# Global to Local Landscape Analysis

## Lessons Learned from Global Health Programs

November 2010

## Acknowledgements

This landscape analysis was conducted by Jessica Cohen and Sarah McGray of PATH, with contributions by Adam Taylor, Public Health/Seattle & King County. Special thanks to Jane Goett and Joe Little for their research and proofreading assistance.

# Contents

# Executive summary

The Global to Local (G2L) Initiative, a collaboration between the Washington Global Health Alliance, Swedish Health Services, Public Health/Seattle & King County, and Healthpoint, has the goal of improving health outcomes in Tukwila and SeaTac through use of an integrated set of proven global health strategies. The six strategies selected for consideration are:

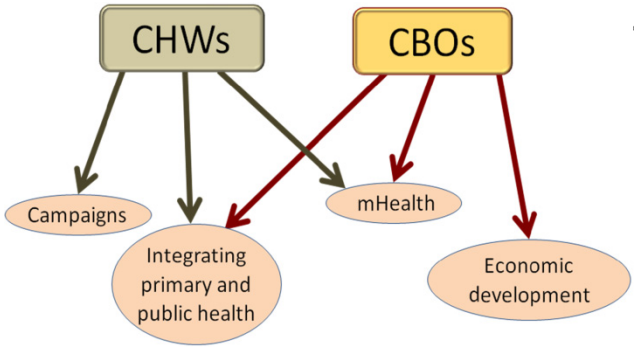
**Global health strategies**

1. Training and deploying community health workers (CHWs).
2. Using technology to overcome barriers and transform community health practice.
3. Generating focused campaigns around health issues.
4. Mobilizing and empowering community-based organizations (CBOs).
5. Linking health with local economic development.
6. Linking primary health care with public health services.

To inform the design of the G2L project, PATH conducted a landscape analysis of these six strategies to identify lessons learned from their use in both global and domestic settings, highlighting factors that enabled their success with regard to improving health outcomes, reducing health disparities, and reducing costs, as well as identifying barriers to their effective use. The landscape analysis combined a literature review with a scan of projects from among Washington Global Health Alliance partners to provide guidance about common success factors and barriers to success within and across each of the strategies.

## Common success factors

A key factor shared across all strategies was the use of community health workers (CHWs) or community-based organizations CBOs for the design, implementation, or management of a wide variety of interventions. The intersection of these approaches with the other strategies as illustrated to the right. Specifically, those programs or projects that demonstrated success frequently worked with CHWs and CBOs to characterize community needs, pilot novel approaches, and reach communities that traditionally lacked access to formal health services. The continuous involvement of CHWs and/or CBOs in the program design and implementation helped programs establish culturally competent approaches, often with vulnerable or marginalized populations, resulting in more significant and sustained program uptake. CBOs and CHWs also provided ongoing opportunities to gauge community interest and invite community feedback, both critical features for ensuring programs are meeting community needs and program objectives. Specific success factors and barriers to success with CHWs and CBOs are described in the analysis.




A second common approach frequently described across projects with sustained efficacy was the use of a strong administrative structure. Strong administrative services reduced waste and enabled programs to

maximize resources spent on implementation. Strong administrative structures are particularly critical to programs that transfer goods or cash from centrally managed pools to peripheral distribution centers, such as immunization programs and projects that distribute vouchers and conditional cash transfers, as well as integrated programs with numerous strategies.

Thirdly, successful programs frequently targeted health outcomes with a systems-based approach or multiple types of interventions targeting an ultimate behavior change. In some examples, this was reflected through interventions across macro- and micro-levels of influence on behavior, such as policy, home/work environment, and individual behaviors, based on the theory that addressing multiple spheres of influence on health-seeking behavior can yield more potent and long-lasting results. This approach requires involvement and cooperation from a broad set of stakeholders. Successful programs must also take the time to understand and recognize the unique goals and needs of partner organizations, whether CBOs or government agencies, to ensure that the partnership defines success appropriately and leads to positive outcomes for the partners as well as the broader program.

## Common barriers to success

Several common barriers to success were also identified across the reviewed strategies. Not surprisingly, lack of sustainable funding was most frequently cited by programs as a barrier to successful implementation or continued operation. Programs that integrated financial mechanisms into their project plan, such as income-generating schemes or capacity building for long-term financial management, had greater success in ensuring long-term sustainability of services.

The "siloing" of vertical strategies was also noted as a barrier to successful implementation when vertical program structures created redundancies, resulting in over-burdening of human resources and lost opportunities for leveraging expertise and financial resources across programs. Effective communication across programs operating in the same geographic area or regional level is critical; integration and communication across programs also streamlines administration and can optimize distribution channels and expertise across varying programs.

Failure to properly characterize the needs of target populations or design interventions tailored to the target populations is a significant barrier to effective program implementation. This becomes more challenging the more diverse the community in which the program takes place. However, adapting approaches to address the local realities of target populations, including cultural perspectives, dominant health belief models, and resource constraints among other factors, is an essential component to successful programs. Piloting target messages or approaches with target audiences was a common example to help ensure messaging is tailored and appropriate to the intended audiences.

## The way forward

This landscape analysis synthesizes the lessons learned from the six global health strategies reviewed, providing an evidence base on which the G2L Initiative can design and develop an integrated health promotion program in South King County. While the findings of this landscape analysis will serve as a foundation for the G2L Initiative, the diversity of racial, linguistic, and sociocultural perspectives in Tukwila and SeaTac is far greater than any of the populations represented in this review. Thus, the G2L Initiative will have the unique opportunity to tailor strategies such that they will address the needs of a

multitude of distinct and overlapping populations within these broader communities. Involving the participating communities in the design and development of this intervention, a key component of the G2L Initiative, will help ensure the long-term success of this initiative in reducing disparities and improving the health of men, women, and children in South King County.

# Introduction

## Global to Local Initiative

The Global to Local (G2L) Initiative is a collaboration between the Washington Global Health Alliance, Swedish Health Services, Public Health/Seattle & King County, and Healthpoint. The goal of this initiative is to improve health outcomes and reduce health disparities in the South King County communities of Tukwila and SeaTac through use of an integrated set of proven global health strategies.

Over the past decade, there has been increasing attention to the issue of global health and a broad range of strategies and interventions have been developed and tested around the world to determine their effect on improving health outcomes. The types of strategies vary greatly depending on the health need addressed; the geographic, economic, and sociocultural context of the target population; and the type of impact desired, among other factors. Within Washington State, there is a wealth of expertise among academic, governmental, nongovernmental, and private institutions in the area of global health. Many of these institutions are members of the Washington Global Health Alliance. The G2L Initiative is designed to leverage the extensive lessons learned from the global health arena and the expertise among local organizations working in global health. This initiative will work with the local communities in South King County to adapt and apply these lessons within the target communities in South King County which are characterized by high levels of poverty; poor health; and significant racial, linguistic, and sociocultural diversity.

To inform the design of the G2L project, the G2L advisory committee identified the following six global health strategies as warranting further research as potential components of the local intervention. In response, PATH conducted a landscape analysis of these six strategies to identify lessons learned from their use in global settings and highlight factors that enabled their success with regard to improving health outcomes, reducing health disparities, and reducing costs, as well as identifying barriers to their effective use.

**Global health strategies**

1. Training and deploying community health workers.
2. Using technology to overcome barriers and transform community health practices.
3. Generating focused campaigns around health issues.
4. Mobilizing and empowering community-based organizations (CBOs).
5. Linking health with local economic development.
6. Linking primary health care with public health services.

This landscape analysis was informed through an extensive literature review and a scan of projects among Washington Global Health Alliance partners.

# Findings

## 1. Training and deploying community health workers

Community health workers (CHWs) have been used to address a wide range of health issues in both developed and developing countries. In low- and middle-income (LMI) countries, use of CHWs has been demonstrated to bridge the gap between access and delivery of health services including improving malaria prevention efforts, prenatal/postnatal care, immunization, detection of acute respiratory infection, and provision of tuberculosis (TB) and HIV drug regimens. In wealthier nations, CHWs are often used to provide oral health services, screening education (primarily for cancer and heart disease), nutritional counseling, and asthma and diabetes care. In both contexts, CHWs are often used to target rural areas with limited access to health services or marginalized populations that are traditionally underserved by the standard health system.

### Community health workers in developed countries

#### *Types of interventions*

In wealthier nations CHWs are often trained professionals with a specific certification, usually a nursing degree. They are generally based out of a community health clinic or affiliated with a large organization of medical professionals. In wealthier countries, where chronic diseases such as cancer, heart disease, diabetes, and asthma are of growing concern within the health system, these individuals are often engaged to provide outreach, preventive care, screening, and health education to marginalized populations, particularly recent immigrants and other limited English-speaking populations. In general, the goals of these targeted interventions are to increase screening rates, decrease hospitalizations related to self-management of a specific health outcome, and improve healthy behaviors such as diet and exercise.

