealthy days (physical and mental). To my knowledge, such an index has not yet been developed. As a member of the IOM SUSA committee, I am concerned with the classification of chronic disease prevalence (and other similar factors) as outcomes per se, because improving these factors is the means, not the ultimate end that we seek (i.e., living longer healthier lives). This opens the door for the means to become the end.

One strategy might be to add a third category of “intermediate outcomes” to our model of outcomes and determinants/factors. These “intermediate outcomes” could capture those factors (like smoking rates or primary medical care or burden of chronic disease) that, if improved, are likely

to directly and significantly improve our ultimate outcomes over time. (Others call these “proximal determinants” in contrast to the more “distal determinants” such as income and education.) This category of “intermediate outcomes” could be very useful for guiding population health monitoring efforts and policy priorities, and indeed may be required when we want to track or reward short term improvement.

We don’t have to look far to see the potential value of this third category. **The National Research Council’s** recent report highlights **diverging paths in longevity among high-income countries**. The report points to smoking rates as one main reason why life expectancy in the U.S. is increasing at a slower rate than might be expected. Thirty years ago, smoking rates were much higher among U.S. adults than they are today (37% vs. 21%); what we’re seeing now is the **time-delayed ripple of these “intermediate outcomes” or determinants affecting long-term health outcomes**.

Thinking about smoking rates as an “intermediate outcome” can be helpful from a policy perspective as well. Later this month, New York City’s Mayor Bloomberg is expected to sign a bill that will **ban smoking in 1,700 city parks and along 14 miles of beaches**. According to the *New York Times*, the new policy will represent the “most significant expansion of antismoking laws” since Mayor Bloomberg’s 2002 push to prohibit smoking in bars and restaurants. I hope the National Research Council will be able to credit these and similar policies to declining mortality in 2040.

So, while I’d like to reserve the population health term “outcomes” for our ultimate goals of increasing the length and quality of lives, a third category of “intermediate outcomes” deserves greater attention by both policymakers and scholars. Developing consensus around which indicators would best fit into such a category – as well as what programs and policies could most cost-effectively improve these numbers – would be a great place to start.

Originally posted 2/8/11

Doing Well or Doing Better



Our focus for the past couple of weeks has been on outcomes, both **long-term** and **intermediate**. Most of the examples mentioned have been discussed in the context of absolute achievement, such as being #1 on state or county rankings, or achieving the lowest infant mortality rate among all nations.

But is being the best the only thing we want to measure and reward? What about communities and states that are improving most rapidly, particularly from poor baselines? This issue is front and center in education policy: should we reward or incentivize schools or teachers who have the best student test scores, or those demonstrating greatest improvement?

I think both approaches are useful. Overall achievement should be measured and recognized, as with Olympic medals. But there's also a case to be made for keeping track of improvement, particularly for purposes of allocating resources to communities with formidable social and economic challenges.

From a statistical perspective, measuring improvement is even more difficult than measuring achievement. For our *County Health Rankings*, we average three consecutive years of data to assess premature death as Years of Potential Life Lost (YPLL) before age 75 while for other measures, such as smoking rates, we use up to seven years of data. Using multiple years of data allows us to measure health in nearly every county in the US. But the need to use multiple years of data to get an estimate for a *single point in time* makes it difficult to measure *change over time*, particularly for smaller communities that have greater variability in their measures.

We should not let these analytic obstacles deter us from incentivizing doing better at the same time we honor doing well. On the data side, we need to oversample rural areas and seek out non-traditional data sources such as healthcare, employer and school records (with adequate individual privacy protection of course). For measuring improvement, we should focus attention on shorter-term metrics (such as rates of infant low birth weight) and closely track indicators that are strongly correlated with health outcomes (such as burden of chronic disease, income, and education). And we should experiment with both quantitative and qualitative metrics for assessing innovative and emerging intervention strategies.

Since no community has achieved the highest health outcomes that it can, each can aspire to do better and even be the best. The National Priorities Partnership of the National Quality Forum has set one goal that “the health of American communities will be improved according to a national index of health.” But to reduce inequalities across communities (a topic I’ll return to soon), those with worse outcomes need to improve at a faster rate to reduce the gap. As with our schools, learning what combination of metrics, mechanisms, and incentives maximize rates of community health improvement will be an important part of population health policy strategy in the coming decades.

Originally posted 2/14/11

Which Health Disparities Do We Want to Reduce?

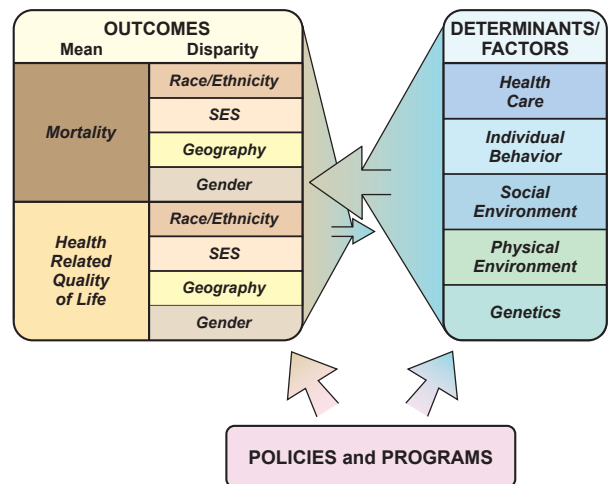


Over the past few weeks, I have been blogging on population health measurement, under the headline that you can’t manage what you can’t measure. While I’ve given quite a bit of attention to overall outcomes, I haven’t directly addressed disparities.

Improving the length and/or quality of life overall doesn’t necessarily translate to improved health for all population groups. Policies and programs can have a differential affect on subpopulations that exacerbate rather than diminish disparities.

Deciding which outcomes to target to improve overall health involves value judgments – whether the goal is improving overall health or reducing disparities. There is not a “correct” formula for simultaneously improving overall health and reducing disparities. The 50:50 weighting suggested by the figure below represents just one possible approach but the ethical dimensions of such choices cannot be ignored; in a resource limited world, should we focus on raising the bar overall or narrowing the gaps?

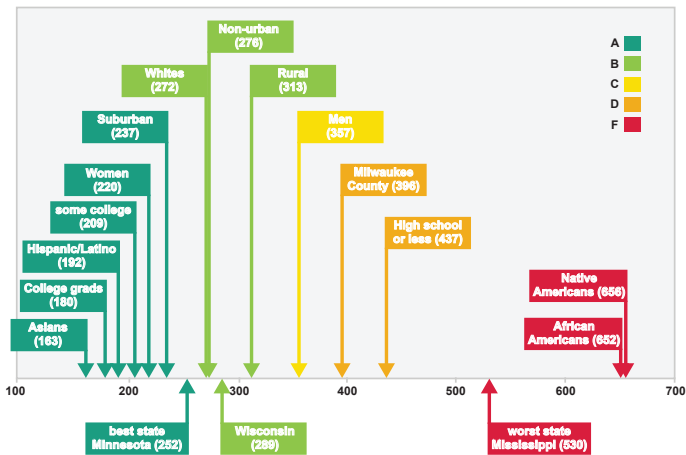
This is a value choice to be made by individuals and groups in light of their local, state or national situations and perspectives.



As the figure shows, disparities in outcomes exist across a spectrum of categories. These include race and ethnicity but also social and economic status, gender, and geography (and other dimensions as well). However, people often focus on disparities primarily in the race/ethnicity dimension. Last month the CDC released its first ever report on disparities and inequalities. Despite the report’s emphasis on the social determinants of health (the first section focuses on income and education), media coverage focused on the findings about racial disparities.

Here in Wisconsin, our ethnic minority populations are relatively small and geographically concentrated, but every county in the state has substantial health disparities by education level and income. In fact, the state earned a “C-” overall for health disparities in its 2010 Health of Wisconsin Report Card (which employs an innovative multidomain disparity index). The figure below from this report shows the distribution of death rates for various population segments both above and below the state average. It illustrates the point that racial disparities are significant but that there are also other critical differences across other population segments, such as those with different levels of education.

Wisconsin Working-Age Adult Death Rates
(Age 25-64, rates per 100,000 population)



Chronic racism has been shown to have a biologic effect on health through stress pathways, and institutional racism has created many of the disparities in income, education, and health services that influence health outcomes. We clearly need to develop and support policies to address and eliminate racism on every level in our communities.

But focusing our attention too narrowly may make us think of obstacles instead of opportunities. To improve population health, we need to think beyond race to recognize the many factors that affect health differentially. In a country still battling racial stereotypes and prejudice, this broader perspective on disparities may help create a unified and constructive approach to addressing our collective health challenges.

Originally posted 2/22/11

Bending Health Disparity Curves

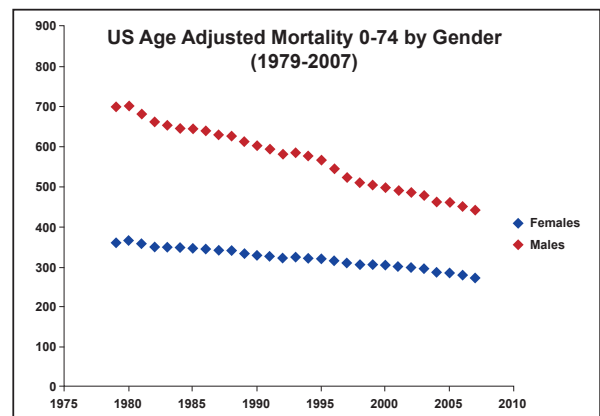
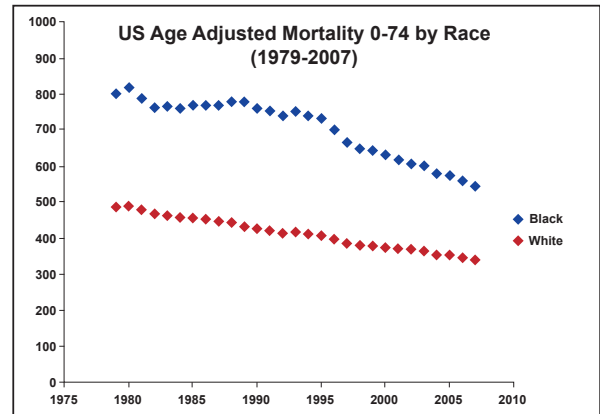


I recently raised the issue of disparities and noted the many unacceptable health differentials that exist across U.S. subpopulations. It is very easy to claim that such disparities should be eliminated, but seldom do we set specific quantitative targets for such improvement.

These days, the phrase “bending the curve” usually applies to reducing rates of health care cost increases. But look below at two other curves -- disparities in US mortality between Blacks and Whites as well as males and females from 1979 to 2007.

The figures show improvement (i.e., declining mortality) for all four groups, but the improvements are occurring at different rates (e.g., average annual rates of improvement over the period are 1.13% for Whites, 1.19% for Blacks, 1.36% for males, and 0.90% for females). The reasons for the differences are interesting and important, but not my point today. It might seem that if these trends were to continue,

reduction or elimination of these disparities would happen “naturally” without additional intervention. And of course the disparity depends on both curves: if White or female rates were to improve even faster it would take even higher rates of Black or male improvement to narrow or eliminate the differences. We cannot assume that these disparities will continue to narrow over time nor should we ignore the ethical and pragmatic considerations of inaction or delay.



