

Six Components Necessary for Effective Public Health Program Implementation

Public health programs succeed and survive if organizations and coalitions address 6 key areas.

(1) Innovation to develop the evidence base for action; (2) a technical package of a limited number of high-priority, evidence-based interventions that together will have a major impact; (3) effective performance management, especially through rigorous, real-time monitoring, evaluation, and program improvement; (4) partnerships and coalitions with public- and private-sector organizations; (5) communication of accurate and timely information to the health care community, decision makers, and the public to effect behavior change and engage civil society; and (6) political commitment to obtain resources and support for effective action.

Programs including smallpox eradication, tuberculosis control, tobacco control, polio eradication, and others have made progress by addressing these 6 areas. (*Am J Public Health*. 2014; 104:17–22. doi:10.2105/AJPH.2013.301608)

Thomas R. Frieden, MD, MPH

WHEREAS MANY PUBLIC

health programs do not achieve their potential impact, other programs succeed in improving health outcomes drastically. Limited and unstable funding, lack of automatic means to track and improve performance, workforce limitations, and insufficient political commitment can all cause public health programs to fail. Implementation can succeed and be sustained if organizations and coalitions effectively address 6 key areas: innovation, a rigorously established technical package, management, partnerships, communication, and political commitment.

This concept can be illustrated as a wheel, with innovation as the central hub providing the driving force and support for other elements: the technical package, management, partnerships, and communication. These elements in turn support and are held together by political commitment, which provides the necessary traction for progress (Figure 1).

INNOVATION

Innovation is essential to all aspects of public health strategy and program development and is critical to developing the evidence base needed to establish and refine the technical elements of successful program implementation. A new diagnostic technique, treatment, or vaccine can make a previously unattainable goal possible. New microbial genomic sequencing and bioinformatics technologies may enable us to

identify outbreaks we cannot currently find and better prevent and stop the spread of infectious disease.

Innovations need not be limited to science or medicine. Innovations in information systems, data collection, communication techniques, and issue framing can increase political commitment and also be essential for progress. Innovations in operations can facilitate refinement of and improvements in programs based on actual experience. Innovations in program evaluation can further build the evidence base for interventions by better identifying those that are not working as expected and those that are effective and ripe for scale-up.

Innovation can help improve program management to scale up, disseminate, and sustain high-impact interventions. Smallpox was eradicated through continuous introduction and implementation of innovations, including new organizational methods, new ways to find smallpox cases, new approaches to targeting which groups to vaccinate, new types of needles, and new ways to vaccinate different groups of people.¹ New ways of communicating, including harnessing innovations in social and other media and making a compelling case for a specific action, can strengthen partnerships and bring new partners to the table.

Innovative practices need not be invented anew in each place; advances that are initiated and evaluated rigorously in other jurisdictions add to the evidence

base of effective public health programs so that they can be scaled up and implemented more widely.² Many innovations are built on the foundation of existing science or practice, and many of these improvements will further science and public health practice. Nor is there a need for all innovations to come from public health; many are developed in the private sector or academia and often originate in fields other than health.

TECHNICAL PACKAGE

The most effective public health programs are based on an evidence-based technical package: a selected group of related interventions that, together, will achieve and sustain substantial and sometimes synergistic improvements in a specific risk factor or disease outcome. A technical package of proven interventions sharpens and focuses what otherwise might be vague commitments to “action” by committing to implementation of specific interventions known to be effective. It also avoids a scattershot approach of using a large number of interventions, many of which have only a small impact.

Simplicity is key to success. The Integrated Management of Childhood Illness initiative, intended as an integrated approach that focuses on the well-being of the whole child to reduce mortality among children younger than 5 years, can improve the quality of clinical care for sick children.^{3,4} However, program coverage in

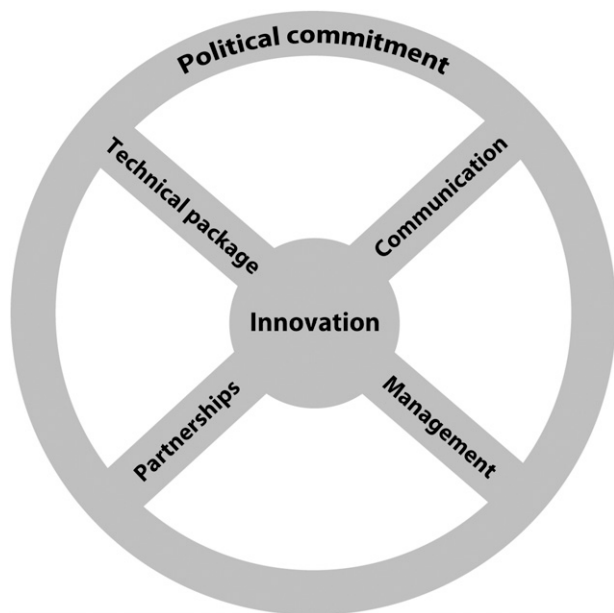


FIGURE 1—Six key areas for effective public health program implementation.