#### *Training and certification of CHWs in the United States*

In the United States, 17 states offer some form of standardized training or certification program for CHWs.[1, 2] As described in a comprehensive review of CHW certification conducted in 2005, certification and standardized training of CHWs provides important and distinct benefits among three important stakeholder groups.

- From a health systems perspective: certification and standardized training of CHWs enables broader access to health services, as well as greater assurance of quality of care.
- From the community perspective: this approach provides access to new health resources and contact with service/care providers, as well as increases the value attributed to the role of the CHW.
- From the CHW perspective: certification and standardized training validates their work/role, provides opportunities for professional growth, equips them with greater community-building capacity, and provides greater opportunities for reimbursement of services.[1]

There are numerous policy implications for initiating a standardized training and certification program for CHWs including defining the roles of CHWs within their sponsoring organization, identifying the skills necessary to address the needs of the target populations, ensuring the sustainability of their positions, and identifying how to best integrate them into a formal system while maintaining the linkages to the communities which they serve.[1, 3–7]

### CHWs and preventive screening

CHWs are used in geographically and demographically diverse populations to engage community members in dialog about their knowledge and attitudes toward cancer screening, particularly colorectal and breast cancer screening. Their ultimate objective is to increase screening rates in populations that underutilize these services. These target populations, while very different in health belief models, are usually recent immigrants who are poor with limited English proficiency. CHWs in this context are trained to identify barriers to seeking screening and work within the cultural construct of the target population to resolve those barriers. Occasionally CHWs discard mainstream western models for health in favor of targeted practices that fit within specific and sometimes conflicting health belief models. For example, among Korean-American women in Baltimore, lay health workers were used to recruit and counsel women who had not had a mammogram within the past two years. Over the course of a one-year period, the CHWs identified and addressed concerns about modesty as a primary barrier to seeking screening. In follow-up evaluations, the women expressed less concern about modesty and showed a 32 percent increase in mammography, in spite of no improvement in knowledge or beliefs around breast cancer.[8]

### Cultural competency and CHWs

In many cases, a CHW program may not be targeting a specific health outcome. Instead, the program might direct its efforts towards increasing health-seeking behaviors *overall* among a specific population. The program does so by enhancing the ability of the population to access services. Language and cultural barriers are frequently cited as the most pressing obstacle to individuals with a low English proficiency seeking health care.[9, 10] In response, many CHW programs train laypersons or health professionals who live and work within the targeted population to identify and counsel individuals with specific health needs. By training individuals with membership in target populations, the CHW program creates an effective bridge between the unserved or underserved and the health system. In particular, promotores are used widely in Latino communities throughout the United States to help community members access and navigate a range of health and social services. These individuals have found intersections between the culturally distinct health belief models of their communities and the mainstream model for health promotion. The promotores are trained in strategies for leveraging the intersections between health approaches in order to improve health-seeking behavior in their communities. For example, in Texas, promotores were engaged to work with Mexican-Americans with type 2 diabetes in instructional sessions on nutrition, self-monitoring of blood glucose, exercise, and other self-care topics and to recruit them to support group sessions to promote behavior change. The promotores ensured that the counseling and advice was culturally competent in terms of language, diet, and cultural health beliefs. After six months, patients who were counseled by promotores in self-care had 1.4 percent lower blood-glucose levels than the control group.[11]

## *Target population*

Unlike CHW-oriented health promotion programs in developing countries, CHWs in wealthier nations are engaged with target populations based on shared demographic characteristics, particularly country of origin or shared language. Examples from the literature of CHW-oriented programs in the United States consistently involve CHWs, often members of the target population themselves, using their knowledge and connections within the community to affect change in health behaviors.[12–16] In the published literature these populations are often marginalized communities.[17–21] In urban areas, ethnic backgrounds

that are frequently targeted for CHW programs include Korean-Americans, Vietnamese-Americans, Hawaiian/Samoan populations, and Latinos. In rural settings, CHW programs tend to focus on Latino and Native American communities.

### *Common success factors*

CHW programs in the United States tend to share the following success factors:

- Homogeneity within the target population: With some exceptions, CHW programs target small groups of geographically and demographically similar individuals.
- Strong community ties: CHWs who are members of the target populations are more effective than outsider CHWs.
- Incentive: Lay health workers are offered social and professional incentives. Many lay health workers view their work in their community as a stepping stone to professional growth.
- Coordinated care: CHW outreach must be integrated into a larger primary care effort so that once individuals access the health system they are retained. Recording, tracking, and centrally storing patient data is a critical part of coordinating care but is often overlooked in CHW outreach.
- Training: Repeated training and skill refreshers are a critical component to maintaining an effective CHW workforce.
- Cultural competency: When CHWs are not members of the target population, promotion of a culturally competent approach is critical.

### *Common barriers to success*

- Funding: Most CHW programs rely on philanthropic funding and have challenges with sustainability. Medicaid/Medicare do not reimburse for CHW services, creating funding shortages that strain capacity.
- Professional stigma: CHWs often are not recognized as legitimate providers and can face challenges receiving professional growth opportunities.
- Too narrow focus: CHWs are often engaged only for specific services and in specific contexts, often for short-term duration. This narrow focus impedes their ability to facilitate access across a range of needs.
- Provider shortages: Particularly in rural areas, limited access of health services is often equally due to provider shortages.
- Complexity of the health care system: CHWs trained in a specific focus may have difficulty assisting clients in navigating the health system outside of their scope of expertise.

## Community health worker programs in developing countries

In developing countries, the health outcomes addressed by CHW programs are distinctly different from their wealthy-nation counterparts. Whereas CHW programs tend to focus on chronic disease in wealthy nations, developing-country CHW programs often address health issues such as hygiene promotion, breastfeeding, malaria-prevention efforts, prenatal/postnatal care, immunization, diarrhea, family planning, adherence to HIV and TB medication regimens, and child survival.

Like CHW programs in the United States, CHWs in LMI countries often fall into two categories, those who have completed at least secondary education and have an advanced accreditation (such as clinic nurses) and those who have limited education and a shorter course of training. In the former category, nurses, nurse-midwives, advanced nurse-midwives, head nurses, and doctors all provide rural care and are almost exclusively based in a centrally located health facility. Lay health workers compose the latter category and may have a month of health-related training specific to a particular health need (usually reproductive health).

## *Types of interventions*

### Community health workers and medication adherence for tuberculosis

One of the more common and well-documented uses of CHWs in developing countries is for the monitoring of medication adherence at the community level among patients undergoing treatment for TB. TB treatment requires careful administration and precise adherence to a treatment regimen to avoid drug resistance and the potential to develop the communicable resistant variety of TB, multidrug-resistant (MDR) TB. To combat this the World Health Organization (WHO) recommends that countries implement directly observed therapy (DOT) which stipulates that a health worker or community worker observes and keeps a record of each time a patient takes medication to ensure the highest possible adherence rates. In this case, a CHW travels to patients' homes to administer treatment. CHWs administering community-based DOT are often volunteers or untrained, paid community members who use simple tracking forms to observe and record patient adherence data. Community-based DOT, when implemented correctly, is highly successful, but it is a costly mechanism that is difficult to implement perfectly. For example, in one region of Peru, an 80 percent MDR TB cure rate was achieved when CHWs were hired to provide community-based DOT. However, the cost of paying health workers to travel to patients' homes, combined with the costs of drugs and supplemental food packages, was high, and the program did not continue when the nongovernmental organization (NGO) managing the program later pulled out of Peru.[22]

### Community health workers and HIV/AIDS

CHWs and peer educators (PE) have been used extensively to raise awareness about HIV and to provide linkages between communities and prevention and/or treatment and care services. In the AIDS Surveillance and Education Project in the Phillipines (1993 to 2002), community outreach and peer education was a core strategy for reaching high-risk populations with behavior change messages.[23] In partnership with a wide network of partner NGOs, teams of paid community health outreach workers and volunteer PEs were formed to conduct direct outreach with vulnerable groups, covering issues such as education, risk-reduction counseling, condom promotion and referral for sexually transmitted disease (STD) diagnosis and treatment. This program was credited with helping to increase rates of condom use and treatment rates for STDs among other outcomes, demonstrating that local NGOs could effectively reach populations at high risk for HIV. Central to this success was the strong connections of the NGOs to the target communities and the trust and bond established between the CHWs and PEs and the people they were working with. Additionally, given the wide range of needs among the target populations, partnering with a diverse array of NGOs (ranging from those specializing in child services, social action, and community organizing to local governance, community development, and reproductive health) was critical to the success of this project.

