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A WIN-WIN TOOL FOR IMPROVING LOCAL PUBLIC HEALTH —A COMMENTARY

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If you are a state or local public health official, you are faced with an almost limitless number of opportunities to improve the health of those within your jurisdiction. So how do you choose? A common initial step is to determine the overall health burden of different diseases or injuries. The next step, although much less obvious, is to determine the degree to which certain factors that contribute to the burden of ill health are preventable or reducible. We know this is tricky terrain because the addressable burdens will differ by location, socio-demographics of the population, the contribution of multiple risk factors to each condition, and the range of available strategies.

Making the right choices is one of the major responsibilities for every public health leader. But what information is available to help us choose among multiple possible interventions and what health improvement can we expect from each? Having this critical data is also essential because it forms the basis for support from elected leaders, advocacy groups, community partners and the public. The most convincing data takes into account the specifics of your jurisdiction. For example, in your population, is the rate of cancer screening for breast, cervical and colon cancers an average of 40% or 75%? Is your teen smoking rate 6% or 25%?

Based on many years of practical experience and consultation with practitioners and subject matter experts, we believe that the best decision support to answer these and other priority questions faced by state and local public health and community leaders is a model that incorporates the best evidence on the health-relevant impact of alternative programmatic and policy interventions, as well as the associated economics, both costs and benefits, in a specific geo-politically defined population.

Our own effort to provide this information is a model we call “Win-Win” which we briefly describe as an illustrative example within this fast-growing field. With initial support from the deBeaumont Foundation and continuing support from them and from the Robert Wood Johnson Foundation, we developed the Win-Win model at the Center for Health Advancement in the UCLA Fielding School of Public Health. A national Advisory Group provided valuable advice, particularly on the real-world applicability of our analysis and presentation of results. Other high-quality models that overlap in methods and areas addressed include those developed by the Washington State Institute for Public Policy (http://www.wsipp.wa.gov/BenefitCost), Rethink Health (http://www.rethinkhealth.org/), and Community Health Advisor (http://www.communityhealthadvisor.org/). Each of these deserves the attention of organizations interested in seeing and comparing alternative approaches to public health issues.

In developing Win-Win, we took a broad approach, cognizant that the most consequential determinants of health are aspects of our social, economic and physical environments. Therefore, it was important to identify opportunities for public health to collaborate with other sectors, such as education, criminal justice, the natural and built environments and

transportation. To identify high-value interventions, project staff reviewed systematic literature reviews from the Guide to Community Preventive Services, the Cochrane Collaboration, Washington State Institute for Public Policy and other meta-analyses. This led to a list of over 1,100 programs and policies with promise for both population-health impact and positive economic returns. The list was narrowed to the 31 most promising interventions based on political feasibility, inter-sector collaboration, sector diversity, impact across the lifespan, and ability to reduce health disparities. A report card was created that rated each of these interventions based on cost/return break-even time, missed opportunity (combination of number of eligibles times effectiveness), number of beneficiaries, and cost per beneficiary. To create a uniform presentation and allow comparison of relative cost-effectiveness, we calculated effects on health/quality of life and longevity, educational attainment, and crime for each intervention.

We worked with five large local public health jurisdictions (Philadelphia, Houston, San Antonio, San Diego, and Los Angeles), each of which chose one of the 31 interventions that they thought offered a large public-health impact in their jurisdiction, coupled with a strong political feasibility. Their choices were all different, reflecting local priorities, ability to work with other sectors within their jurisdiction, operational capacity, experience and political feasibility. For each local jurisdiction we populated the model with local baseline socio-demographic data and local cost information relevant to their chosen intervention.

Our work on refining and expanding the Win-Win model to other interventions and jurisdictions is informed by lessons learned from: 1) the initial collaborations with these large metro public health departments, 2) more than a decade of experience in developing health impact assessment and health forecasting, and 3) discussion with other experts and users. These lessons fall into several categories.

***Presentation and Framing*.** Every promising intervention needs to be effectively marketed, both within local government and to outside stakeholders. Effective marketing approaches rely in the following insights:

- **Simplification of assumptions** and likely outcomes in each sector is important in securing a common understanding of and support for the modeled intervention.
- Use of **simple symbols and graphic displays** facilitate common understanding of what is proposed and the likely results, and reduce the time needed to explicate the model.
- **Compelling narratives** describing how well an intervention worked in another jurisdiction are extremely helpful in convincing skeptics of the feasibility of the proposed intervention.

Selection of Interventions. Interventions need to fit the multiple needs of public health policy-makers.

- There is enormous **diversity in opportunities for collaboration** with other sectors in general and with specific sectors on a shared project. Some collaborations are mandated by elected officials while others develop naturally based on shared perspectives and objectives.