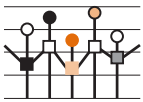
How rapidly should disparities be reduced? Clearly, there is no “right” answer to this question but I believe this is an important issue for communities, states, and nations to discuss explicitly and then act by adopting programs and policies help them achieve their goals. In theory, focusing available effort and resources on less healthy groups will help narrow the gaps and is particularly important in cases where disparities are increasing. For example, the gap in health between more vs. less educated people appears to be getting bigger over time instead of narrowing.

Of course the biggest challenge is what to do to improve health for the less healthy groups in order to bend the disparity curve. Here in Wisconsin, we compiled the **What Works for Health** database summarizing evidence on what works to *improve health*. But, despite our best intentions, we were unable to locate as much evidence on what works to *reduce disparities*. Furthermore, some programs and policies that improve overall health may actually worsen disparities. For example, media campaigns to promote smoking cessation may have the unintended effect of increasing disparities by socioeconomic status.

So, our collective challenge is to a) figure out how much of our resources we want to direct toward reducing disparities and b) find the most cost-effective ways to use those resources to narrow these gaps. Our population health research agenda must prioritize understanding what the most cost-effective disparity reduction investments are so that they may be put into practice.

Originally posted 3/14/11

Population Health Disparities: Rates or Burden?



In my March 14 post **Bending Health Disparity Curves**, I focused exclusively on differences in mortality *rates*, such as deaths per 100,000 persons. Rates are very useful measures, because they allow comparison across populations of different sizes. But from a population health perspective, rates alone are not enough, because large disparities in very small populations have a different impact than similar disparities in larger populations. Burden refers to the impact of a health problem in a population, combining both the rate and the number of people affected.

Although our disparities focus tends to be on race and ethnicity, disparities also exist in other domains such as geography, socioeconomic status, and gender. The table below shows a surprisingly high male mortality rate, but it is the size of this population (146 million) that transforms the rate into a significant population health burden.

	Mortality rate per 100,000*	Population Size
Black	1009	39 million
White	780	240 million
Male	945	146 million
Female	672	150 million

*Average rate 2003-2007. Centers for Disease Control and Prevention, National Center for Health Statistics. **Compressed Mortality File 1999-2007**. CDC WONDER On-line Database, compiled from Compressed Mortality File 1999-2007 Series 20 No. 2M, 2010.

The table above reveals disparities related to race and gender that are far more complex than I can do justice to in this brief post. However, this issue of rate vs. burden applies across disparity domains. In Wisconsin, for example, **there is a similarly large mortality gap in education**. Mortality rates among the 44% of the working-age population with high school or less education are significantly higher than rates among college graduates.

This does not mean that smaller populations with large rates should be ignored. As **Keppel and colleagues point out**, *“rates among small groups, such as the Asian and American*

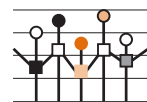
Indian or Alaska Native populations, will seldom be high enough to warrant population-specific interventions based on reduction in total burden alone. An independent commitment to the goal to eliminate disparities would be required to warrant intervention with small racial and ethnic groups.”

However, in a resource-limited world, choices will have to be made. As Keppel et al again point out, *“sizable reductions in both disparity and total burden can result when the largest group has the worst rate and effective interventions are targeted to that group.”* We need to engage in robust discussion about priorities for overall outcomes versus disparity reduction, and then get quickly to identifying resources to achieve these ends. Attention to both rates and burden will be required to make the best decisions in such a process.

P.S. Feel free to comment about issues around rates versus burden, the appropriate balance between improving overall health and reducing inequities, whether you think male mortality rates are disparities or inequities (see below), or about anything else in the blog as well.

Originally posted 4/14/11

IOM: Measurement for Accountability in Public Health



I was privileged to appear last week before the Institute of Medicine (IOM) Committee on Public Health Strategies to Improve Health. The purpose of the meeting was to gather testimony for its third report (due out later this year), which will develop recommendations for funding state and local public health systems after health reform.

In preparation for my presentation, I reviewed the first report in this series, released December 2010, called **For the Public’s Health: The Role of Measurement in Action and Accountability** (the second report on statutes and regulations is currently under IOM review). The report has three main chapters, including: (1) Needed: An information Enterprise to Drive Knowledge and Population Health Improvement, (2) Measuring Health for Improved Decisions and Performance, and (3) Measurement and Accountability. Given the report’s strong population health message, I am focusing this post on a few of its key findings and recommendations.

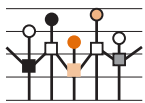
- One recommendation calls on the Secretary of DHSS to integrate, align, and standardize health data and health outcome measurement at all geographic levels. This includes a summary measure of population health to estimate and track health adjusted life expectancy for the United States. More specifically, the recommendation calls for “unified guidance to build an actionable set of additional indicators to support community decision-making with respect to local health promoting initiatives.”

- Another recommendation calls on DHSS to issue an annual report to policy makers, all health systems sectors, and the public about important trends and disparities in social and environmental factors that affect health. An additional recommendation calls in part for advancing the use of predictive and system-based simulation models to understand the health consequences of the underlying determinants of health. This is consistent with the **call for broader use of comparative effectiveness research funding** to inform cost-effective allocation of resources across health care, public health, health behaviors, and the social and physical determinants of health.
- Most importantly, the last chapter (on measurement and accountability) identifies the need for a population health accountability framework requiring agreement among health-system stakeholders on specific plans of action for health priorities and outcomes. The report suggests two types of accountability: “contract” accountability (which follows from financial and regulatory obligations), and “compact” or “mutual” accountability (for relationships among community-based stakeholders). The report includes criteria for assessing and ensuring accountability at state and local levels; for example, organizations should have a clear charge, measurement capacity, and tools to assess and improve effectiveness and quality. While not insisting organizations have financial and administrative control over resources as suggested in a **Health Outcomes Trust**, the measurement and accountability framework represents a major step in this direction.

I applaud the IOM and the Robert Wood Johnson Foundation for producing this important work. Population health advocates should stay tuned for the final two reports on laws and funding, which I hope will contribute additional insights and recommendations as to what can and should be done to deliver improved outcomes through measurement and accountability.

Originally posted 5/10/11

The IOM Reports on Investing in a Healthier Future



I've been waiting with anticipation for last week's IOM report on *For the Public's Health: Investing in a Healthier Future*, from the IOM Committee on Public Health

Strategies to Improve Health. This is the third of three reports. The first report was released in December 2010 and focused on measurement of population health and related accountability at all levels of government. The second report was released in June 2011 and reflected the committee's thinking about legal and public policy reform such as health departments' powers, duties, and limitations as defined in enabling statutes and the use of legal and policy tools to improve the public's health.

The third report addresses the critical issue, in a time of declining resources, of public health resource needs and approaches to addressing them in a “predictable and sustainable manner to ensure a robust population health system.” Given my many calls for dependable revenue streams for population health improvement, this clearly was a must-read for me.

This is a very important and thorough report with an excellent Executive Summary for those in a rush. Today I will simply give you a preview of several of the most important recommendations and next week I will blog on a fuller critique from a population health improvement perspective.

Recommendation: *The Secretary of the Department of Health and Human Services should adopt an interim explicit life expectancy target, establish data systems for a permanent health-adjusted life expectancy target, and establish a specific per capita health expenditure target to be achieved by 2030. Reaching these targets should engage all health system stakeholders in actions intended to achieve parity with averages among comparable nations on healthy life expectancy and per capita health expenditures.*

This would appear to be more of a measurement recommendation, and it does follow from the first report, but the call to set specific targets not only for broad outcomes but also for per capita healthcare expenditures is the kind of challenge we need to focus our improvement efforts. This would amount to adding an average of approximately 1.33 years to the life expectancies of 50 year old women and 0.90 years to the life expectancies of 50 year old men – which is no easy task. But the authors begin to address the investment aspect by observing that “excessive spending on medical care also presents opportunity costs – less funding remains for investment in other socially important activities, such as education. Bringing health expenditures more in line with other wealthy nations will free up resources that can support other US objectives that improve not only the health of Americans, but their quality of life.” This is a very clear population health resource perspective and challenge.

Several other recommendations deal with public health funding directly and also deserve attention, such as establishing a minimum package of public health services for every community and recommending that Congress double the current federal appropriation for public health -- and make periodic adjustments to this appropriation based on the estimated cost of delivering the minimum package of public health services.

Recommendation: The committee recommends that Congress authorize a dedicated, stable, and long-term financing structure to generate the enhanced federal revenue required to deliver the *minimum package of public health services* in every community. Such a financing

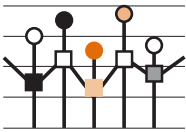
structure should be established by enacting a national tax on all medical care transactions to close the gap between currently available and needed federal funds.

Not surprisingly, this was the only recommendation picked up by the *Wall Street Journal*, and certainly will be vigorously debated in the coming months or years regarding whether it is the best or most feasible potential source of such a needed funding stream.

These are only the highlights. They are extremely important considerations for a national population health improvement strategy and for enhancing public health. However, with the exclusive emphasis on governmental public health, the report falls short in advocating a broad population health strategy. Next week I'll comment on how these recommendations could be made even more important and effective.

Originally posted 4/19/12

Population Health Targets: Unpopular But Needed



Thinking about the upcoming release of the federal Healthy People 2020 (HP2020) report has brought me back to a 2008 JAMA commentary I wrote with Yukiko Asada and Bridget Booske

titled “A Population Health Framework for Setting National and State Health Goals.” Our recommendation was for a population health model framework to guide federal and state planning processes. Specifically, we called for the setting of five to ten year targets for broad outcomes. We suggested that the targets could be established based on trend comparisons across other nations or states and be set at different levels, e.g., ranging from “minimal” to “achievable” to “challenging.”

It is not clear at the moment if HP2020 or similar plans in individual states will include targets for broad health outcomes, such as years of healthy life or overall disparity reductions. In the past, targets have been set for specific narrower objectives such as cancer deaths and smoking rates. I think it's time to also focus on the broader comprehensive measures of health that these narrower objectives produce.

There are both political and practical reasons why governments resist such explicit projections. As Smith and Busse say in a recent MATCH essay on the **European target setting experience**, one purpose of target setting is to “enhance the accountability of government to parliament and the electorate,” but such future accountability may not be politically advantageous. Even in a politically progressive state like Wisconsin, neither Republican or Democratic elected officials or appointed public health leaders have set

such targets; this is one reason our **University of Wisconsin Population Health Institute** initially developed the **Wisconsin County Health Rankings** in 2003 and issued the first **Health of Wisconsin Report Card** in 2007 in which we graded the state a “B-“ for overall health and “D” for health disparities. While these reports have been widely used, the recent **Healthiest Wisconsin 2020 State Health Plan** does not include broad 5-10 year targets.