### *Target population*

Unlike their developed-nation counterparts, CHW programs in developing countries tend to operate in homogenous environments where one or two predominant ethnic identities compose the majority of the target population. The purpose of CHWs in developing countries is to extend the reach of the health system beyond the bounds set by limitations of infrastructure. For this reason, CHW programs in developing countries operate mainly in rural settings, although there are examples of urban CHW programs as well.

CHW programs can be found on every continent and possibly in every country. The CHW model of health services is particularly well developed in Cambodia, Vietnam, and most South American countries where the government health system includes CHWs. Because the CHW programs are run as part of a larger, centralized system, these countries have particularly well established information and record keeping channels, well-structured CHW job descriptions, regular training, and appropriate professional incentives. Most countries in sub-Saharan Africa also extensively use CHW programs to address access barriers, but these programs tend to be administered and implemented by NGOs and lack centralized coordination, a consistent strategy and consistent messaging, and financial sustainability.

### *Common success factors*

CHW programs in developing countries with successful outcomes tended to have the following common characteristics:

- CHWs were incentivized commensurate to the value added.
- CHWs had a supportive supervision structure.
- CHWs were trained and engaged in refresher training.
- CHWs were selected by the community or by village health committees.
- Job descriptions were clearly defined and limited in scope.
- There were strong ties between health care facilities, community-based support groups, and CHWs.
- There was involvement at all levels of the health care system for the use of CHWs.
- There was local counseling and referral for complications available as part of the CHW program.

### *Common barriers to success*

- Scope creep—job descriptions were not well defined and expectations were unrealistic.
- Stock-outs—there was insufficient supplies and irregular deliveries.
- There was a lack of sustainable funding sources.
- There was a lack of community involvement.
- There was a lack of incentives for CHWs.
- There was poor management at the NGO/CBO organizational level.
- CHWs were specialists in one area instead of developing generalized skills necessary for work.

## 2. Using technology to overcome barriers and transform community health practices

Application of mobile phones and other information technologies within the context of health promotion varies significantly between developed- and developing-country settings. In developed-country settings, particularly in North America and Europe, mobile health (mHealth) programs focus on increasing compliance in treatment of chronic conditions, promoting preventative health behaviors (particularly sexually transmitted infection [STI] education and smoking cessation), and reducing loss to follow-up. In contrast, mHealth programs in developing countries are primarily developed for and targeted to community-level health workers who use cell phones and other information technology (IT) tools to improve the reach of health services in previously hard-to-reach populations and enhance monitoring, tracking, and case detection of infectious diseases. These differing approaches to the use of mHealth are discussed in more detail below.

### mHealth in developed countries

#### *Types of interventions*

In developed countries with sophisticated IT infrastructures and a high diffusion of mobile phones in the general population, mHealth programs focus largely on patient compliance to health regimens treating chronic conditions such as diabetes, cardiac care, HIV, and asthma.[24–39] In these compliance-driven programs, text messaging is used for reminders and behavior change messaging to encourage patients to adhere to prescribed drug regimens. Similarly, text messaging is often used for encouraging health-promoting behaviors in target populations, such as with smoking cessation and weight loss.[26, 32, 37, 40] Short message service (SMS) text reminders are also commonly used to improve outpatient clinic attendance and reduce loss to follow-up.[36, 41–47] In general, adherence-focused programs where use of cell phones for reminder messaging supplements other health behavior messaging or serve as a cue to action have been successful at improving adherence to treatment regimens.[48]

More complex technologies incorporate biofeedback systems that directly monitor and report disease status.[28, 33, 34] For example, when used for monitoring exercise levels in diabetic patients, a biofeedback system reported the number of steps taken via Bluetooth to the patients' cell phones, which then automatically summarized and reported the data back to the patient and to a centralized system.[29] These systems are highly effective when properly implemented but have a higher failure rate due to device malfunction and poor patient compliance with the technology.[33]

#### *Target populations*

The majority of programs using mHealth in wealthy-country settings target patients that already access the health system regularly to manage their chronic conditions. Most of these individuals are adults under age 40, own their own cell phone, are literate, and are adding mHealth onto an existing disease management regimen. Because these programs tend to operate off of existing personal mobile phones, the majority of mHealth programs in wealthy countries tend to occur in urban areas. In select circumstances, mHealth applications have been explored for rural populations, older adults, and other marginalized populations.[35, 49–51] Findings from these population-specific interventions (versus disease-specific interventions) indicate that any mHealth programs targeting marginalized groups must be specifically tailored to those groups. For example, a study of older Italian and Greek migrants' use of information

technologies in Australia found that electronic media is not an effective mechanism for the distribution of information among this population.[52] Alternatively, an exploration of the use of cell phones among homeless men found that half of the men included in the study owned cell phones but only used them sporadically.[51] Understanding the complexities, cultural nuances, and preferred mechanisms for information dissemination among a given population is critical to the success of mHealth programs.

### *Common success factors*

Among the mHealth programs evaluated in this landscape analysis, several common factors influencing success emerged:

- User input was incorporated into technology designs early in the design process, and iterative prototypes were tested.
- Technology and software systems were integrated into users' personal phones and daily activities—no additional technology was introduced.
- Technology had been properly piloted, and device failures had been corrected prior to large-scale application.
- Populations with existing technology usage patterns similar to the desired patterns necessary for a mHealth program had more successful uptake of mHealth interventions than did those populations with limited access to IT or those populations for whom use of IT was a relatively new practice.
- All mHealth programs evaluated under this landscape analysis were centered around a common factor; either a disease-centered approach, which allowed program designers to orient the intervention around already-accessed health services or a population-centered approach, which allowed program designers to focus the intervention on specific common needs within a relatively uniform population.
- The review showed that the most successful mHealth programs required minimal additional action on the part of the patient or CHW.

### *Common barriers to success*

- In some cases, technologies were not properly vetted with users prior to program implementation, resulting in poor data quality due to misuse and device malfunction.
- There is a growing concern within the field of mHealth that programs that offer additional health benefit to users of mobile phones may be magnifying existing health disparities. The argument is that mobile phone users tend to be wealthier, more literate, and less marginalized members of society. By offering health promotion programs that target individuals already accessing health care services, mHealth may be widening the gap in positive health outcomes between the adequately served and the underserved.
- There is minimal regulation of mHealth platforms, leading to a growing body of applications that target similar outcomes and use similar processes but have different data entry platforms, user interfaces, and technical requirements. These redundancies result in duplicative data that are not compatible for large, population-based analysis.

## mHealth in developing countries

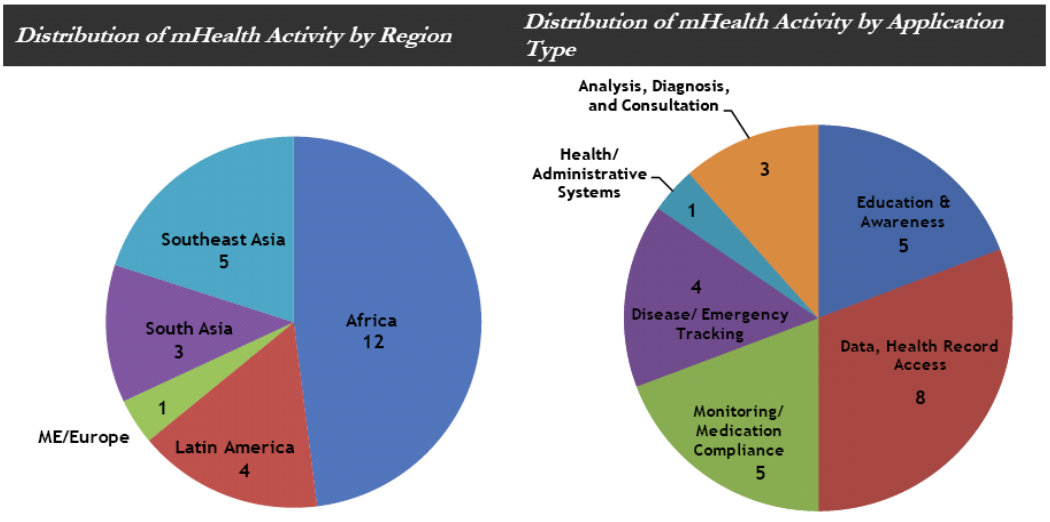
In LMI countries, mHealth programs are a very new and growing concept with a limited evidence base. A 2008 search of the websites of six major development programs with health and technology focus generated no significant references to mHealth projects.[53] While in the past two years the field has grown and mHealth is beginning to establish a foothold within the international development community, mHealth programs are in their infancy, often in pilot stages, and have yet to generate a body of evidence of proven results. The results of the landscape analysis for mHealth in developing countries rely heavily on the expertise from local organizations working in global health and the preliminary published accounts of pilot projects in developing countries.