- Policies and programs that **benefit infants and children** are often the first choice of local public health departments. The five jurisdictions we worked with selected universal preschool, Nurse Family Partnership, asthma home remediation program, functional family therapy and a multi-component school-based obesity program. These choices reflect our increasing knowledge that changes in health trajectory early in life can have important ramification throughout the life course.
- Greatest interest by local public health departments and their collaborators is usually accorded interventions with **short-term, demonstrable results**. It is often harder to promote a positive result over a long period of time than one where demonstrable benefits will be discernible within a few years, which not incidentally is about the average tenure of health directors for state and large local public health agencies.

***Rigor*.** Economic analysis yields results that are difficult for some model users to understand and communicate, but the credibility of the modeling ultimately depends on attention to scientific rigor.

- Our standard measure of return on investment is the **net-present-value internal rate** of return for local and state government. This metric differs from a frequently used standard cost-benefit analysis, which compares lifetime costs with benefits, but many policy makers consider it both realistic and relevant.
- The assumptions that drive the model need to be well founded and referenced, but also **reasonably conservative** to gain wide acceptance and be able to refute the less well supported positions of any opponents.

Collaboration

- In motivating **important stakeholders**, such as County fiscal authorities, journalists, or policy-makers in other sectors, a model showing a strong positive rate of return on public-health activities can be a powerful talking point. Several of the interventions we modeled were shown to generate far more in savings than what they cost. While this claim is often made on behalf of interventions, being able to concretely show the sources of actual dollars flowing back to particular branches of government—as well as how and when—makes these claims far more credible. Explaining the value of public health is always a challenge. This kind of modeling exercise can make that difficult task not only easier, but also fun.

- Modeling helps **jump-start collaborations with other sectors of government** by showing areas of common interest. But modeling can also highlight the wrong pocket problem. For some interventions, the economic benefits to a non-health sector such as education or criminal justice may exceed their costs whereas return to health agencies investing may be far less than their investment. Modeling can show benefits of a single intervention across different sectors, the original rationale for the Win-Win model.

Approaches and Resource Needs

- To **clarify differences in costs and impacts of alternative approaches to a given health problem,** a model needs to use consistent assumptions and baseline data. For example,

a cognitive-behavior intervention for juvenile offenders can be compared with functional family therapy, which combines cognitive-behavioral therapy with a therapeutic approach to the juvenile's family, with respect to costs and outcomes such as fewer arrests and fewer chemical dependent youth.

- **Setting realistic public health goals**. Models can help clarify the level and types of resources necessary to reach defined realistic public health goals. For example, using alternative evidence-based interventions, what would it cost to achieve a 5-percentage-point reduction in childhood obesity?

Modeling is a useful tool but as with all human endeavors, the models developed are of uneven quality. One model on the web purports to estimate the financial returns of universal preschool. The user can enter the cost of the program and the number of children served, and the model will calculate the anticipated social benefits. Unfortunately, this "model" doesn't do any actual modeling but simply takes the cost of the program—inputted by the user—and multiplies it times the estimated average social benefit per dollar spent to determine the total social benefit. In this model, a program that costs $1 million and serves 1 child produces the same social benefit as a program that costs $1 million and serves one hundred children (or a million children). This is not valuable modeling. Biased cost and effect estimates are produced both by the well-meaning partisans and intervention opponents.

Critical evaluation of alternative models requires total transparency with respect to all assumptions and their sources. Are the assumptions based on thorough analysis of all relevant articles or only a subset that serves a particular private interest who pays for models that seek to confirm the position that is in their financial interest? For example, large energy companies have promoted their bias about climate change through the funding of the small minority of scientists who don't believe is it is real. It would be useful for national public health organizations to, after careful study, recommend those models they feel are the best developed and useful for their members.

While building and interpreting our models with rigorous equipoise, we also need to recognize that some policies and programs have much better evidence with respect to economic, health and other outcomes, than do others. For example, we have much better information on the effects of a wide range of tobacco-control programs than those targeting obesity. Interventions whose effects happen over long periods of time are more expensive and much more time-consuming to study rigorously than interventions whose effects are seen in a short time. This fact has pushed research efforts away from some very promising interventions—particularly those in early childhood.

One common deficiency in our collective knowledge that affects most models is lack of information on the differential effects of interventions on different socio-demographic and health determined groups. Of particular urgency is better understanding of the effects of population-wide interventions to improve health equity. Another deficiency is knowing how to model the combined effect of multiple interventions.

Limitations aside, modeling is fast becoming an indispensable tool to advance health and health equity. There are many flavors of modeling. Understanding their differences and appropriate usages can increase the ability of public health to fulfill its mission.