My management experience has taught me that you can't manage what you can't measure. Since improving broad population health outcomes requires the actions of multiple sectors, Smith and Busse identify a need for targets that transcend traditional sector boundaries and emphasize “coordination, persuasion, and engagement if they are to be successful.” Of course, long term targets cannot be set precisely, but a set of minimal to challenging goals could be devised. They could be used by those community entities -- such as United Way, a local or regional health department, or a **Triple Aim project** -- which aspire to provide the **integration that population health improvement requires**. Targets should help shape community health improvement processes by helping identify local health priorities as well as corresponding sets of cost-effective policies and programs.

We can and should set reasonable, broad targets for mortality and morbidity improvement and disparity reduction at the federal, state, and community levels. These will guide investment, inform public accountability—and hopefully improve population health.

Originally posted 10/12/10

The Multiple Determinants of Population Health

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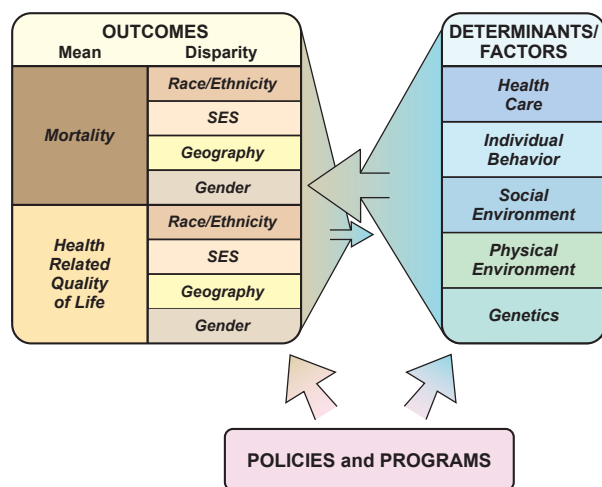
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What are Health Factors or Determinants?



Health outcomes, however defined and measured, are produced by determinants or factors. They often are sorted into the five categories presented on the right in the following model.



Health care determinants generally include access, cost, quantity, and quality of health care services. **Individual behavior determinants** include choices about lifestyle or habits (either spontaneously or through response to incentives) such as diet, exercise, and substance abuse. Social environment determinants include elements of the social environment such as education, income, occupation, class, social support. **Physical environment determinants** include elements of the natural and built environment such as air and water quality, lead exposure, and the design of neighborhoods. **Genetic determinants** include the genetic composition of individuals or populations.

The subcomponents of these determinants or factors can be measured in many different ways. The **County Health Rankings** includes many such measures in each category that are available at the county level. A series of articles commissioned by the **MATCH project**, to be published in the online journal *Preventing Chronic Disease* starting in June 2010, outline current thinking regarding conceptualizing and measuring each of these categories.

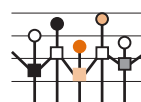
In the model above, each category is depicted as the same size, implying that they each contribute equally to health outcomes. Although useful for illustration, in reality those determinants will carry different weights (and hence would be different sizes). Differences exist depending on the population studied, and because cross-sectoral analysis is complicated by interactions between determinants and the latency over time of their effects. In the **MATCH County Health Rankings**, health care is weighted 20%, behaviors 30%, the social environment 40%, and the physical environment 10%. An

explanation of the process used to assign these particular weights is **available**. However, determining the correct weights for each category and the policies and programs underpinning them remains a major challenge for population health research.

It is important, too, to realize the presence of “reverse causality,” which is why there is a small arrow in the above model going from outcomes to determinants/factors. This reflects the fact that outcomes such as morbidity can produce a change in a determinant or risk factor. For example, childhood illness can be responsible for lower educational attainment. In this case, the definitions of outcomes and determinants are reversed; morbidity would be the determinant or factor and educational attainment the outcome. Separating out the different directions of causality is an important and difficult research challenge.

Originally posted 5/18/10

Is Lower Health Care Spending Good for our Health?



I believe the most important scholarly publication in January, 2012 was *Health Affairs'* “Growth in U.S. Health Spending Remained Slow in 2010; Health Share

of Domestic Product Was Unchanged From 2009.” This annual report from the Office of the Actuary and the National Health Expenditure Accounts Team of the federal Centers for Medicare & Medicaid Services (CMS) always gets substantial coverage in the mainstream press and this year was no exception.

Why are health expenditure trends so important to improving population health? Because the amount we spend on health care in the United States is the elephant in the room regarding aligning resources appropriately to make us healthier and reduce disparities.

Some believe that our ever-increasing health care spending is a sign of market success, to be celebrated like Apple iPad sales. But the fact is we spend far more than any other country and still have poorer outcomes, and many experts believe a quarter to a third of what we spend is ineffective or wasted. In our resource-limited world, increases in health expenditures prevent investment in other health promoting areas like **education**. Even **leaders of major health care institutions are calling for increased social service expenditures** to improve the health of those seeking care in their institutions.

The article reported that health care spending reached \$2.6 trillion in 2010, or \$8,402 per person. Due to low annual increases of 3.8% in 2009 and 3.9% in 2010 (lower than any period in the last fifty years), the health care share of total

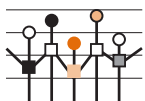
spending stabilized at 17.9 percent of GDP. Authors attributed this to slower growth in use of hospitals, physicians, and drugs; from losses of private health insurance coverage; lower median household income; and uncertainty about the financial future. Importantly, the federal government's share of total expenditures increased to 29% (up from 23% in 2007) while state and local government's share fell to 16% (from 18% in 2007). Employer contributions fell to 21% from 25% in 2001, while consumer out-of-pocket spending increased by 1.8%. While in previous years' growth in use of services (as opposed to population growth or price increases) has been a major factor in the overall increase, this year it contributed only 0.1% of the 3.9% increase. Governmental public health spending increased by 8.2% to \$82.5 billion, but this still accounts for only 3.2% of overall spending.

So is this good or bad news? Most news coverage highlighted the welcome second year of expenditure slowing, but noted that it might be transitory as the recession ends. Any slowing is in the right direction, but 3.9% is still greater than the 1.5% increase in the Consumer Price Index in 2010, and most of the increase was from price increases -- not from greater demand. While slower growth could lead to better insurance coverage over the long haul, it likely had no impact in a single year. Consumers with economic challenges are using less health care, but this is not a good thing if due to delaying or avoiding necessary acute and preventive care. There is certainly no way to tell if lower spending rates translated into more investment in public health and other health promoting education and social service categories; any such result would have to await a longer term trend of getting health care spending close to the general inflation rate for all goods and services.

So one year during an economic slowdown does not a population improvement trend make. But we need to know how we are doing, both nationally and also **at local levels where such data is often not available**. Hats off to CMS and Health Affairs for continuing to produce and promote this important annual report card.

Originally posted 2/21/12

Are We Individually Responsible for Our Health Behavior Choices?



The answer is yes...and well, not really. This answer is often framed yes or no: either we have free-will, "just say no" responsibility for our behaviors, or we have no responsibility

because of the life situations we find ourselves in. Of course the truth is somewhere in between – but what is the balance between them? The answer has important policy implications, particularly with regard to informing investment priorities.

I've often noted that currently available evidence is insufficient to effectively guide public and private policy makers' investment decisions with regard to population health improvement. That said, we must recognize the cutting edge research being done in this area. For several decades, Paula Lantz and Jim House and colleagues at the University of Michigan have used a longitudinal database called the Americans' Changing Lives Survey (ACLs) to explore answers to important questions using the most sophisticated social science methods available. The ACLs has tracked 3600 adults from 1986 to 2005, querying them 4 times over that period.

In their most recent paper (published in the May 2010 issue of *Social Science and Medicine*) they developed models to explore relationships among various factors (such as age, gender, ethnicity, education, income, smoking status, physical activity level, and many others) and risk of death. They were particularly interested in connections between income and behavior and wanted to determine if poor people have worse health because they have poor health behaviors – or if something else is going on.

Not surprisingly, the findings showed that people with lower incomes tended to have more unhealthy behaviors and people with higher incomes tended to have healthier behaviors. Regardless of income, smoking and low levels of physical activity were both associated with an increased risk of death. But more importantly for this blog, the findings revealed that unhealthy behaviors are far from the only reason low income populations are at increased risk of death. Independent of health-related behaviors and other control factors, the risk of death among those in the lowest income category was 76% greater than those in the highest income category (which was similar to the risk differential between smokers and nonsmokers). In addition, the independent effect of the lowest level of physical activity was nearly triple that of income and smoking.

The authors conclude with a call for health policy and clinical incentives to enhance income security, promote smoking cessation/prevention, and support physical activity. While these results do not tell us exactly what our population health investment strategy should be across behavioral and non-behavioral factors, they make clear that a balance is required. To improve population health, policy and programmatic resources are needed to help make the healthy choice the easy choice – not only with respect to health behaviors but for healthcare, employment, and education as well.

The concept of behavioral "choice" is often interpreted to mean individual choices independent of external (and often constraining) factors. Careful studies like this one provide evidence that keeps us from operating from such a simplistic perspective. To improve population health, we all need to make better health choices – but we also need to understand and remedy the economic and educational upstream factors which determine the extent to which this is possible.

Originally posted 11/10/10

Have You Heard of “Primordial Prevention”?



I never had, until I started thinking about a post on prevention and went to John Last’s Dictionary of Epidemiology to get started. His basic definition is “actions aimed at

eradicating, eliminating, or minimizing the impact of disease or disability,” and includes primary, secondary and tertiary prevention. Last defines primary prevention as “protection of health by personal and communal efforts such as enhancing nutritional status, immunizing against communicable diseases, and eliminating environmental risks such as contaminated water supplies.”

I’ve given a lot of thought to the issue of prevention this spring, especially since writing about the National Prevention Council’s Strategy Framework. In that post, I applauded the Framework’s call for Healthy Environments (such as affordable housing, employment opportunities, efficient transportation, good schools, and effective policing) but cautioned against interest group sidelining of these “Cross-cutting Priorities” in favor of the seven behavior-related “Priority Areas” which are more closely related to the primary prevention definition shown above.

I was pleased with the Council’s May 24 Webinar discussion, which indicated a new recommendation in the “Empowered People Strategic Direction” to include “improving income, education, and employment opportunities.” I believe critical upstream factors should be central to all models of health, from the Prevention Framework to the Triple Aim. In the CDC’s Community Guide to Preventive Services, the Social Environment is one of 18 topics with systematic reviews. Yet only three reviews currently exist in this critical area: early childhood, culturally competent healthcare, and housing. The brevity of the list speaks volumes to what we consider important and where we have invested our research dollars. So I was delighted to read that John Last’s definition of prevention includes a relatively recent classification called “primordial prevention”:

Primordial prevention...aspires to establish and maintain conditions to minimize hazards to health...it consists of actions and measures that inhibit the emergence and establishment of environmental, economic, social and behavioral conditions, cultural patterns of living known to increase the risk of disease.