### *Types of interventions*

In LMI countries, where IT infrastructure is not pervasive and the penetration of mobile phones into the market is not as large as in developed countries, mHealth programs are often oriented around tools for health workers as well as tools for patients. In urban areas with a broader diffusion of mobile phone ownership, patient-oriented programs mainly focus on improving and monitoring adherence to medication regimens for TB and HIV, basic behavior change communication for sexual health and HIV prevention, and sending clinic attendance reminders in a variety of settings such as antenatal care, TB treatment, HIV treatment, and standard primary care. For example, in Kenya health workers used mobile phones as a proxy for DOT. Treatment supporters (family members or friends of the patients) took videos of the patient swallowing their medications and submitted the videos for review by health professionals. Health workers were able to remotely track adherence, and patients found mobile DOT easier than clinic-based DOT.[54]

In rural areas, mHealth programs provide mobile phones to health workers for use in identifying and tracking new cases of infectious disease, improving clinical diagnostic skills while conducting outreach, and tracking patient health data, particularly reporting on adherence in DOT scenarios.[41, 53–70]

Figure 1[53]




Note: ME= Middle East

### Patient-oriented mHealth programs

Patient-oriented mHealth programs in developing countries are similar in concept to those in wealthy nations because the target populations tend to be less-marginalized, wealthier, urban, and have a higher literacy level than their rural counterparts. However, these demographics are changing as mobile technology infrastructures spread outside of urban areas. In fact, 80 percent of the world's population currently has access to mobile coverage. While this largely represents urban areas, the number of people in rural areas with lower income and lower access to health services is growing. In patient-oriented scenarios, mHealth has been most commonly used as a tool for disease education and adherence promotion, where SMS text reminders prompt patients to take their drug regimens appropriately and on time. These types of additive programs (where mHealth functions as an additional tool for behavior change, not in place of other behavior change and communication [BCC]) have shown to be feasible and effective in improving adherence in comparison to populations engaged in similar therapy regimen without the benefit of SMS text reminders.[41, 54, 59, 62, 63, 65, 71, 72]

Text reminder programs have also had success in improving patient attendance at clinic follow-up visits and encouraging testing for HIV and other STIs. These programs vary in format, with some using text to remind patients of upcoming appointments or telling them of the importance of regular testing and others using text only to follow-up with those patients who have defaulted from their regularly scheduled visits. These programs are common components of pilot projects addressing TB treatment in countries with policies stipulating exclusive DOT for TB treatment.[53, 57, 62, 63, 65, 71, 72]

### Health worker-oriented mHealth programs

In the past five years, mobile phones have been identified as a strategy for improving data collection, disease tracking, and record keeping. Each strategy entails a lengthy, paper-based process that requires health workers working in the periphery to keep detailed paper records and transport those documents to central health facilities where the data would be periodically aggregated and entered into data tracking systems. By automating this process, mHealth has sped up the response time for identifying and responding to outbreaks of infectious disease, following up with noncompliant patients who require more direct supervision, and reporting aggregated data on disease trends, patient compliance, demographic trends, and health facility resources.[53, 54, 58–61, 63, 64, 67, 68, 72]

In addition, mHealth programs have also been developed to expand the reach of educational messaging and professional coaching to health workers and to expand the reach of health services by providing health workers with tools to offer health care outside of the clinic. In these programs, mobile phones are used to push refresher messages out to health workers who have limited or no access to additional or continued education beyond their accreditation. Also, mHealth technologies are used to provide structured job aids to health workers for assessing and recording complex clinical diagnostic procedures, providing basic care, and providing information to patients. To give a composite example, a CHW who is a midwife reports village TB adherence to her district DOT program and supplies TB, antiretroviral therapy (ART), and other free drugs. She might use a mobile phone to automatically report individual patients' adherence to their prescribed TB regimens; access patient data to assess likelihood of drug resistance, coinfection, or probability of noncompliance; report births and deaths within the community; and report stock-outs of certain drugs and essential medicines.[53, 60, 65, 69, 72]

### *Target populations*

As discussed above, mHealth programs in LMI countries are divided equally among those that target patients and those that target health workers. In both cases, these populations span a range of socioeconomic strata, literacy levels, and ethnic and cultural backgrounds. Health workers included in mHealth programs may have advanced degrees and be heads of clinics. Alternatively, they may be minimally trained community-based providers with basic literacy who liaise with centrally located clinics in order to expand the reach of health services provided. Similarly, patients participating in mHealth programs may also range in literacy levels and socioeconomic status (SES), although patient-centered mHealth programs tend to be based in urban areas, where cell coverage is more reliable and mobile phones are more widely used.[53, 55, 56, 58, 59, 69]

Unlike target populations of mHealth programs in wealthy nations, developing-country programs tend to have less ethnic and cultural diversity. In general, these programs are targeting populations with shared languages, cultures, and ethnicities. Whereas mHealth program designers in developed-country settings must contend with a myriad of cultures, languages, SES, and access to health services, these population features are less varied in the developing countries where mHealth programs have been implemented.

### *Common success factors*

mHealth projects in LMI countries shared several key success factors:

- Partnerships: In order to achieve rapid scale-up, program designers and developers must work with existing institutions—usually government, universities, or established corporations—to successfully manage a growing program in a new field. Programs with the greatest success in implementation identified and engaged all stakeholders early in the program development process and incentivized stakeholders to remain involved. Collaboration with existing mHealth projects in the region is one way to streamline partnership development and enable more rapid uptake of new processes.
- Iterative user testing: Mobile phone users range from highly technically savvy to minimally technically literate. A successful mHealth application must not only accommodate varying levels of proficiency with mobile phone use, it must also accommodate the different ways cultures view, process, and record information. User testing of new (or new to user) technologies must occur early and often so that programs are not side-railed at implementation by faulty hardware, software, or user error.
- Maintain simplicity: the mHealth programs using the simplest possible hardware interface and software platform to meet the minimum necessary functionality were more successful in collecting quality, analyzable data. Programs which added additional layers of features, prompts, or data entry screens lost data quality commensurate to the complexity of the system.
- Share resources: Optimize reach and minimize management burden by piggybacking mHealth on other mobile programs. Use a network identified by a local organization's phone tree by attaching the mHealth program onto a mobile banking program or adding mHealth into another local ongoing mobile outreach program.
- User incentives: the mHealth programs that offer users incentives such as free air time, hardware upgrades, or cash incentives had higher sustained user uptake and improved outcomes.

#### *Common barriers to success*

- Confidentiality: Many to most mobile phone owners share their phone with others, usually family. Issues of confidentiality in patient-oriented BCC programs are common. For some programs, this barrier manifested as participants unwillingness to participate in the program; for other programs the issue of confidentiality became an ethical and regulatory hurdle.
- Intended recipient: Similarly, patients who share a phone with other members of the household may not immediately receive text messages or may not receive the messages at all.
- Complex user interface or input requirements: In some cases, users would be confused by the prompts to enter information into the phone; calls may time out; users would sometimes accidentally hung up the call, or incorrect codes or identification numbers were entered into an SMS or data field.
- Poor design of data collection tools.
- Cost of mobile phone use: While many programs provided reimbursement for minutes used, not all did so. The cost of owning and maintaining a mobile phone combined with the cost of use can be a barrier to use for some populations.

## 3. Generating focused campaigns around health issues

A health campaign can be generally defined as a coordinated effort to implement an activity, communication strategy, or both to target a specific health outcome. Campaigns are usually intended to last a predetermined period of time, although the length of a campaign varies from several weeks to ten years. Using targeted campaign strategies to disseminate health information and services has proven to be one of the most effective ways of achieving rapid impact on specific health outcomes.[73 –76] Campaigns are generally initiated to address systemic health barriers, such as entrenched health behaviors or limited access to peripheral populations, or may be used in order to streamline otherwise costly supply distribution systems. Health campaigns often use multiple avenues for dissemination. Communication campaigns, such as those targeting smoking cessation or HIV education, may use a combination of internet, email, television, radio, or print ads, and may use posters/banners, road signs, and mobile phones to disseminate key messages. Supply campaigns, such as vaccine or bednet efforts, may use a combination of standard health delivery mechanisms such as CHWs, clinics, hospitals, and schools or may employ a campaign-specific workforce hired for a short-term period to carry out the distribution and administration of a particular health service. Illustrative examples of focused campaigns in developed and developing countries are discussed below.