most countries has rarely reached levels high enough to achieve expected reductions in mortality, in part because of the complexity of this approach.

The DOTS (directly observed treatment, short-course) strategy for tuberculosis control has only 5 components: sustained political and financial commitment, good laboratory diagnosis, standardized treatment provided under direct observation, a steady supply of high-quality anti-tuberculosis drugs, and rigorous monitoring and evaluation of and accountability for each patient's outcome. In the nearly 2 decades since widespread adoption of the DOTS strategy, more than 56 million people have been successfully treated and 22 million lives have been saved.⁵ In the absence of HIV, DOTS can reduce the incidence of active tuberculosis by about half in 10 years.⁶

WHO's MPOWER package for tobacco control consists of 6 key policy measures: monitoring tobacco use and prevention policies; protecting people from tobacco smoke; offering help to quit tobacco use; warning about the dangers of tobacco; enforcing bans on tobacco advertising, promotion, and sponsorship; and raising tobacco prices.⁷ The state of California and the city of New York each invested in sustained implementation of comprehensive tobacco control technical packages that helped establish the MPOWER strategy and have recorded steady, long-term declines in smoking prevalence.^{8,9}

In Uruguay, which implemented most elements of the MPOWER strategy sooner than any other country, smoking prevalence fell by a quarter in just 3 years, perhaps the fastest decline ever recorded.^{10,11} Turkey, the first country to attain the highest level

of achievement in all 6 MPOWER measures, saw a 13.4% decline in smoking prevalence in the 3.5 years after it enacted a comprehensive tobacco control law that specifically addressed requirements of the WHO Framework Convention on Tobacco Control and incorporated the MPOWER technical package.¹² Progress in all of these places was achieved because of sustained political support for difficult and sometimes controversial decisions, as well as adherence to the established evidence base of a limited set of proven interventions that are affordable and scalable and have the largest impact on health.

A technical package of surveillance and vaccination has brought the world to the brink of polio eradication.¹³ Surveillance of acute flaccid paralysis in children through collection and laboratory examination of stool specimens enables public health programs to know whether children with symptomatic polio are being diagnosed and reported.¹⁴ In appropriate conditions, environmental samples can help identify unrecognized viral circulation and also monitor virus persistence and disappearance.¹⁵ National immunization days, supported by both strengthened routine immunization programs and supplemental campaigns, had stopped the spread of polio by 2012 in all but 3 countries (Afghanistan, Nigeria, and Pakistan).¹⁶

Infections associated with health care affect about 1 in 20 hospitalized patients, cause nearly 100 000 deaths, and cost an estimated \$30 billion per year in the United States. To reverse this, the Centers for Disease Control and Prevention developed and disseminated a technical package consisting of hand and respiratory hygiene practices; use of masks,

gloves, and other protective equipment; appropriate injection and insertion practices; disinfection of equipment and environmental surfaces; and surveillance.¹⁷ Adherence to these guidelines has substantially reduced the incidence of some health care-associated infections,^{18,19} with central line-associated bloodstream infections lowered by more than 40% and surgical site infections reduced by 17% between 2008 and 2011.²⁰

A technical package ensures focus on the most effective, feasible, and sustainable interventions and can sometimes achieve synergy among intervention elements. Pressure to include all approaches can make the establishment of a technical package difficult; a technical package established with inclusiveness of approaches as a goal is likely to fail. The key is to identify elements that are both highly effective and scalable to reach populations of varying size, demographic composition, or geographic location, and that can be sustained over a long period. This may mean that some interventions with proven evidence of effectiveness will not be included because their effect is small, is not sustainable, or—for fiscal, managerial, or other reasons—cannot be scaled for population impact.