This is, of course, the basic message of Link and Phelan’s seminal article on social conditions as fundamental causes of disease. I am a strong proponent of precision with terminology, because understanding informs and drives action. I sometimes worry that the more classic definition of prevention is too rooted in the lifestyle modification efforts of the past 40 years so that equal attention is not given to the upstream social determinants -- or that it leads to taking

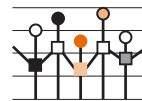
the comfortable position that since improving income and education is so difficult we leave it to others (such as letting the Treasury and Federal Reserve worry about unemployment for us).

I hope no one doubts that I strongly support the work of the National Prevention Council and consider its strategy work fundamental to improving population health. But I also hope that a limited understanding of its name doesn’t get in the way. The Council cannot fulfill its cross-sectoral purpose unless specific goals and objectives for educational quality, for job creation and economic development, and for controlling health care costs are given equal or higher priority as those for immunizations, food deserts, smoking, and physical activity.

The time has come for “primordial prevention” to take center stage, along with public and private policy and resource allocation to reflect improved understanding of the many factors that drive health.

Originally posted 5/31/11

The Link Between Income and Health



Listening to the national conference call for the release of the **2012 County Health Rankings** last week, I was struck by the number of questions regarding the socioeconomic factors in the model. It made me recall the early morning call from a small town reporter when we released the first **Wisconsin County Rankings in 2003**, saying “do you mean that county income levels might be as important as the number of uninsured or the smoking rates?”

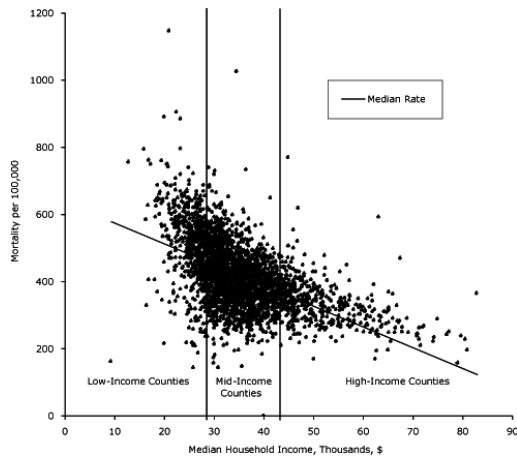
This concept is better understood today than it was in 2003, but it is still hard to communicate. We accept the health-compromising effects of smoking and lack of health care access, but how education and income ‘get under the skin’ to produce disease and death is less obvious. Yet a growing body of literature supports this finding, and is the reason why we give social factors a weighting of 40% in the **County Health Rankings** model.

This week we’re calling attention to a study I co-authored with one of our PhD candidates, Erika Cheng. The article, **Disparities in premature mortality between high and low income U.S. counties**, appears in the April 2012 issue of **Preventing Chronic Disease**.

The figure included shows the relationship between median household income and age-adjusted, all-cause mortality rates for all counties in the country.

As expected, people tend to live longer in high income counties (HIC), with the diagonal line indicating the overall

relationship. However, this relationship is not as strong in HIC; an increase of \$9,000 in median household income was associated with an 18% better average mortality rate among low income counties (LIC) but only 12% better in higher income counties.



Equally interesting is the very large variation in mortality rates among LIC. Some of the LIC mortality rates are comparable to those of HICs (in the 200/100,000 range), while other LIC rates are triple or quadruple this level.

Also, a more nuanced picture emerges when controlling for other factors that impact mortality. Several factors were associated with longer lifespans, including percentages of adults with a 4-year college degree and percent Hispanic in the county. Other factors were associated with shorter lifespans, including preventable hospital stays, percent black in the county, percent children living below federal poverty guidelines, and percent adult smokers.

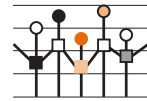
Importantly, when these other factors were controlled for, statistically significant linkages were found between median household income and mortality in the HICs, but not the LICs. This result highlights the main point of this study - that there is an interplay, apparent at the county level, between patterns of health factors and income. For example, two variables -- the percent of children living below the federal poverty guidelines and the percent of single-parent households -- are more closely linked to mortality in LICs than in HICs. We suggest that perhaps county-level income may buffer the effects of some variables associated with poor health. This buffer may operate through coping resources; county-level income may reflect overall availability of material and social resources that enable affluent single parents' access to child care, neighborhood support, social networks, or higher-quality health care. Of course, we caution that the nature of the study and the data only allow for associations, not causal relationships.

From a policy perspective, these findings remind us that "one size fits all" does not apply to improving population health in communities. Our data reveal complicated relationships among the many factors that determine how long (not to mention how well) we live. While finding feasible and effective

solutions can be difficult, we believe there's a lot that can be done -- including helping communities move on down the road toward better health and continuing to think about and work toward operationalizing the concept of locally customized policy approaches.

Originally posted 4/11/12

Will the Jobs Bill Impact Population Health?



The last week has seen much attention devoted to the issue of jobs and unemployment in our country. Presidential elections often hinge on the state of the

economy and the persistence of high unemployment rates will likely play a greater role in 2012 than in previous periods. While a growing literature shows that displaced workers (defined as individuals who lose their jobs as part of plant closings, mass layoffs, and other firm-level employment reductions) tend to experience significant long-term earnings losses as well as decreased job stability, lower employment rates, earlier retirement, lower personal spending, and decreased health insurance coverage.

In addition to these primarily economic effects, there are likely to be health effects as well. Unemployment (measured as the percent of the population age 16 and over that is unemployed but seeking work) is one of seven key measures in the *County Health Rankings' Social and Economic Factors*, but is only briefly mentioned in *Healthy People 2020's* new section on the *Social Determinants of Health*.

An extensive literature demonstrates the association of unemployment with an increased likelihood of morbidity and mortality. In a 2009 review, *Bambra* summarized:

There are clear relationships between unemployment and increased risk of poor mental health and parasuicide, higher rates of all cause and specific causes of mortality, self-reported health and limiting long-term illness and, in some studies, a higher prevalence of risky health behaviours, including problematic alcohol use and smoking. The negative health experiences of unemployment are not limited to the unemployed only but also extend to families and the wider community.....links between unemployment and poorer health have conventionally been explained through two inter-related concepts: the material consequences of unemployment (e.g., wage loss and resulting changes in access to essential goods and services) and the psychosocial effects of unemployment (e.g., stigma, isolation and loss of self-worth).

In the year after displacement, *Sullivan and von Wachter (2009)* found mortality rates among long-tenured employees were 50%–100% higher than would otherwise have been expected. This effect on mortality hazards declined sharply over time, but persisted. Even twenty years after

displacement, the authors estimated a 10%–15% increase in annual death hazards. If such increases were sustained indefinitely, they would imply a loss in life expectancy of 1.0–1.5 years for a worker displaced at age forty. Similarly, **Bartley and Ferrie (2010)** found unemployment elevated the risk of premature death by 57% among men ages 44–54.

But what comes first – unemployment or poor health? I do not usually focus on issues of research methodology in this blog, but the unemployment and health relationship is a good place to discuss reverse causality, since it features prominently in this literature and is of critical policy importance. In the unemployment relationship, not only are the unemployed likely to be less healthy, but it is also intuitive to expect that less healthy individuals are more likely to be unemployed because they are unhealthy and, therefore, less productive employees.

But sorting out these conflicting causal pathways is difficult. **Lundin and colleagues (2010)** estimated that 49% of the association between unemployment and poor health was due to poor health resulting in unemployment. Of course, context plays a major role. In Germany, where citizens have access to generous unemployment benefits, long entitlement durations, and universal health insurance, health status seems to drive employment status rather than vice-versa (**Schmitz, 2011**).

While researchers and policymakers need to be aware of such concerns, the U.S. evidence such as that of Sullivan cited above which control for reverse causality certainly suggest that we should consider job loss and unemployment a significant determinant of population health. While impact on income will likely remain the dominant policy concern, we would do well to keep in mind the impact on health and related worker productivity as the costs and benefits of employment policy are debated in the coming months and years.

Originally posted 9/22/11

Peter Orszag Has It Half Right



The former Obama Office of Management and Budget Director Peter Orszag made a compelling case in **A Health Plan for Colleges** (*New York Times* September 19) that when

Medicaid costs increase (as they do every year), states respond by making cuts in higher education expenditures. Orszag estimates that if higher education's share of state budgets over the past 25 years had remained constant rather than being crowded out by rising Medicaid costs, allocations would be \$30 billion more (about \$2000 per student) than they are currently. His strong and novel argument for controlling health care costs in order to preserve more funds for higher education goes beyond the more typical goals of increasing health care affordability and improving international competitiveness.

But he should have taken the argument a step further. Better educated populations are healthier populations. A large body of evidence supports this claim. Compared to adults having some education beyond high school, premature death rates (e.g., deaths before age 75) are double among those having only a high school education and triple among those not completing high school. Research shows that those with more education also have fewer disabilities and better physical functioning.

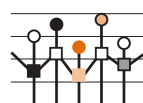
What role could education play in biological processes that produce death or disability? There are probably two main pathways. The first operates directly, through better knowledge about the importance of health care as well as healthy behaviors and prevention. The field of health literacy has been rapidly developing. According to the Institute of Medicine, approximately 90 million American adults lack the literacy skills needed to effectively use the US health care system. Low health literacy rates have been estimated to cost the health care system more than \$100 billion per year. Also, education likely enhances the ability to make difficult short term decisions (such as stopping smoking, eating better, routinely exercising) which affect health later in life.

A second pathway is more indirect. People with more education tend to have better employment options, including access to jobs that pay more and provide better healthcare coverage. Jobs that require more education also tend to be less stressful, in part because they afford employees a greater sense of autonomy and control than typical “blue collar” jobs. A growing field of research examines how stress influences disease and mortality through endocrine and immune system response.

So to complete the argument Orszag begins: lower health care costs improve education, which improves health, which lowers health care costs. The result is an even more compelling case for health care cost containment.

Originally posted 10/26/10

(How) Does Where You Live Get Under Your Skin?



Last week Kirstin blogged on an innovative housing project in the South Bronx that incorporated fitness promoting design principles. She cited the Robert Wood

Johnson Foundation's Commission to Build a Healthier America's **Issue Brief on Housing and Health** which identified three interrelated aspects of residential housing that influence health: (1) affordability, (2) the physical conditions within homes, and (3) neighborhood environments surrounding homes.

Last week there was significant media coverage (including the **October 29 *Economist!***) of an article by **Jens Ludwig and colleagues** that was featured in the Oct 20 ***New England Journal of Medicine***. The study reported that moving from a high poverty neighborhood to a lower poverty one showed substantial improvement in obesity rates and blood sugar levels. Why was this report deemed of such interest and importance, even by the mainstream press?

There is no disputing that these are provocative findings. While those in the field of public and population health have understood for some time that the social determinants of health are probably as important as health care and individual behaviors, this concept is not yet fully appreciated. When asked what influences health, my sense is that the public as well as many policymakers are much more likely to list health care (procedures/drugs/immunizations) and the physical environment (air/water/restaurant sanitation) than socially-mediated influences such as income, education, housing, and neighborhood “environment.”

The science of how social factors get “under the skin” to indirectly produce disease is complex and the field is still in its relative infancy, which makes it that much more difficult – and that much more important -- to translate this type of research into policy.