### Health campaigns in developed countries

#### *Types of interventions*

In developed-countries, health campaigns tend to focus on mass media communication strategies that target health behaviors, particularly those leading to chronic disease. These campaigns compete with commercial advertising and other mass-media messaging and often address culturally entrenched health behaviors that are difficult to modify at the individual or population level.[77] This approach, known as social marketing, has been demonstrated to be highly effective in disseminating health promotion

messaging, although reinforcement of campaign messages through individualized counseling and peer education is essential to long-term sustained behavior change.[78] Common topics for health promotion campaigns in developed countries include family planning advocacy, immunization reminders, HIV education, smoking cessation, cancer screening, and nutrition.[76, 79–84]

Because developed-country campaigns to promote health use the standard media outlets to disseminate their messages, the audience of many of these campaign materials tends to be wealthier, more educated, and less marginalized communities. Organizations seeking to design a health messaging campaign targeting marginalized communities must engage community members in dialogue regarding the appropriateness of the proposed solution and the best way to disseminate the message to the broader community. In both rural communities and marginalized urban communities, targeted communication campaigns tend to have lower impact unless paired with more individualized health communication, such as from a health provider or peer educator.[77, 85] For a health communication campaign to be effective, the message must saturate the individual's social network, establishing new peer norms around the specific behavior.[77] This approach, based on the social-ecologic framework (see Figure 2)[86] for behavior change, applies to rural areas as well as poorer urban communities, as rural communities tend to have less media saturation and tend to be more insular, leading to less trust of messaging delivered by outside sources. For example, the Massachusetts Tobacco Control Program (MTCP) has been recognized by the Centers for Disease Control and Prevention (CDC) as a highly successful smoking cessation campaign. According to Ockene, et al., it included:

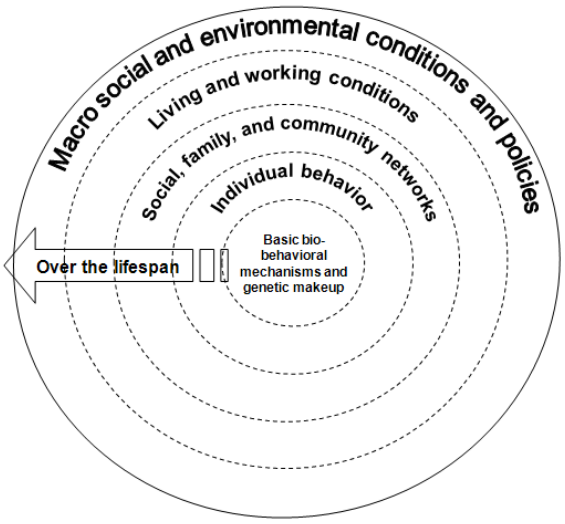



**Figure 2.** Social ecologic framework: levels of influence on behavior

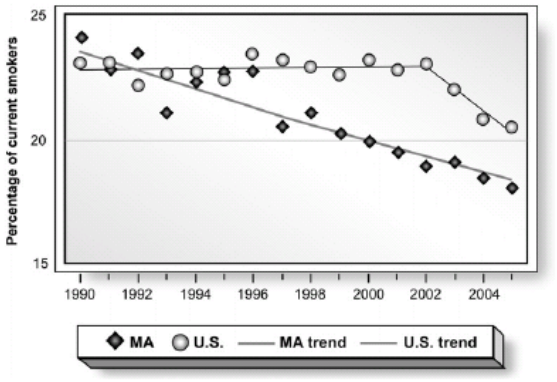



**Figure 3.** Percentage of adult current smokers, Massachusetts (MA) and U.S., 1990–2005

*(1) an innovative media campaign to change public opinion and community norms around tobacco use, (2) community mobilization to change local laws and health regulations, and (3) comprehensive tobacco treatment programs based in clinics and community settings modeled after CDC and PHS guidelines to reduce tobacco use.*[86]

The results of the MTCP demonstrated steady decline in smoking cessation rates (see Figure 3)[86] from its inception through 2004, and showed dramatic, statistically significant differences between Massachusetts cessation rates and national averages.

### *Common success factors*

- Generalized messaging: Broad-based communication campaigns reach large audiences with varying backgrounds, ethnicities, and languages. Campaigns launched in diverse communities must be broad enough to resonate with multiple cultures while specific enough to engage the target audience.
- Partnering with local leaders. Promote community ownership and openness to change by engaging CBOs and opinion leaders in the planning and implementation of a social-marketing campaign. Engage institutional partners such as community hospitals, school systems, and employers.
- Ground campaign in proven theory. Use the social-ecologic framework to ensure exposure saturation within all levels of an individual's social sphere. Disseminate messaging through multiple channels: school, worksite, health care, community.
- Ensure cultural competency. Adapt approaches to address local realities, including cultural and resource issues.

### *Common barriers to success*

- Audience diversity: To be most effective, media messages should be designed specifically for particular target audiences. This becomes more challenging the more diverse the community in which the campaign takes place.
- Sustainable funding: Even highly effective social-marketing campaigns, such as the MTCP usually have term-limited funding. Continuing to disseminate key messages at the conclusion of funding cycles requires compromise and creativity.
- Integration with policy advocacy: Total saturation at all levels of the social-ecologic framework requires designing a campaign that includes policy advocacy to sustain positive change through improvements in the enabling environment.

## Health campaigns in developing countries

### *Types of interventions*

Health campaigns in developing countries may fall into one of two categories: social-marketing campaigns designed to raise awareness about a specific health issue and health service supply campaigns during which a specific objective such as vaccination or bednet distribution is targeted and a high level of resources is invested in achieving short-term objectives.

#### Social marketing

Social marketing is a relatively new phenomenon within global health and faces distinctly different challenges from social marketing in developed nations. Social-marketing campaigns in developing countries tend to focus on HIV/AIDS, maternal and child health, malaria prevention and control, and reproductive health (see Figure 4).[79, 87 –92] They have been demonstrated to be effective at initiating behavior change and have also been shown to be acceptably low-cost mechanisms for health promotion.[92]

Unlike health-communication campaigns in the United States and other developed countries, social marketing in the developing world is often perceived as a mechanism for selling a specific product or class of products, rather than promoting a specific behavior.[92] Whereas developed-nation social-marketing applies marketing strategies to promote health behaviors among individuals and communities, in developing countries the end recipient of the communication campaign is viewed as a consumer, and most social marketing strategies are designed to appeal to consumers' aspirations within their financial constraints.


**Figure 4.** Social marketing cost per disability-adjusted life-year (DALY)

However, in spite of the perception of social marketing as an exclusively consumer-focused endeavor, health-communication campaigns similar to those in the United States and other developed nations, which use social marketing to sell ideas rather than products, are prevalent. These campaigns, particularly in the area of HIV education, employ social-marketing principles to appeal to individuals' aspirations outside of a market-based context. One particularly innovative strategy growing in popularity is health communication through entertainment, sometimes called "edutainment." Common media used for health communication through entertainment include magnet theater, radio soap operas, and television segments. For example, in Nicaragua, PATH's Entre Amigas Project worked with girls, parents, teachers, and the ministry of health to develop a peer education program addressing girls' reproductive health issues. Findings from this work then helped inform a partner organization, Puntos de Encuentro, as they developed a character sketch of a 13-year-old girl and her family and friends for introduction into the popular television soap opera *Sexto Sentido.* The series explores girls' negotiation skills, myths associated with adolescent body changes and virginity, and relationships. It also focuses on parents who build confidence and respect and guide the girls in managing reproductive health risks.[93]

### Health service campaigns

Campaigns that disseminate specific health interventions through vertically organized programs are a common mechanism for health service delivery in developing countries. Immunization campaigns are the most ubiquitous form of health service campaign, although campaigns for insecticide-treated bed net (ITN) distribution and vitamin A supplementation are also common.[87, 88, 91, 94 –98] These campaigns use dedicated staff, supplies, and delivery systems to achieve high breadth of coverage over a short period of time. The near eradication of polio through twenty years of concentrated, globally organized, polio immunization campaigns, combined with routine immunization, is an excellent example of the successful implementation of a campaign strategy. In 20 years there has been a 99 percent reduction in polio cases, and a resurgence of the disease in West Africa is currently being addressed by a synchronized, multi-country polio vaccination campaigns organized by WHO and implemented by country immunization programs. Through this multi-country campaign, more than 77 million children will be vaccinated in 16 countries.[99, 100]

### *Common success factors*

#### Social marketing

- Understand the audience: Researching the target audience and obtaining community input through piloting target messages will help ensure messaging is tailored and appropriate to the intended audiences.
- Brand positive behaviors:Using marketing strategies such as branding to conceptualize positive choices in an easily identifiable and appealing characterization will help the target audience retain messaging and encourage aspiration to emulate the branded image.
- Saturate the network: Use of multiple channels (such as radio, texting, Internet, television, and printed messaging in public spaces) will increase exposure.
- Identify sustainable funding: Identifying creative mechanisms or durable media (printed posters, giveaways) to ensure messaging continues even after funding for the campaign has ceased.