Scalability is a key and potentially controversial concept. Although justifiable moral outrage may suggest that “everything” be done for everyone, and although leadership and advocacy (e.g., for the US President's Emergency Plan for AIDS Relief [PEPFAR], which has enabled treatment of millions of people who would have otherwise died) can make possible programs previously considered to be impossible, there is almost always a delicate

interplay between the ideal and the realistic. There are practical limitations to how rapidly and broadly public health programs can increase their reach, with separate although related limitations in financial and human resources, institutional capacity, health care system quality, behavioral change, and politics.

To establish an effective intervention package, it is critical to understand the full range of available evidence-based strategies, the size and characteristics of the population to be reached, the projected impact of each intervention, and the estimated cost. The more expensive or complex each intervention is, the less likely it will have broad population impact. More strategies in a technical package result in more costly and unwieldy programs with a lower likelihood of success. An analysis that determines the burden caused by each risk factor can help identify which risk factors have the greatest impact on population health and thus can lead to the greatest health improvements if addressed effectively.

In some cases, organizations, physicians, or advocates may insist on individualized approaches. Although customization of treatment and care can in theory benefit individual patients, this may make it difficult or impossible to establish a scalable technical package that leads to widespread adoption of at least a minimum standard of care. Standardization of immunization schedules and of treatment of HIV, drug-susceptible tuberculosis, and malaria has led to lower medication prices, greater ease of program implementation and supervision, and improved ability of nurses and other trained health workers to initiate and monitor treatment; all of these factors are essential for successful scale-up.

MANAGING PERFORMANCE

For many public health programs, implementation is essentially a management problem. Even if political commitment, resources, and a technical package are in place, effective management may not be. Management of public health activities is particularly difficult because, unlike in the private sector where metrics such as product sales provide prompt feedback on performance, there is often no automatic, accurate, and affordable way to track public health program performance in real time. In addition, the impact of public health programs may not be evident for months or years, further complicating measurement of performance.

Effective public health programs require accurate, timely information systems for disease or risk factor surveillance and program implementation. For this reason, every effective technical package includes surveillance and information systems that can be sustained and that provide accurate, simple, timely, and critical information on program implementation and impact over the long term.²¹

Rigorous monitoring and evaluation, with mechanisms to avoid bias in the data or misplaced confidence in program effectiveness, are essential for both progress and sustainability. Honest and transparent assessment of progress or the lack thereof—even or especially if temporarily inconvenient or embarrassing because of lack of progress—is critical to allow continuous refinement of and improvements in program strategy and implementation. It is particularly important for programs that have made some progress to avoid complacency. Only by having and

acting on accurate information can a program that has made progress prevent itself from stalling.

New York City made reducing smoking a top priority, increasing the tobacco tax in 2002 and making virtually all workplaces smoke free in 2003.²² Tobacco use declined rapidly in 2003 and 2004, but the decline then stalled, a development that would not have been known if New York City had not begun conducting large community surveys on an annual basis beginning in 2002. As a result, in 2005 New York City initiated another tobacco control intervention—hard-hitting anti-tobacco advertising—which led to a resumption of the decline the following and subsequent years.²³

Ongoing analysis to improve virtually every aspect of program operations and management is critical to innovation and progress. Information technology to improve management can facilitate the establishment of feedback loops that enable real-time program assessment and improvement, but the costs of information technology are often underestimated and its benefits often overestimated. Simple systems driven by a clear understanding of the requirements and limitations of essential data elements are most likely to be useful. One example of such a system is the tuberculosis patient registry maintained in public health tuberculosis control units in nearly every country. These registries track the outcome of every patient started on treatment and do not require large investments in information technology.²⁴

Public health human resource management is challenging. It is often difficult to recruit, train, and retain the qualified work force needed to implement effective public health programs. Budget

shortfalls, salaries generally lower than in the private sector, and vocal opposition to public health initiatives can demoralize staff. Effective human resource management can be achieved, at least in part, through career development measures that focus on organizational mission and include ongoing training and education, clear paths for career advancement, and financial and other rewards for outstanding performance. Globally, effective public health programs have addressed human resource limitations through task sharing, with nurses and lay health workers initiating or titrating medications, performing some surgeries, and supervising programs.^{25,26} Information technology, use of community health workers, and broader partnerships can help address management challenges.