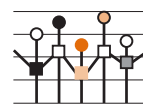
In this study, the investigators took advantage of a policy experiment sponsored by the Department of Housing and Urban Development. From 1994 to 1998, 1800 of almost 5000 women with children living in public housing in high poverty urban areas were randomly assigned to receive vouchers allowing them to move to a low poverty census tract. Follow-up on these women was conducted from 2008-2010 on a variety of factors. Compared to the control group, the women had lower BMI over 35 (13%), BMI over 40 (19%), and HgA1c (a blood glucose diabetes indicator, 22%). The study was not designed to figure out what caused these effects, although the authors speculate that stress associated with residential segregation in poverty areas may be responsible. The *Economist* coverage suggests a possible linkage with food deserts in high poverty areas, although the study did not explore this. Other possible contributing factors include toxic exposures, parks and sidewalks, crime/violence and perceptions of safety, social connections, and the quality of local institutions like schools and employment opportunities.

It's entirely possibly – likely even – that the heightened media attention on the study reflects the current national milieu. With the recent “occupy” protests across the country, economic inequality is likely to play a prominent role in the 2012 elections. But politics aside, I believe the study deserves attention for its methodological rigor. The study employed a randomized design, which is rare due to cost and often ethical considerations. In the physical and biological sciences test tube experimental conditions often allow the manipulation of variables so that causal relationships can be made with some certainty. In social sciences we are often

limited to weaker statistical relationships, which often fall short when trying to convince policy makers to invest differently. The Ludwig study is not without some methodological limitations, and we still don't know how moving to lower poverty neighborhoods gets under the skin to reduce weight and glucose levels. But the results are consistent with theory and other studies, and give us reason to choose healthy policies in all domains. It should also encourage foundations and government to fund similar experiments. Working simultaneously on both policy and research fronts will help ensure steady progress toward our goal of determining how to best invest our scarce resources for the greatest population health gain.

Originally posted 11/2/11

Is There Synergy In Community Development Financing and Population Health?



It's been more than a year since I first blogged – with some incredulity – on the first Federal Reserve Healthy Communities Conference.

The Healthy Communities Initiative was created by the Federal Reserve System and the Robert Wood Johnson Foundation to encourage stronger linkages between community development and health. That first meeting, in July 2010, was devoted to building bridges and understanding between two fields with potential for synergy in goals and resources but very little else in common (including language).

This week I attended a follow-up meeting called ***Healthy Communities: Building Systems to Integrate Community Development and Health***. Sponsored by the Federal Reserve Bank of San Francisco, the Robert Wood Johnson Foundation, and the Pew Charitable Trusts, the meeting brought together about 120 leaders from academia, foundations, banking and finance, and the federal government (including the White House, HUD, DOE, DHHS, and EPA).

The purpose of the conference was to “highlight promising new models and explore three areas of system reform that are urgently needed to formally align community development and health: data, capital, and policy.” Morning sessions focused on “working together” (regional models, lessons, and strategies for scale) and “bending the cost curve” (integrating health and community development). Three afternoon sessions targeted system changes in the three priority areas – capital, data, and policy.

The event was coordinated with the release of the November issue of ***Health Affairs***, which is devoted to **Community Development and Health**. Conference organizer David

Erickson (of the San Francisco Federal Reserve) and Nancy Andrews (CEO of the Low Income Investment Fund) create a sense of the potential in their **joint article**:
The community development 'industry'—a network of nonprofit service providers, real estate developers, financial institutions, foundations, and government—draws on public subsidies and other financing to transform impoverished neighborhoods into better-functioning communities. Although such activity positively affects the 'upstream' causes of poor health, the community development industry rarely collaborates with the health sector or even considers health effects in its work. Examples of initiatives—such as the creation of affordable housing that avoids nursing home placement—suggest a strong potential for cross-sector collaborations to reduce health disparities and slow the growth of health care spending, while at the same time improving economic and social well-being in America's most disadvantaged communities.

As in last year's meeting, both sides were still learning about each other's language and ideas but were much closer as to the shared purpose of their work regarding healthy communities. We learned that the community development field generates some \$50 billion in annual investment for healthy housing, small business, quality community child care, education and health facilities, and now, increasingly local food systems. Population health participants stressed the need for synergistic investments early in the life course, the need for cross-sectoral business models supporting such investments, and the kinds of data that we have and need to support such investments.

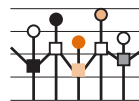
For me, and many others from the health "side" of the discussion, the scope of resources in play was dazzling, but the structure and functioning of innovative funding mechanisms and vehicles (ever heard of "progressive capital"?) were still foreign territory. While the promise of health-promoting investment coming from and working synergistically with community development dollars is appealing in this austere environment, the finance experts stressed that there is no free lunch and that even these efforts need to generate cash flow or savings to work. There was discussion about government or philanthropy playing the important role of the guarantor of the initial risk of uncertain investments. The need to put a dollar value on health improvement was stressed repeatedly.

I left the meeting wanting to believe in the possibility of synergy, but with some degree of skepticism. I think there is exciting opportunity in such innovative cross-sectoral investments and partnerships. Even modest connections of population health with the many billions invested in community development would be a huge addition. We will need concrete examples of success or failures to help bridge the language and understanding gaps between the sectors, but it feels like there is a willingness and even eagerness to go forward. Let's not let this become a case of what seems too good to be true actually being too good to be true.

So, I will read all the papers in the Health Affairs issue carefully to increase my understanding and will continue to actively explore partnerships with Community Development Financial Institutions both nationally and locally...and I hope you will also.

Originally posted 11/9/11

Beyond Air and Water



The population health model that underpins the **County Health Rankings** and this blog group the factors that drive health outcomes into four categories:

- Health Behaviors
- Clinical Care
- Social and Economic Factors
- Physical Environment

While we have discussed many aspects of the first three, we have (so far) focused little attention on the Physical Environment. This is partly justified; our model attributes only 10% of the total factor score to this area. But there is also the sense that environmental issues – which we all intrinsically recognize as affecting health and quality of life -- often seem a bit remote or beyond our control.

Much credit should be given to the journal **Health Affairs** and the **Kresge Foundation** for devoting much of the **May 2011 issue** to this topic. As Editor Susan Dentzer writes in her introduction, "our Nation's approach to health and health care is so famously siloed that we have long neglected the obvious: the environment plays a role in nearly 85% of all disease."

It is impossible for this brief post to do justice to the issue's impressive set of articles. If you only have time to dip into one, I'd recommend Linda Birnbaum and Paul Jung's "From Endocrine Disruptors to Nanomaterials: Advancing Our Understanding of Environmental Health to Protect Public Health." The article begins by contrasting the classic view of environmental science (which focused primarily on how chemicals involved in air and water pollution can impact health) with the current scope of environmental policy and research (which broadly addresses pharmaceuticals, nutrition, physical activity, noise, light, stress, infections, and climate change). The authors note the increasing attention being given to the built environment and underscore the contribution of man-made surroundings such as roads and housing to health behaviors and overall health. They also call attention to the importance of environmental justice as it relates to fair and equitable treatment in the development and enforcement of environmental laws, regulations and policies.

Other noteworthy articles from the issue address:

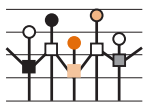
- The environmental effects on genes and gene expression and their impact on chronic disease susceptibility (Olden and colleagues)
- The link between air pollution around schools to health and student performance (Mohai and colleagues)
- The cost (\$77 billion) of environmental disease in children (Trasande and Liu)
- How Health Impact Assessments (HIA) can and are being used in urban planning and land use policies at all levels of government (Wernham)

Finally, Morell-Frosch and colleagues address the policy challenge of how to “evaluate and characterize the combined health effects of multiple environmental and social stressors on vulnerable populations.” In this article, the term “environment” is used holistically, combining a more classic understanding of physical environment with social and economic factors. While I think the distinction made between these factors in our model is important, I also appreciate the authors’ assertion that critical interactions exist among them. In particular, they note that “extrinsic social vulnerability factors at the individual and community levels – such as race, sex, and socioeconomic status – may amplify the adverse effects of environmental hazards and contribute to health disparities.”

As we continue to work toward “health in all policies” approaches, we can’t afford to ignore the physical environment. I wouldn’t be surprised if future population health models give it greater emphasis, especially as our understanding of climate change and its interactions with other factor areas expands.

Originally posted 7/19/11

If Not Genetics, Then What?



“If Not Genetics, Then What?” is the title of Chapter 6 in the important 1994 population health book *Why Are Some People Healthy and Others Not: The Determinants of Health*

of Populations. Canadian population health geneticist Patricia Baird contributed a chapter on “The Role of Genetics in Population Health,” which concludes as follows: “There are some disorders where the inherited metabolic machinery of the individual will not allow normal functioning in the usual range of environments; the associated diseases will usually burden the earlier part of the human life cycle. These provide a real and appropriate place for genetic service programs to contribute to population health. The complexities of the web of causation for most common afflictions in adult life are likely to limit the contribution of DNA identification of at risk genotypes. The potential for wasting resources and causing harm is real and serious.”

I was prompted to return to this seminal text several weeks ago after a series of *New York Times* articles on modern genomics that included a front page story on **tailoring**

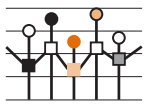
treatment for leukemia to a business page report of **approval in Europe of a gene therapy** for treating a rare enzyme deficiency. Genetic studies on Alzheimer’s proteins in mice have also raised the hope for a similar way to way to cure or slow the progression of this serious and increasingly prevalent health issue. The growing availability to sequence complete individual human genomes raises the potential of widespread “personalized medicine,” with drugs or genes available for whatever defects any person might have.

How is a population health advocate to think about the possibility of such scientific advances to improve overall health and reduce disparities? It is so tempting to be lured into the fascination and the hope of such technological cures, but why do I have significant reservations? It probably because of the ideas laid out by Geoffrey Rose in his classic article “*Sick Individuals and Sick Populations*” in which he asserts that “a large number of people at small risk may give rise to more cases of disease than the small number who are at high risk.” While there may be important advances with life-saving treatments for rare diseases such as mentioned above, many complex diseases like diabetes and obesity may have their genetic defects spread over many locations rendering therapy complex and less likely, and many are the result of complex gene-environment interactions. The best thinking such as from CDC Public Health Genomics expert Muin Khoury, who argued for expanded evidence-based strategies in a 2008 Health Affairs article: “the current low threshold allows unsubstantiated technologies to enter into practice with the potential to overwhelm the health system...while an excessively high threshold for evidence could slow the integration of genomics into practice...also, variable coverage and reimbursement policies can lead to differential access to technology, exacerbating health disparities.”

Baird’s warning about wasting resources and causing harm needs to be taken seriously. **As Don Berwick says, “waste is theft.”** It is not anti-scientific to worry that our American belief in technology and venture capitalism could result in much waste, while less expensive investments we already know to be effective are ignored. The problem is that it is hard to predict the future, and decades from now there will certainly be important benefits from genomic research, including both treatments and preventive interventions. We can only insist that the most careful evidence on population health cost-effectiveness be used to guide investments, rather than the potential for profit from very expensive therapies that benefit few.