#### Service provision campaigns

- Partner commitment: Campaigns in developing countries are usually a multi-sectoral effort, with national ministries, international NGOs, and United Nations agencies providing different elements necessary for a successful campaign. Ensuring that all partners are committed to the endeavor and feel that the various institutions individual needs are met is essential to a successful campaign.
- Effective coordination: Because campaigns bring multiple parties together to implement large-scale interventions, a centralized coordinator with the appropriate decision-making authority is essential to mobilize resources and oversee campaign implementation.

### *Common barriers to success*

#### Social marketing campaigns

- Limited capacity and knowledge base within the social-marketing sphere. Developing countries lack the human resources to design, implement, and evaluate social marketing interventions.

#### Service provision campaigns

- Limited infrastructure for transporting supplies and health workers to peripheral communities.

## 4. Mobilizing and empowering community-based organizations

A CBO is defined as any service organization that provides social services at the local level. CBOs may serve urban neighborhoods, rural townships or counties, and population segments defined by a particular commonality, usually an ethnic identity, shared health status, or location-specific cause. CBOs are engaged in a myriad of health promotion activities both in developed and developing nations, and urban and rural settings. These organizations serve as coordinating bodies for community-based research, communication outlets in marginalized and hard-to-reach populations, points of contact for service provision, and local advocates and on-the-ground implementers for larger health promotion programs. Although CBOs are often engaged in rural and urban settings in developed countries, in developing countries CBOs are involved in promoting health primarily in rural areas. However, as urban planning

becomes a new focus of development efforts, more CBOs are becoming involved in urban projects in developing countries.

## Community-based organizations in developed countries

CBOs in developed countries have varying structures, funding sources, and missions. Not all CBOs are not for profit, many are faith-based organizations, some are funded by government grants, some profit through the provision of services at accessible rates, and some are privately funded charitable organizations.[101–105] A CBO may also be a network of community opinion leaders or a coalition of community stakeholders. In general, CBOs in developed countries tend to lack the capacity to implement large-scale interventions, for example, an intervention targeting more than one demographic in an urban area.[105] For this reason CBOs are often engaged in larger, multi-organization partnerships and provide ground-level needs assessment and program implementation services as part of a larger initiative. Generally, these partnerships are not unilateral—the smaller CBOs will receive restricted funding administered by a larger institution, often a University or a larger state-run program.[106]

### *Types of interventions*

In the United States, CBOs directly involved in health promotion are usually community health centers or multi-service agency hubs that bring together CHWs and other community agents and services. These community health centers are often established to focus on addressing the needs of individuals with specific health topics, such as asthma, diabetes management, heart disease, cancer care coordination, HIV/AIDs prevention and counseling, oral health, built environment, and smoking cessation.[3, 7, 107–123] When not established to serve a community with a specific disease status, community health centers may be serving a community defined by particular demographic characteristics.[6, 105, 106, 111, 122, 124–126] In addition, CBOs can have health impact through indirect measures such as economic development at the community level.

#### CBOs targeting specific health outcomes

CBOs may address specific health topics instead of serving larger communities with a network of services. Examples of the types of health topics addressed are vast and include HIV testing and counseling, substance abuse testing and treatment, cancer awareness and support, violence prevention, pregnancy prevention and reproductive health, diabetes and diet/exercise, and oral health awareness.[108, 109, 116, 117, 127, 128] These organizations track health outcomes in their areas and tend to follow more rigorous research practices for evaluating results of their programs due to their use of more quantitative approaches.

#### CBOs serving communities defined by shared background

CBOs with mandates specific to the needs of a specific population provide assistance in accessing and navigating the complex system of social services intended to help under-served populations. Similar to CHWs, these organizations are usually founded and staffed by members of the target group who share the language and sociocultural perspective of the group.[125] These organizations address health needs through a variety of direct and indirect methods, including:

- Assigning patient advocates to assist with navigating confusing medical systems.[6]
- Disseminating health promotion communication materials tailored to the unique needs of the community.[121]
- Developing youth programs that address issues of reproductive health, teen pregnancy, and youth violence.[114, 116, 120, 126]
- Engaging outside services to meet a specific limited need such as mobile vans for oral health.[112]

### CBOs and developing the built environment

The link between the built environment and community health has been a growing focus of public health dialogue; the evidence mounts demonstrating that sidewalks, parks, public transportation and safe spaces contribute to higher levels of physical activity and social cohesion within a community.[107, 109–111] CBOs have identified ways to leverage this trend and are engaging with larger research institutions in built environment improvement projects. Some of the more commonly built environment improvement projects include community vegetable gardens, installed or improved sidewalks, increased access to mass transit, and improved parks and public spaces.[107, 109, 110, 113, 129] For example, the Active Living by Design Projects in Seattle and Portland combined policy-level advocacy for increased funding and commitments to reduce key built environment barriers in the cities, particularly in low-income neighborhoods with traditionally poor use of and access to built environment amenities. Institutional-level partners worked with CBOs who provided the community-level mobilization and communication strategies in conjunction with the improvements initiated by the city and state agencies. These activities resulted in a host of built environment improvements that lend themselves to improved health, including new and increased access to parks and trails, improvements to sidewalks, and affordable housing.

### *Target populations*

CBOs that offer health-related services generally fall into two categories, those that serve individuals with a common health outcome, and those that serve individuals with a shared demographic, such as a Latino services center. These organizations tend to serve poorer, marginalized communities, although some exceptions, such as cancer support groups, serve more heterogeneous client bases. CBOs with health-related mandates are more commonly located in urban areas where diverse groups of stakeholders will have greater proximity to services offered. Common types of CBOs in this category include HIV/AIDS service centers that provide testing, counseling, and support groups; cancer resource centers; reproductive health and family planning centers; drug treatment and support centers; and mobile dental units.[7, 108, 116–118, 120, 122, 123] CBOs that serve populations with shared sociocultural backgrounds are found in both urban and rural areas, and tend to be located in communities with high concentrations of recent immigrants with limited language skills. Although CBOs serving Latinos are most prominent in the US literature, there is a wealth of organizations serving immigrant and shared-ethnicity populations.

### *Common success factors*

- Vested interest: Health-improvement projects initiated by the CBOs or the community members are more likely to have successful outcomes than those initiated by academic or public institutions. Engaging opinion leaders and other community members to support and promote the work of the organization encourages broader community involvement, and operational longevity.
- Networks of services: CBOs targeting demographically specific populations are most successful in improving health outcomes when they offer a network of services to address the multifaceted nature of health determents. Social services such as nutrition counseling, food provision programs, financial assistance case management, and financial and job counseling are equally important to improving the health outcomes of a community as health-related services.
- Cultural competency: CBOs are most effective when they frame their objectives and activities around the dominant health belief and social expectations of the groups within which they are working.
- Interorganizational collaboration: Because CBOs tend to be small organizations with focused mandates, those who collaborate with other CBOs or larger institutional partners have more success in approaching health improvement from multiple angles.

### *Common barriers to success*

- Capacity: Individual CBOs are good at identifying needs and designing interventions to meet needs but lack the capacity to expand beyond small-scale project implementation. Partnership with academic or public institutions is a logical resolution to this barrier.
- Funding: CBOs and Community Based Participatory Research (CBPR) partnerships continue to have difficulty identifying funding for sustainable projects. The purpose and methods of CBPR fall outside of traditional research approaches and therefore often do not qualify for traditional health research grants, and CBOs have difficulty meeting the complex institutional requirements of many grant agencies.
- Rigorous research: Because CBOs focus on actionable improvements to community health and welfare over demonstrating links between interventions and health outcomes, any evaluation research that is conducted is usually cross-sectional and descriptive in nature. Controlled studies measuring defined outcomes are less frequent.
- Scope: CBOs seeking overall improvements in health caused by a network of barriers find they must become experts in everything from environmental health, to nutrition, to infectious disease. Small organizations do not have the capacity to engage experts in each field.

## Community-based organizations in developing countries

In LMI countries, CBOs provide services that under-funded government health clinics cannot, such as primary care, nutritional programs, reproductive health programs, medication distribution and adherence, and HIV counseling and testing services.[19, 130 –133] CBOs are often invisible to the formal social services structure due to weak administrative structure and poor communication between NGOs and the government, but they can be numerous and highly effective mechanisms for engaging broader

populations.[134] For example, in one district of Kenya, a survey of CBOs conducted through snowball sampling identified 569 groups with a ratio of one CBO member to eleven people in the community.[134]

CBOs tend to fall into two categories in developing countries: community-founded coalitions and advisory boards, and NGO-sponsored service providers. The former are often informal and usually unpaid and unfunded leadership counsels of village elders and community opinion leaders or support groups formed of community members with shared interests, such as a women's group. The purpose of these community-owned CBOs is to provide overall community leadership and decision-making. The latter, while staffed and run by local individuals—who are themselves usually community members—are affiliated and often entirely funded by larger NGOs or NGO partnerships. This creates issues of dependency and sustainability of the CBOs as NGO activities ebb and flow in their areas, and many CBOs are formed as relatively short-lived band-aid solutions used by NGOs to execute on a broader development agenda.[131, 135]

A third type of CBO is the community-based financial support group. These groups of community members are usually facilitated by outside institutions, usually NGOs, but community members have direct ownership over operations through their participation in pooled assets funds—also known as emergency loan funds or community-based insurance. The format and outcomes of this type of CBO is discussed further in the section on health and economic development.