PARTNERSHIPS

Public health is increasingly complex, with key roles played by public- and private-sector partners that are critical to sustaining and improving the population's health.²⁷ Coalitions are often essential to progress. Getting many organizations to collaborate can be slow and frustrating but is often crucial to create the advocacy needed to support budgetary, legislative, or regulatory change and to implement new or improved programs. Government programs are more likely to succeed—and to be sustained—when organizations outside of government advocate for them.²⁸

Partners can supplement available human or financial resources and can support and undertake critical activities. Helping disparate groups agree on and take action to achieve a common agenda can build effective long-term coalitions

that extend beyond a specific issue. Schools, businesses, law enforcement, transportation, agriculture, labor, and many other sectors in society can contribute greatly to, and benefit greatly from, public health programs, policies, and priorities.

Effective partnerships between agencies at different levels of government can be difficult to establish and maintain. Sharing resources and responsibilities between state and local health departments, for example, can be politically charged and complex. Research on the sustainability of community health coalitions suggests that accepting collective responsibility and mutual accountability, articulating a shared mission and vision to achieve common goals, and maintaining focus can keep governmental and nongovernmental partners coordinated and avoid turf wars and resource competition among partners.²⁹

There can be ethical issues in developing public–private partnerships in public health. Partnerships between government and the food, beverage, and other industries that address health issues are expanding; these partnerships have the potential to either further or undermine effective change and should be systematically and transparently monitored and evaluated.³⁰ The tobacco industry attempts to position itself as a legitimate partner and stakeholder in tobacco control, a situation addressed by provisions in the WHO Framework Convention on Tobacco Control that proscribe industry involvement.³¹

Examples of effective multisectoral partnerships include immunization coalitions at the national and state levels that involve partners such as government agencies, community organizations,

corporations, foundations, individual philanthropists, patients, and volunteers. These partnerships build comprehensive, sustained community programs that advocate for policies that will result in the immunization of people against vaccine-preventable diseases. Partnerships are particularly important to sustain programs during difficult budgetary times.

COMMUNICATION

Effective communication can lead to behavior change, but, more importantly, it can lead to increased political commitment and program effectiveness by engaging a wide range of civil society sectors and by contributing to a change in the public perception of an issue. With the advent of the Internet, social media, and other communication technologies, more information is available from more sources than ever, although some is incorrect or potentially harmful. New communication tools and technologies facilitate interactive conversations, giving public health practitioners the ability to have dialogues with people from affected communities and other stakeholders. With the increase in communication channels and voices, public health communications can be drowned out unless communication strategies are timely, well defined, well executed, and sustained to meet specific objectives.

Effective communication can convey critical information, convince key individuals to support or lead an initiative, and, perhaps most importantly, change the context for public health action. Mothers Against Drunk Driving and Remove Intoxicated Drivers changed the context for road safety by transforming societal perceptions of drunk driving, helping

people recognize it as an unacceptable endangerment of others.³²

Social change and changes in the law and public health programs both influence and are influenced by each other. Over time, the prevailing social mores of “one for the road” and “Would you like a cigarette?” changed to “friends don’t let friends drink and drive” and “Do you mind if I smoke?” These changes in social norms both emanated from and facilitated the enactment and implementation of legal and policy changes. Effective communication, such as hard-hitting anti-tobacco campaigns, can lead to widespread behavioral change and can also help change social norms.^{33,34}

With better information, individuals and communities can make better decisions about their own health and about public health programs. Different audiences need to be presented with different types of data in different ways to have the intended impact. Health care providers need up-to-date information, which can be provided through traditional means such as publications and medical association guidance, as well as through electronic outreach, messaging systems, and other newer communication channels that can facilitate navigation of an often rapidly changing clinical and health care delivery environment. Decision makers need accurate, timely, and concise information about the health and fiscal effects of different policy options.

An effective program needs to effectively communicate its success and benefits, as well as the threats to health and health equity being addressed, with anecdotes and case studies to illustrate these points. Presenting a human face to demonstrate the impact of abstract data can show decision makers

that health and lives are at stake. The business community needs information that shows the business case. Media framing and news coverage are often essential to introduce, explain, generate support for, and facilitate implementation of public health policies and programs. By providing accurate, timely, and convincing information that includes data on outcomes, public health entities can increase their credibility with potential stakeholders such as decision makers, health care providers, the public, and public and private program funders.

Communication is also crucial to save lives during emergencies. Communication with first responders, the public, and other groups may need to be instantaneous and clear and must occur in real time during a rapidly evolving event. Even when a public health emergency evolves more slowly, such as during the 2009 global outbreak of H1N1 influenza, new information may need to be communicated on an ongoing basis as the event unfolds, both to implement specific activities and to minimize confusion and distrust.