Originally posted 9/4/12

Can Our Environmental Stressors Be Inherited By Our Children?



A while ago I presented a cautious population health perspective on the potential impact of modern genomics, ending with the observation that:

It is not anti-scientific to worry that our American belief in technology and venture capitalism could result in much waste, while less expensive investments we already know to be effective are ignored. The problem is that it is hard to predict the future, and decades from now there will certainly be important benefits from genomic research, including both treatments and preventive interventions. We can only insist that the most careful evidence on population health cost-effectiveness be used to guide investments, rather than the potential for profit from very expensive therapies that benefit few.

But what to make of this quote I came upon the other day from Duke University geneticist Randy Jirtle?

When you have a mutation in a gene, you are stuck. You feel like you have a death sentence. There is no way of treating that unless you do gene therapy which has had very few medical successes to date. The epigenetic basis of health and disease might open up other routes of intervention. You might develop drugs that target the epigenome to prevent or reduce susceptibility to disease; you might even leave drugs behind and treat yourself simply by varying your diet or the way you live⁽¹⁾.

What is the epigenetics he is referring to? Wikipedia defines epigenetics as:

The study of heritable changes in gene expression or cellular phenotype caused by mechanisms other than changes in the underlying DNA sequence – hence the name epi- (Greek: επί- over, above, outer) -genetics. It refers to functionally relevant modifications to the genome that do not involve a change in the nucleotide sequence. Examples of such changes are DNA methylation and histone modification, both of which serve to regulate gene expression without altering the underlying DNA sequence. Conclusive evidence supporting epigenetics show that these mechanisms can enable the effects of parents' experiences to be passed down to subsequent generations.

Doesn't this sound like the old debunked Lamarckian inheritability of acquired characteristics that got a really bad name under the Soviet geneticist Lysenko? What is the epigenetic evidence to date? Wikipedia reports that more than 100 cases of trans-generational epigenetic inheritance phenomena have been reported in a wide range of plants, and animals; for example, mice given some dietary supplements have epigenetic changes affecting expression

in offspring of the agouti gene, which affects their fur color, weight, and propensity to develop cancer. Another leading researcher notes that studies in rodents “have demonstrated the transgenerational impact of nutrition and indicate that prenatal protein restriction can exert effects on growth and metabolism of offspring and grand-offspring through changes in DNA methylation.” She concludes that “there is clear evidence that environmentally induced changes in brain and behavior can influence offspring and grand-offspring with implications for research perspectives on the inheritance of risk and resilience in response to social interactions”⁽²⁾.
What is the relevance of this for population health? We know that stress-inducing factors in the social and economic environment get “under the skin” via biological mechanisms. Until recently, most researchers and practitioners -- even those taking a life course and developmental perspective to health improvement -- have approached genetics from a clinical (rather than a population) perspective. Additional research demonstrating the multigenerational impact of environmental influences could fuel environmental interventions to improve the quality and length of life for our children and grandchildren. Of course this research is quite new, and its full implications are yet to be demonstrated. But while we need to carefully evaluate the cost effectiveness of genomic investments, we need to also track the potential of epigenetics as a possible mechanism for population health improvement.

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Originally posted 11/7/12

Population Health Resources and Policy

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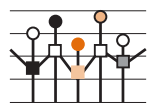
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Population Health Financing: Beyond Grants



My professional coming of age took place the late 1960s, in one of the original Office of Economic Opportunity (OEO) neighborhood health centers in the South Bronx. Because the health centers were a part of the larger federal antipoverty strategy, they were founded on a broad view of health (we would call it a population health framework even though that terminology didn't exist then). Health care innovation was the core, with community health workers, health care teams, and the understanding that the residents who didn't use the clinic contributed to overall neighborhood health as much as those who did.

But the OEO funding paid for much more than health care, including job training, legal advocacy, school health programs, neighborhood built environments – what we now see as the multiple determinants of health. But one of the main lessons of my entire career was the following: when the grant goes away, the programs or innovations which it supported dwindle too. Don't get me wrong: federal and foundation grants are essential for innovation to occur, and I have served productively on both the giving and receiving ends of this equation. But initial funding almost always ends at some point (through change of political priorities or foundation leadership and priorities), and additional funds must be sought for sustainability or going to scale.

I also ran a large urban hospital for four years. Among many other major lessons, I came to appreciate the beauty of funding formulas and streams that just keep on delivering resources every day or week or month. A good example are the Medicare payments supporting medical resident education; these “extra” payments are built into Medicare funding formulas and provide ongoing, regular support for this important activity. Of course, they certainly come under political scrutiny occasionally and have to be justified and defended, but by and large they are embedded as well-established fiscal supports like mortgage interest deductions or agricultural subsidies.

Despite more than a decade of helpful and creative public and private grants, I remain extremely concerned about our slow progress in addressing health inequities by geography, by race and by economic status. These injustices are sapping our national productivity and quality of life. We need to go beyond grants to identify sustainable resource flows that are up to the magnitude of the challenge.

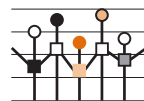
I have been suggesting using some of the savings realized from eliminating ineffective and wasteful health care dollars, such as a share of ACO shared savings or IRS Community Benefit reform – but these may not be entirely workable or sufficient. We need to take a close and creative look at how to maximize efficiencies and possibly consolidate

multi-sector revenue streams from education, business, and community development agencies toward achieving common health goals.

Voluntary efforts are not adequate if we are serious about this task. Let's commit ourselves over the next decade to finding these more robust, dependable mechanisms and documenting real progress in the areas that will have the greatest impact on population health.

Originally posted 1/31/12

Resources for Population Health Improvement: What About the Savings from Waste in Health Care?



The release of the national *County Health Rankings* demonstrates how large the gaps are across our communities in both health outcomes and the factors producing health.

Particularly in the lowest ranking counties in any state, there are significant resource constraints in all the factors producing health. These include health care access, disease prevention and health promotion programs and policies, early childhood and health literacy efforts, jobs and economic development, air and water quality, and the built environment. Where might the resources come from to make improvements toward better health—particularly for our most under-resourced communities?

One place to look is at the waste in our health care system. For years organizations as prominent as the Institute of Medicine have been observing that 25% to 33% of all of our health care expenditures may be wasted because they are ineffective in improving health. Dr. Elliott Fisher and colleagues at Dartmouth have been calling attention to the approximately threefold regional variation in per capita Medicare expenditures from \$5300 to \$16,300 without differences in health care quality and health outcomes⁽¹⁾. They have also recently observed inflation adjusted Medicare growth rates varying from 2.3% in Atlanta and Pittsburg to 5.3% in Dallas over the period 1992-2006. The Dartmouth group indicates that reducing the spending rate from the national average of 3.5% to the 2.3% experienced by San Francisco would save Medicare \$1.3 trillion by 2023.

Looking at it another way, total health expenditures in 2009 were projected to be \$2.5 trillion. If 25% of that could be saved, that would amount to \$625 billion per year. Providing health insurance to everyone would require an estimated \$100 billion per year. That would leave more than \$500 billion for smoking cessation, exercise and nutrition efforts, education enhancements, job creation, and creating safer communities.

To put this in context, total national expenditures in 2005-2006 for all K-12 education in the entire country was \$461 billion.

However, achieving these savings is challenging. Republicans and Democrats alike are skeptical that cost-containing provisions of the Obama Health Insurance Reform law will be strong enough to reduce expenditures substantially. Even in places that have low health expenditures and good outcomes, cultures of cost effective practice have been developing for decades; they cannot develop overnight. A current proposal is to develop Accountable Care Organizations, in which financial incentives would be provided for developing efficient practices. Discussions have begun around the concept of shared savings, in which savings are divided between the providers who produce them and insurers. Vermont has already been using savings to hire staff for community clinical prevention while leaders in Minnesota have raised the possibility of using part of the savings to create Accountable Health Communities.

These are only initial ideas and beginning steps; vast resources will be necessary to fully implement the plans described above. Dan Fox, a careful observer of American health politics, has observed that policymakers “most likely would ration spending to improve overall population health in order to avoid rationing health care...there is no reason to expect that a value dividend, if one accrues, would be used for any other purposes than slowing the growth of spending or providing more access to health care⁽²⁾.” Bentley similarly observes that “as a society we may prefer to provide care to the sickest, most vulnerable patients even though our money could buy greater improvements in life span or quality of life if used for another purpose⁽³⁾.”

While common sense suggests a systemic streamlining that involves exchange of ineffective resources for those shown to be most (or at least more) effective, political realities are not necessarily rooted in common sense. Paul Starr’s book *The Social Transformation of American Medicine* sums up 150 years of medical history by saying that “the dream of reason did not take power into account.”

We must hope that approaches to shared savings in health care develop more robustly and gain traction. But they are not the only hope. We have to look for other inefficiencies as well. Governments, philanthropies, and businesses will have to make additional resources available. Promising current examples include the California Endowment’s Building Healthy Communities initiative and the Minnesota’s State Health Improvement Plan (SHIP).

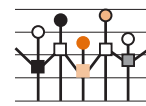
In summary, waste and inefficiency in our health care system are one potential source for investing in the broader determinants of health. A fundamental population health challenge is to identify incentive structures and cross-sectoral allocation models to bring such possibilities into policy and practice.

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Originally posted 5/17/10

Where Would You Put the Money



As regular readers know, I’ve been arguing consistently for the need for a regular, sustainable revenue stream to support population health improvement. However, I’ve not directly addressed the question of how these dollars should be allocated. As one of the authors of the important Evans-Stoddart population field model said in their 2003 **AJPH** article (**Consuming Research, Producing Policy?**), “redirecting resources means redirecting someone’s income... most students of population health cannot confidently answer the question...well, where would you put the money?”

Why is this so? Can’t we simply link the huge variation in health outcomes we see across states and communities to financial and non-financial policy investments over time? Why have we not simply estimated community level, per capita policy and programmatic investment in each **health factor area** (health behaviors, clinical care, social and economic factors, and the physical environment) to derive a base level of investment needed to achieve health benchmarks?

There has been some limited national and state level research and policy analysis on this question. **The Trust for America’s Health (TFAH)** estimated in 2008 that that investing \$10 per person per year in proven community-based programs to increase physical activity, improve nutrition, and prevent smoking could save the country more than \$16 billion annually within five years. In 2009, **Kim and Jennings** found that at the state level more generous education spending, progressive tax systems, and more lenient welfare program rules help to improve population health. However, the magnitudes of the effects were quite small, most likely because using the state as the unit of analysis masks much of the important variation in both outcomes and investments at more local levels.

We have suggested that since communities have different outcomes and determinants profiles, **locally tailored “policy packages”** might be an effective and efficient approach. These packages could be driven by the strength and breadth

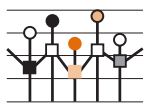
of local investments affecting the multiple determinants of health. Unfortunately, we are not aware of any national or state data sets that could inform development of such investment recommendations. The relevant financial data from the multiple local, state and federal public and private funding sources does not exist or is not standardized in ways to allow policy-relevant comparisons that would be useful to public and private policy makers. But I strongly believe that making real progress in this area will require that we systematize and standardize collection of these data.