### *Types of interventions*

CBOs in developing countries are usually the implementation arm of a larger multi-organization program targeting a specific health outcome or a set of outcomes for a specific group. Often CBOs are the organizing body for CHWs recruited to provide specific health services to the community. These include TB therapy, family planning services, and maternal and child health.[131, 133, 136 –141] In addition, CBOs may use community mobilization to guide improvements in infrastructure through small-scale projects such as building latrines, establishing a waste collection system, job creation, or worker advocacy. Finally, CBOs may serve an administrative capacity for the community, as with community-based health insurance.

#### Tuberculosis directly observed therapy

CBOs are often targeted as resources for programs identifying and training lay health workers who provide observation as part of DOT in the community. DOT has been demonstrated as a highly successful tool in reducing the incidence of MDR TB, but it requires a strong community presence and a robust administrative system for tracking and reporting adherence through the community health center system.[133, 142] Often governments and NGOs seeking new lay health providers will work with CBOs—such as village counsels, groups of elders, or other less formal organizations—to identify candidates for lay health worker training and to manage those individuals once they are trained.[133, 142]

#### Maternal and child health

CBOs focusing on maternal and child health outcomes dominate health literature. In many cases, these local organizations offer education and assistance for mothers and pregnant women to provide information on proper nutrition, distribute supplemented food (as part of larger supplementation projects), and encourage prenatal screening and delivery in a clinic or hospital.[18, 132, 139, 143] For example, the Mother and Infant Research Activities (MIRA) Project in Nepal worked with women's groups to link women with prenatal and maternal care. Women in the intervention group of this study showed significant

increases in health-seeking behaviors, including prenatal visits and institutional births, and experienced a 78 percent decrease in maternal mortality and a 30 percent decrease in neonatal mortality.[132] In another example PATH implemented a Cervical Cancer Prevention Project in Western Kenya, working in partnership with the Ministry of Health, a local group called Maendeleo ya Wanawake Organization, and the Kenya Cancer Association. In addition to improving clinical services, this project used a community mobilization strategy, partnering with women's groups and volunteers linked to health centers to encourage women to seek screening services and complete their follow-up care. The project successfully screened over 2,400 women with successful treatment and/or referral provided for precancerous lesions.[144]

In addition to mobilizing and empowering CBOs to improve health outcomes, numerous projects have demonstrated that it is feasible to work directly with peer educators to mobilize and empower target communities as part of broader health interventions. In the area of adolescent health, a partnership of NGOs worked with government ministries in Western Kenya to encourage discussions of reproductive health among youth and parents, prevent transmission of HIV, and delay onset of sexual debut. In addition to curriculum development for use in primary and secondary schools and development of youth-friendly services, government staff mobilized civic and religious leaders as well as peer educators drawn from out-of-school youth to gain support for community-wide discussions and education concerning adolescent reproductive and sexual health. The results demonstrated that by providing crucial reproductive health information to adolescents in schools and in the community and linking them to health services, there was a marked improvement in STIs, HIV, and pregnancy prevention and in communication with parents and other adults.[145]

In another example, a project to improve newborn health in East and West Java was developed in partnership with PATH, the Indonesian Ministry of Health, local NGOs, the United States Agency for International Development (USAID), and local USAID cooperating partners. The project used an integrated strategy of building the capacity of midwives, empowering families and communities, and strengthening district health offices to reach project goals. This integrated approach yielded important results for newborn health. In the first year, outcomes included a 17 percent increase in the number of newborns receiving a first neonatal visit within 7 days of birth, and a 26 percent increase in the number of newborns receiving a birth dose of hepatitis B vaccine.

To empower families and communities to participate in the health system and maintain healthy behaviors, the following strategies were used:[146]

- Training and supporting specialized community facilitators in selected villages: Facilitators were training in key newborn health topics as well as in mobilizing and facilitating community dialogue. Using this participatory approach, villages developed their own methods for announcing pregnancies and births and triggering home visits by midwives.
- Working with existing governmental agencies/NGOs within reach of villages: To reach the expansive target population, the project worked through existing networks, alliances, and organizations, including both secular and religious, to have key messages about newborn health incorporated into ongoing outreach, promotion, and events.

- Reinforcing project messages through media: They used radio spots, talk shows, and posters to promote target health messages, such as on the importance of breastfeeding, and developed videos with discussion guides for use within all participating villages and partner organizations. Partner organizations also developed their own materials, tying the ASUH messages to their own topics and mandates. Each of these media vehicles was designed to increase interpersonal communication around the core ASUH topics and messages.
- **Using a positive deviance approach to improve community behavior:** They used this community-based approach for identifying and emulating positive health behaviors to address problems of malnutrition seen in specific communities. They did this by ascertaining the unique behaviors in families with well-nourished children and worked in group educational sessions with families to find ways to adopt the positive strategies.

### Infrastructure development and job creation

CBOs focusing on developing safe sanitation solutions, income-generating projects, and worker advocacy are usually less formal organizations of community leaders and opinion leaders. They are generally volunteers who donate their time and skills and work in tandem with larger NGO or government institutions. These CBOs are usually tasked with general welfare concerns of their community and work to address specific problems identified either through informal needs assessments or directly by the community. Often they will bring the community's needs to the attention of an NGO seeking implementation partners for specific institutional objectives and will work within the program's mandate to address their community's priorities. For example, Practical Action, a US-based NGO, established relationships with several CBOs in Faridpur, Bangladesh, in order to identify sanitation solutions appropriate to the communities. In response, the CBOs identified waste management infrastructure as an additional community priority and worked with community members to identify appropriate solutions, procure the materials for installing latrines, and establish a system for waste collection and waste management. The CBOs benefited from this partnership because while providing a set of needed services identified by the NGO, it simultaneously created jobs from the provision of these services.[130]

### *Target populations*

CBOs are established to represent and serve the interests of the communities in which they reside and to give voice in particular to marginalized groups within that community. For this reason, most women-directed programs—such as maternal and child health, nutrition education, and pre- and post-natal care programs—are implemented through CBOs.[138, 139, 147] Generally CBOs provide representation, advocacy, and education to community members who are less literate, poor, and in poorer health than others within their community.

***Common success factors***

- Conduct a needs assessment: Programs involving CBOs were most successful at achieving their targeted outcomes when those outcomes were first determined and described through a community-level needs assessment carried out in partnership with the CBOs.
- Sustainability is not always tied to funding: Highly successful interventions used foundation-building strategies to establish peer-based capacity-building efforts for continuing the given program. These include peer training and supervision, management strategies, and reference materials, which outlast the funding of the project and contribute to sustained impact.[148]
- CBOs should be the overall manager of services provided, not partnering NGOs: For example, in the Bangladesh example above, Practical Action provided resources to CBOs, but the members of the CBOs themselves conducted informal needs assessments, managed project implementation, and sustained ongoing income generation beyond the scope of the project.130

***Common barriers to success***

- Abrupt influxes of funding: Governments and NGOs can produce organizational failures as CBOs compete against each other for access to resources. Those organizations that try to remain true to an antipolitical grassroots philosophy will lose resources to their more well-connected competitors who are willing to bend to the agenda of the larger funding institutions.
- CBOs have limited capacity for institutional growth and expanded service delivery: Often these organizations can focus on only one program at a time to the detriment of other needed services.

## 5. Linking health with local economic development

The link between improved health and increased individual income is well established. Even when other socioeconomic factors are controlled, research has demonstrated a clear association between incremental increases in income and improved health status.[149, 150] In developed nations, the association of income on self-rated health is well documented across almost every health outcome from chronic diseases such as depression, heart disease, cancer, and diabetes to acute illness and injury.[151–153] In developing countries, income is most frequently associated with child health outcomes, particularly nutrition. In addition to evidence of the association between income and health at the individual level, there is significant evidence that improved community health contributes to community-level economic development, although the impact of economic development at the community level on the overall health of that community's members has a smaller evidence base.[154–156]

There are several mediators to the link between health and economic development, the most prominent of which is education. The link between formal educational achievement and quality of health is well established in both developed and developing countries, in spite of the widely different health outcomes associated with lower levels of education between the two contexts.[157]

### Health and economic development in developed countries

In the United States and other developed nations, individual wealth has been proven to be directly linked to health outcomes, with poorer individuals suffering poorer health outcomes. Individuals who are not insured or are underinsured are at significantly greater risk of adverse health outcomes, even when free health services are available. For example, people without insurance have a tendency to delay seeking

treatment for illness, compounding health problems and resulting in higher emergency medical costs.[158] Individuals without insurance are also less likely to seek preventive, prenatal, and maintenance care, also compounding health problems later on. However, while the link between wealth directly impacts an individual's ability to access health services and achieve good health, this barrier is compounded by the more subtle connection between wealth and the macro-level social determinants of health that enable an individual to engage in healthy lifestyle choices.