POLITICAL COMMITMENT

Political commitment is built on and supported by the components described thus far, all of which are critical to provide government with a strong foundation for action. Effectively engaged political commitment leads to the resources and support needed to coordinate, implement, and sustain public health interventions, including policy change where needed. Change is often controversial, and the entities that implement public health programs—usually led by public health departments or other government agencies—may have less ability to influence

budget and policy decisions than other groups within government and civil society.

Interventions touch many sectors of society, some of which may oppose public health proposals vigorously. Opponents of specific public health programs may be highly vocal, well funded, and well organized, and opposition from a specific interest group can be potent, even when the overall societal benefits of a public health program are large. Many public health initiatives, such as measures to reduce tobacco use, greatly improve the public's health by benefiting tens of millions of people (smokers and those exposed to secondhand smoke, in this case) but are contrary to the interests of a small but powerful group: in this case, tobacco companies. Political commitment can be critical to overcome opposition to public health programs by special interest groups such as the tobacco industry, and it requires understanding industry tactics, effective communications with all stakeholders, and involvement of the public and civil society in public health efforts.³⁵

The beneficiaries of specific public health programs may be unaware of the health and other benefits received or unaware that specific programs are under the purview of public health; they may be only moderately vocal in advocating for programs and services, and in some cases they may be politically disenfranchised. Increased public awareness of the benefits of public health programs can increase advocacy and generate higher levels of political commitment.

Public health is often underfunded, and ongoing fiscal constraints have further reduced spending. In the United States, state and local budget cuts have

led to the loss of more than 46 000 state and local public health jobs since 2008.³⁶ Political commitment is a prerequisite for sufficient funding. As Hermann Biggs stated a century ago: "Public health is purchasable. Within natural limitations a community can determine its own death rate."³⁷

Public health programs that have generated opposition in the past include water fluoridation,³⁸ vaccination mandates,³⁹ smoke-free workplace laws,⁴⁰ disease reporting,⁴¹ environmental protection,⁴² and motor vehicle safety.⁴³ In each of these cases, the intervention produced substantial net benefits to the public's health that outweighed the costs of implementation. However, most individuals do not experience immediate benefits, and often a small but vocal group opposes the program vigorously.

Public health programs are sometimes not adopted because of the "prevention paradox," according to which "a preventive measure that brings large benefits to the community offers little to each participating individual."^{44(p47)} Large gains in population health often come from small changes for many people rather than from large changes for fewer people. For this reason, leadership, communication, and partnerships are essential to progress.

Political commitment by broad coalitions led to successful implementation of the Vaccines for Children program and PEPFAR. Vaccines for Children, a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay, has helped ensure vaccination for millions of US children since 1994 and virtually eliminated racial and ethnic disparities in childhood

immunization rates.⁴⁵ Since being established in 2003, PEPFAR programs have helped millions of people worldwide: life-saving antiretroviral treatment has been provided directly to more than 5 million people, HIV counseling and testing have been provided to more than 46 million people, and more than 1 million infants have been prevented from becoming infected.⁴⁶

CONCLUSIONS

Those who work in and support public health improve the health of individuals and communities. The greatest strength of public health is its singular focus on maximizing health so that society can achieve its most cherished values: that children are born healthy and grow up healthy, that students are healthy and able to learn, that workers are healthy and productive, that parents are empowered to help their children reach their full potential, that health disparities are reduced, and that people are able to age with independence and dignity.

Compelling data and evidence for action, broad coalitions, and effective communication generate and sustain the political commitment necessary for successful public health action. To improve public health programs, it is often essential to highlight unacceptable existing disease burdens, health outcomes, disparities, and threats to health. It is also useful to provide real-life examples of individuals harmed by failure to act or benefited by specific programs. Effective coalitions with key support and leadership from individuals and groups outside of government are often essential for progress. An effective and coordinated alliance of political, technical, and managerial leadership can

increase the likelihood of implementation of programs that protect and improve the public's health. ■

About the Author

Thomas R. Frieden is director of the Centers for Disease Control and Prevention, Atlanta, GA.

Correspondence should be sent to Thomas R. Frieden, MD, MPH, Centers for Disease Control and Prevention, 1600 Clifton Rd NE, MS D-14, Atlanta, GA 30333 (e-mail: tfrieden@cdc.gov). Reprints can be ordered at <http://www.aph.org> by clicking on the "Reprints" link.

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