In the meantime, we should rely heavily on currently available compass points. The *County Health Rankings* encourage comparison of health factor areas with national benchmarks. Everyone needs access to healthcare services, and the TFAH guidelines for prevention investments are useful. Many local public health departments are inadequately funded for their critical work. There is a strong evidence base that investing in early childhood and other education programs has efficient long term pay off in terms of health outcomes. And a strong argument can be made for resources to support the work of emerging **multisectoral super-integrators** that can play a critical role in identifying and harnessing resources.

We must start with what we have, by continuing to rely on existing tools and resources. But we must also move beyond these, to advocate for and insist on development of state-of-the-art surveillance systems to promote evidence-informed investment and stewardship of our limited and extremely valuable population health resources.

Originally posted 2/8/12

Modelling Long Run Costs and Outcomes



The broad population health model that underpins this blog and the *County Health Rankings* must have long-term relevance because quick fixes are few and far between. There is an imperative to invest now in factors we know to be strong drivers of long-term health, such as early childhood interventions (see *Can We Afford to Wait for Better Evidence on Improving Child Health?* and *Business Investment in Early Childhood: Making Future Workers Happier*). There is also a need for more research which can better estimate such long-term impacts; the IOM's recent report on *Public Health Measurement and Accountability* calls for advancing the use of predictive and system-based simulation models to understand the health consequences of the underlying determinants of health.

One such model does exist, and was reported on in the May 2011 *Health Affairs* issue on Environmental Health discussed last week. The article, authored by Bobby Milstein, Jack Homer and colleagues, focuses on the HealthBound policy

simulation model which has been developed by the CDC over the past decade. This work seems and is ambitious, as any such analytic and projection tool has to be, but it also simplifies the sheer complexity of the U.S. health system into a tractable form that can be understood and studied by diverse stakeholders. It is built on the methodology of systems dynamics modeling, using several hundred interacting elements and differential equations tied to ten national data bases and many key reference studies.

There have been various iterations of the model over time and several published reports, including an earlier overview in the *American Journal of Public Health*. The most recent *Health Affairs* article reported the results from simulating three strategies over 10 and 25 years to reduce deaths and improve the cost effectiveness of interventions:

1. Expanding health insurance coverage
2. Delivering better preventive and chronic care, and
3. Protecting health by enabling healthier behavior and improving environmental conditions

The main finding was that each would alone would save lives and provide economic value, but the combination of all three was likely to be more effective. For example, adding protection to the coverage and care scenarios would save 90% more lives and reduce costs by 30% in year 10, but by year 25 the protection investment could save 140% more lives and reduce costs by 62%.

Of course, what goes into the model determines what comes out, and it is difficult for someone not intimately familiar with the inputs and equations to evaluate strengths and weaknesses. Because of the complexity of all the multiple inputs and outcomes, precise estimates for every independent interaction over time do not exist, and ranges and sensitivity analyses are usually required. The authors have extensive experience with these cutting-edge methods; however they caution that "better data...would help narrow uncertainties and yield even stronger policy insights." While the *Health Affairs* article placed more emphasis on health care elements with some behaviors and physical environmental elements in the protection scenarios, planners with more interest in these could simulate the "Pathways to Advantage" intervention, which summarizes intervention research around things like education, living wage, and job training.

While causal understanding of how such factors operate is perhaps more incomplete than those in the health care realm, the authors remain open to incorporating new findings as they emerge. They are also very interested in creating practical and relevant applications for policy makers, which is in part why a **HealthBound game** also exists to gain hands on familiarity with the methods and results.

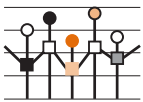
The HealthBound tool is are not sufficiently precise to identify local opportunities to invest in specific programs and policies;

however, other groups are moving the field in that direction. For example, the **ReThink Health Initiative** has begun to create simulation models and games that focus specifically on regional investments to transform health system performance. Policy makers need and want such guidance and these tools offer tremendous potential for population health policy – especially as they become increasingly robust and reliable over the coming decade.

For further reading, check out the Robert Wood Johnson Foundation’s **interview with Bobby Milstein** about his article on NewPublicHealth.org.

Originally posted 7/27/11

A Population Health Opportunity Map



A commentary in the **May 25 JAMA** by Jonathan Fielding and Steve Teutsch caught my eye a couple of months ago. Both authors play influential roles in national population

health policy, from their practice based experiences in the Los Angeles County Department of Public Health.

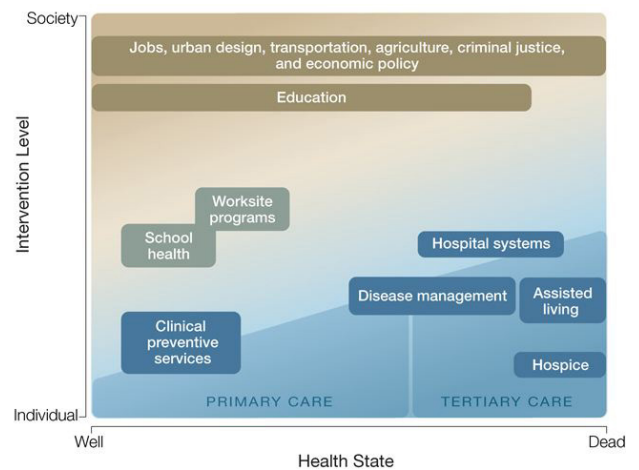
They begin by arguing that as we reform the health CARE system, complementary improvements are needed in community prevention programs and policies as well. The challenge for both national and local policy makers is to be able to “identify and implement those interventions that provide the greatest benefits and value,” including the relative effectiveness of both clinical and community prevention efforts. They suggest that a first step has to be a sound framework for “identifying and organizing” the universe of interventions which have been shown to have evidence of effectiveness.

The components of such a framework are proposed to be: 1) the ecologic model, which is generally consistent with the multi-determinant population health model we advocate in this blog, 2) the life course perspective, in which health at any point in time is the “product of a person’s behaviors and exposures superimposed on his or her underlying biology,” and 3) the evidence of effectiveness of any intervention in either the clinical or community spheres with enough scientific evidence to support its use.

These three components make up their proposed model, called An Opportunity Map for Societal Investment in Health, pictured above at right.

The horizontal axis reflects the life course, from wellness through illness to death. The vertical axis reflects the spectrum of intervention strategies from the individual to the societal level. The blue shading of the bottom half highlights individual clinical investments while the brown at

the top reflects community wide programs and policies. The blending of colors in the middle implies that these exist on a continuum. Another figure shows (using diabetes as an example) how this model can be applied to issue-specific clinical and community prevention efforts.



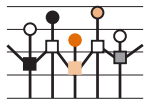
The authors explain that when “individual interests and needs predominate, there is a slide to the lower right quadrant, where costs of medical care are high and health status is poorest.” They draw the conclusion that “attention to interventions in the upper left quadrant may yield greater health and economic efficiency,” including individual productivity and national global competitiveness.

I believe that private and public policy makers faced with making the program and policy investments in a resource limited world are likely to find conceptual models such as this should be helpful. I would like to see a third dimension added to reflect the estimated cost-effectiveness of each program and policy choice, both clinical and societal. While most population health advocates would agree with the authors’ call for more resources in the upper left corner, each individual program or policy needs to be evaluated itself on some cost-effectiveness metric (such as quality adjusted life years gained per dollar invested). The addition of this dimension would reveal some very cost effective interventions in the lower right region of the figure and some very cost ineffective interventions in the upper left. In addition, attention must be given to relative cost effectiveness to improve health equity compared to improving overall population health; certain interventions will be more effective for one than for the other.

Will such broad “top down” conceptual models be helpful to local communities faced with making difficult decisions among dwindling resources? Next week I’ll try to address this question directly.

Originally posted 8/9/11

Do We Need Population Health Shock Therapy?



I just finished reading Thomas Friedman and Michael Mandelbaum's new book *That Used To Be Us: How America Fell Behind in the World It Invented and How We Can Come*

Back. It's a sobering read as it assesses the U.S.'s position in the world and what we have to do to regain lost economic and social competitiveness.

Friedman and Mandelbaum focus on four areas we need to urgently address in order to avoid falling into second world status: globalization, the information technology revolution, deficits and debt, and energy demand and climate change. The authors express particular concern about our education performance, and argue that recent information about relative international test score performance should have prompted a response similar to the investments in science and technology spurred by Sputnik a generation ago. But that hasn't happened.

I found their diagnosis compelling and sobering, so looked forward to reading their "prescription" in the final chapters. In a chapter called "Shock Therapy," they argue that the current political paralysis is not up to these challenges and that the system calls for political shock therapy -- a direct analogy to its once classic use in psychiatry -- defined by the authors as a radical centrist third party.

What does this have to do with population health? I am basically an optimist, and I do believe that more attention is being paid to population health policy now than a decade ago. Friedman and Mandelbaum call themselves "frustrated optimists" -- I, too, have days when I wonder whether we will be able to assemble the will and resources to show improvement in our health outcomes, including the persistent health disparities by race, education, income, geography, and gender.

In discussing this blog and the challenges of its having traction in the world of national policy debate, a wise colleague recently mused that that the intensity and frustration of current immediate challenges may numb many of us from even more distant and difficult goals. A recent New York Times op-ed argued that "problems like mass joblessness and starvation can seem so daunting that we stop trying to help." Likewise, David Brooks recently commented on the limits of empathy, observing that "empathy has become a shortcut...a way to experience delicious moral emotions without confronting the weaknesses in our nature that prevent us from actually acting upon them." He argued that religious, military, social or philosophic codes are much more powerful and are sources of identity and joy that trump empathy alone.

The radical centrist third party Friedman and Mandelbaum suggest for their four challenges would go beyond empathy

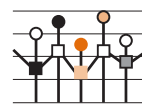
and compassion alone and would likely have an impact on population health policy, particularly given its emphasis on education as well as science and technology. But how realistic is it, and do we sit by the sidelines for it to happen? My prescription for the next decade may not be shock therapy, but I hope that population health advocates would support the following steps until something more promising or radical emerges:

1. Be clear on our metrics for achievement and improvement, including disparity reduction.
2. Find savings from ineffective health care spending, and reallocate them to other population health determinants through such mechanisms as IRS Community Benefit reform and ACO shared savings.
3. Identify and enhance health promoting policies and programs in non-health care areas (Health in All Policies, Health Impact Assessments).
4. Identify cross-sectoral national and local partnership models with business models and financial teeth to leverage additional resources and policies.

Are there better goals for the next decade?

Originally posted 10/5/11

Ignoring Evidence and Economics at Our Peril



Two recent *New York Times* articles jumped off the page at me. The first, on the recommendation by the U.S. Preventive Services Task Force to forego routine

screening for prostate cancer with the PSA test, received wide media coverage. The second, on an Institute of Medicine (IOM) panel recommendation that costs should explicitly be considered in deciding what benefits must be provided by insurance plans, received less attention. Both deserve attention from population health advocates and policy makers.

The reason for the PSA recommendation is that the best scientific evidence reviewed by the panel over several years shows that such routine screening does not save lives overall and "often leads to more tests and treatments that needlessly cause pain, impotence and incontinence in many." Health care groups and patient advocates were quick to criticize the panel's findings, in a similar pushback to the recommendation two years ago against routine mammography for women in their 40s.

While most of the PSA test media coverage has focused on effective care, we should also consider the panel's recommendation from a cost-containment imperative. The fact is, resources are becoming increasingly limited and both Republican and Democratic policymakers (not necessarily

office holders) agree that Medicare spending must be reduced to reduce debt – and, some argue, protect national security in the global economy. Some facts to consider:

- As much as 25% of all health care expenditures are considered ineffective;
- Miami spends twice as many Medicare dollars per person as Minneapolis but gets no better results;
- We spend much more than any other nation on health care, with worse results.

There are two ways to achieve cost savings: provide fewer services and/or charge lower prices for each service. **Any mention of this triggers loaded words from “rationing” to “government death panels.”** I believe that while limiting services which have benefit is ethically and analytically challenging, eliminating those such as PSA screening with no benefit and even harm is not. But we must keep in mind that personal, professional, and political interests do not always align with the evidence: the *New York Times* article asserted that health reform legislation requires Medicare to pay for PSA screening regardless of the panel’s findings.

That the IOM committee should have to make a case for cost consideration in benefit design indicates how far from rationality we have strayed. I believe we can get back on track by agreeing that:

- Cost containment is a national security priority;
- We are wasting resources now;
- We should channel our resources toward cost-effective investments in prevention and the social determinants of health (the Obama administration is very short-sighted in proposing \$3.5 billion in cuts to the already modest **Prevention and Public Health Fund**);
- We have opportunities to shift resources from ineffective health care to population health through community benefit reform and innovations from the **Centers for Medicare and Medicaid Services (CMS)**.

We can’t have it both ways. We can’t lower costs without considering them. If evidence is not used to guide policy choices, what is the alternative? Perhaps we do need “**shock therapy**” to have evidence and economics drive our policy thinking. We can’t solve our health care and population health challenges without it.

Originally posted 10/11/11

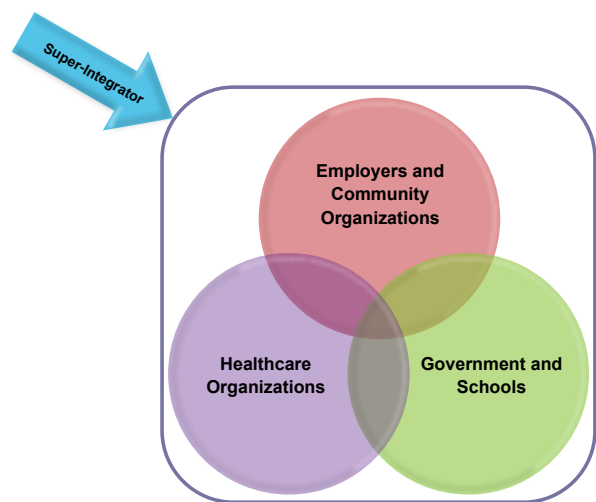
Do We Need a Population Health Super-Integrator?



In a previous post, I raised the question of who is accountable for population health outcomes, and suggested that some cross-

sectoral integrating mechanism might be required. The outside line in the figure below suggests that this mechanism could be that of a Super-Health-Integrator. Such an integrator, with appropriate financial resources and authority, could align investments and activities across the multiple sectors which can impact population health, such as health care, public health, schools, employers, and community organizations.

An alternative to a super-integrator might be that one sector takes lead responsibility for population health improvement, using informal or formal authority to ensure that others play their roles. Regardless of which sector or organization took the lead (this could vary from community to community), the process would likely involve conflict and/or have limited effectiveness. Some concerns would be that healthcare organizations may overemphasize biomedical approaches,



that governmental public health is too under-resourced for even its critical traditional functions, and that businesses would be challenged by competing goals. So, I believe that many communities would benefit by having a strong and neutral coordinating entity or mechanism at the helm.

Another alternative is the status quo where each sector makes investments to optimize its own goals, which may or may not include population health improvement. We have ample evidence to show that under this current situation few—if any—communities are as healthy as they could be.

This is why I proposed “health outcomes trusts” in my 1997 book and am proposing Super-Health-Integrators today. To my knowledge nothing like this has been fully developed, although pieces exist in many healthy community partnerships. Such an entity would likely not be governmental or corporate, but would certainly need active public and private sector involvement. And, as noted above, it would need some authority and financial resources to do its work (such as from a redesigned IRS Community Benefit stream). Such Integrators or Trusts might draw on the principles of social entrepreneurship by emphasizing strategic partnerships and leveraging resources to raise levels of performance and

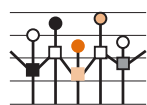
accountability (look for the essay by Jane Wei-Skillern in the upcoming issue of Preventing Chronic Disease, available online in mid-October).

I am not naive about the potential challenges such non-traditional structures pose, but the “inconvenient truth” is that addressing the multiple determinants of population health to optimize our communities’ health will almost certainly require

some form of coordinating authority. I would love to hear the opinions of others on this point, as well as feature on this blog any examples of existing structures already performing these functions.

Originally posted 9/14/10

Locally Customized Population Health Policy Packages?



In my last post I suggested that those who allocate resources must provide ample guidance to ensure that local level health improvement strategies actually align with

the best available evidence. I mentioned the University of Wisconsin What Works data base as well as the approach that the previous administration allocated its State Health Improvement Plan (SHIP) resources in the state of Minnesota. But I indicated that What Works is not tailored to individual communities and that the Minnesota example is limited to health behavior interventions, not all population health determinants.

We know from the *County Health Rankings* and our own experiences that communities vary widely in both their health outcomes and the factors or determinants of those outcomes. There are many examples of both high and low ranking counties which vary on their determinant profile...some have high health care quality and access but poor behaviors, others have high social factors like education and income but poor air and water quality. Given limited resources, it is critical that investments be made carefully to have the most impact.

Would it be helpful to identify a set of Population Health Policy Packages that suggest the best options for local communities to make, given their outcomes and health determinants profile?

While there is enormous variation across the country in such profiles, it is likely that a reasonable number of representative situations exist for most communities/counties. For each profile, using the best evidence available from sources like What Works and the CDC Community Guide, a set of investment priorities would be developed, covering all the determinants of health. It would be as broad as the global evidence allows, but would be tailored to a community’s strengths and weaknesses. Options for improving behaviors like smoking would not be as highly suggested for places

already doing well in this factor. The packages would not be prescriptive, but merely a menu of the investments likely to produce the best health outcome improvement. Where possible, options would include the strength of public and private sector policies beyond dollar investment in specific programs.

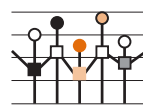
The initial set of Policy Packages would not be ideal, for a variety of reasons. We still have incomplete evidence of effectiveness of different programs and policies, particularly regarding cost-effectiveness beyond effectiveness itself. It is not clear which level of investment in a particular determinant or factor is optimal, or where diminishing return sets in and when resources should be moved to other factors. We are limited in evidence for different types of outcomes, particularly disparity reduction.

However, we shouldn’t let the perfect be the enemy of the good. A beginning set such as in the Minnesota SHIP example (i.e., improving nutrition, increasing physical activity, and reducing tobacco use and exposure) might be helpful in many places where discussions are taking place regarding improving the health of their communities. It would help ensure that local passion and commitment would be channeled in an evidence based direction, while preserving autonomy and sensitivity to community preferences.

What do you think about this? How long will we say we don’t have adequate evidence to guide population health investment decisions?

Originally posted 8/31/11

Can We Find Political Common Ground to Improve Population Health?



The next two months will be filled with harsh and divisive campaigning, deepening the ideological divide that characterizes our politics these days. Both conventions seemed

primarily designed to energize their bases, by emphasizing the sharpest differences between the political “tribes.” Perhaps this is necessary in today’s politics, but it doesn’t bode well for population health policy over the coming decade. Improving population health will require cutting health care costs while preserving access and quality, enabling better health behaviors, improving education, economic growth, and the physical environment while also increasing social support and social capital. These are decisions that will require careful, nuanced decisions that go far beyond simplified political exchanges.

Last Labor Day I blogged on my summer read of Friedman and Mandelbaum’s book *That Used To Be Us: How America Fell Behind in the World It Invented and How We Can Come*

Back, and their call for third party movement or even a new party which seeks to find common ground on such major challenges facing the country. This summer, I continued in this genre with Jonathan Haidt's *The Righteous Mind: Why Good People are Divided by Politics and Religion*. Haidt is a social/moral psychologist, now at the NYU Stern School of Business. The book is a breathtaking synthesis of psychology, philosophy, evolutionary theory, anthropology, genetics, and political science. The book jacket poses these two questions: "Why can't our political leaders work together as threats loom and problems mount? Why do people so readily assume the worst about the motives of their fellow citizens?"

Haidt sets out to answer these questions by dissecting what he calls our "moral intuition" (essentially our instantaneous perceptions of the world around us), arguing that our moral intuition operates much more quickly and strongly than rational thought processes. Through exhaustive psychological research, he identifies six moral foundations that he suggests characterize, in different proportions, global cultural and political "moral maps." These include Care/Harm, Liberty/Oppression, Fairness/Cheating, Loyalty/Betrayal, Authority/Subversion, and Sanctity/Degradation. (NOTE: for those interested in his ideas, these terms require a fuller elaboration than I have space for here because they are more nuanced than they appear at first glance).

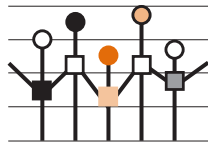
He argues that these different foundations have a partial genetic basis, which can be modified by early development and later life experience. In addition, he asserts they have evolved in different societies and cultures to define a dominant moral intuition that he believes plays a powerful role in explaining our beliefs and ideologies. One prominent strand of argument is that while we are basically selfish, evolution does promote group interests to some extent.

With respect to American political culture, Haidt cites evidence, mostly from studying twins, that 30-50% of political attitudes have a genetic basis, with most differences between liberal and conservatives relating to sensitivity to threats and openness to new experience. His most relevant finding is that liberals bind together and primarily operate from the first three foundations above, while conservatives have a more balanced moral map or intuition across all six foundations. He argues that this produces a conservative advantage and explains why rural and working class voters often vote Republican: they are voting their moral interests which do not only focus on "the care of victims and the pursuit of social justice" as Democrats tend to but also include attention to Authority and Sanctity as well.

So what does this have to do with improving our health? If Haidt is fundamentally correct in his assertion that our political and ideological affiliations have a substantial genetic and evolutionary basis, and that liberals and conservatives differ in some of the dominant moral foundations from which they inherently operate, we had better understand those differences more fully if we are going to find ways to work together to address our nation's challenges, including the many policies relevant to population health improvement.

Does the goal of better health only address liberal moral foundations like Care and Fairness, or are there elements of conservative moral intuition that can help in finding common ground? I don't yet have answers to these important questions, but look forward to others joining me in pondering this provocative area.

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