In addition, in the United States, income inequality, independent of wealth, has been demonstrated to be a key indicator of quality of health. In a 2004 multilevel analysis of census data, Lopez demonstrated that when controlling for a host of effect modifiers, including household income, there is a negative association between the Gini index (a measure of disparity whereby the higher the score, the greater the disparity) and self-reported health. Specifically, for every one-point increase in the Gini index, there is a 4 percent increase in the risk of self-reported fair or poor health.[159]

### *Types of interventions*

Unlike in developing countries where health outcomes can be targeted with specific interventions, the strategies for tackling disparities in social determinants of health in the developed world are policy oriented. In a review of approaches for reducing health disparities in European countries, Mackenbach, et al. identify several overarching strategies to combat social determinants of health, including policy changes that encourage availability and affordability of fresh fruits and vegetables, employment laws to protect vulnerable groups from hiring exclusion, and mandatory occupational health services incorporated into employer packages.[160] In addition, community wealth-related indicators such as healthy and safe housing, built environment, and crime rates have all been linked with health outcomes.[161]

In the 1990s, the idea of community economic development (CED) emerged as a strategy for health promotion to target some of these community-level health indicators. Advocacy lawyers worked with CBOs to establish initiatives to improve access to job training, increase presence of healthful business (such as produce markets and pharmacies), and lobby for improved living-wage ordinances.[162] The tenets of CED were that jobs, fair hiring practices, a living wage, and access to healthy foods and health services would improve overall community health. Conversely, the one-off approach of targeting these indicators on a single-community basis was inefficient and lacked the coordinated approach needed to address community-level disparity and structural factors affecting health outcomes.[162] Research in the first decade of the 21st century has emphasized the importance and effectiveness of policy-level action on community-level and individual health.

### *Target populations*

CED efforts have largely targeted urban low-income communities, although CED has also been introduced in rural areas, particularly Native American communities. Generally CED neighborhoods have more pronounced diversity than their more affluent counterparts, have lower social capital, and include groups of recent immigrants. Communities that are engaged in CED often have a history of social marginalization, have limited access to municipal or regional services such as public transit, and have a significantly lower average education level than the average for that area.

## Health and economic development in developing countries

In developing countries, financial constraints consistently force families to choose among daily essentials, leaving no financial resiliency in the face of setbacks such as unemployment or illness. Whereas in the developed world income insecurity and inequality is linked with a host of chronic illnesses, in LMI countries poverty is linked with more acute health outcomes, such as long-term or permanent disability, poor adherence to medications, and growth stunting and malnourished children and infants.[136, 137, 163 –166] There is evidence that economic security can directly benefit an individual's or family's health, and in turn good health will boost a family's income and economic security. The ability to protect oneself from health threats and the ability to maintain financial stability are cyclically linked.[167]

### *Types of interventions*

Economic development targeted at improving health outcomes in developing countries is most often seen in microfinance, cash-transfer, vouchers, community based health insurance, and job creation strategies. While most of these strategies are organized and managed by external NGOs, CBOs frequently carry out the day-to-day management and implementation of these strategies. These locally run organizations offer varying mechanisms for community members to access financial resources in order to ensure sufficient financial stability to meet their families' basic nutritional, housing, education, and health care needs.

#### Microfinance and health outcomes

In the past decade, microfinance has grown into an established mechanism for reaching international development goals, particularly in health. Microfinance is based on the principle of lending small amounts of start-up capital to small-business entrepreneurs in developing countries at very low to (usually) no interest. Micro-loans usually range in size from $100 to $500 but can be much larger. Microfinance enables people without the capital reserves an opportunity to create income-generating work for themselves and sometimes for a small group of employees.[166, 168] Microfinance offers long-term, broad-reaching solutions that, when managed well, can achieve sustainability by being self-perpetuating and free of donor support.

Access to sustained income enables poor families to invest in education, health services, improved living conditions, and emergency funds which allows them to avoid vulnerability during times of crisis or illness. It has been particularly successful as a mechanism for direct investment in women and girls which has translated into improved wealth equity and subsequent health improvements for families. [166, 168]

In addition to providing indirect health benefits through income generation, microfinance has been used as a mechanism for providing health services and disseminating health messages. For example, in Nicaragua a partnership of NGOs is working to integrate an already successful model of primary health care for low-income women with microfinance services, enabling women to access financial and health services in one location, and reaching women with multiple messages at their point of contact.[169]

#### Vouchers and conditional cash transfers for access to health services

Vouchers and conditional cash transfers (CCTs) are intended to override financial barriers to accessing health services by providing coupons that can be exchanged for or monetary incentive (cash) for use of those services. Vouchers provide direct coupons for service provision where services are not free while CCTs are a mechanism for encouraging health care-seeking behavior in settings where health services are free but other barriers exist to accessing those services. Both have been used successfully to increase

access to health services in numerous settings, although they are usually most successful in countries with stronger administrative structures in place.[170] For example, in Honduras, a CCT scheme was introduced in a randomized controlled trial to encourage women to seek prenatal care. Intervention households who received CCTs had 18 to 20 percent higher rates of seeking prenatal care than control households.[132] Critics of CCT schemes note that while the financial incentive may increase immediate health-seeking behavior, it may also create "perverse incentives" whereby the financial incentive is great enough to alter related behaviors. For example, Bangladesh has two competing CCT programs, one a family planning initiative in which men or women are compensated for sterilization, the other a safe-labor initiative in which families are compensated for having their delivery in a health clinic. Because the safe-labor CCT offers a much higher compensation, health workers affiliated with the programs worry that the discrepancy may be creating a perverse incentive to have more children.[170] In addition, because men are often the financial decision-makers, women receiving cash transfer incentives for seeking prenatal and maternal care often do not experience any direct financial gain for reinvestment in their own and their family's health.[170]

### Job-creation strategies

Economic development initiatives often focus on income-generating programs that also provide needed health or social services to a community. While microfinance is one example of this approach, the more direct approach of an up-front donor-funded investment in a job-creation program can be an equally sustainable mechanism for enabling communities to build on existing resources in order to create income and services for the larger community. For example, in another program in Bangladesh, an environmental health improvement project partnered with a CBO to offer financial resources to an urban slum community for sanitation infrastructure improvements.[167] The community members chose to use the funds to invest in road paving, domestic waste collection, sanitation, and community latrine blocks and with the help of the CBO established a system of waste collection that resulted in job creation and income generation for the waste collectors.[167]

### Community-based health insurance

Community-based health insurance schemes have been used to bolster financial security within communities and have been shown to increase health-seeking behaviors over the short term.[132] However, these strategies are prone to fluctuations in membership and are often the first expense a family will sacrifice when forced to make financial trade-offs. Community-based health insurance has had greater success in situations where it is integrated into national health-financing strategies, such as in the Gambia, Senegal, and Rwanda. For example, in Rwanda, a community-based health insurance structure was established by the government, but local CBOs were responsible for local administration.

### Macro-level political support

Without pro-poor policies at the government level, one-off economic development opportunities for communities will not achieve sustainable success. Governments must recognize the link between financial security, population health, and national expenditures on health care and must develop integrated policies that target both economic development and health promotion, particularly among the poor and informal labor sectors. For example, in Durban, South Africa, the local government, recognizing that the informal labor sector is a large component of the city's economic landscape, developed an economic development initiative targeting informal laborers such as street vendors with social and

economic opportunities. The initiative recognizes the trickle-down impact of macro-level trade policies on the informal sector and is committed to inclusion of pro-poor policies.[167]

***Common success factors***

- Strong administrative systems: In order to enable implementation of a vouchers or CCT program, or to administer micro-credit to individuals, a strong administrative structure is necessary to track financial transactions, usage, and contributions.
- Strong partnerships with community and local implementing organizations: In order to successfully introduce income-generating programs it is critical to understand the needs of the community and any unseen barriers. Partnering with CBOs and eliciting feedback from community members ensures that financial incentives and income-generating projects will reach their intended beneficiaries and achieve the desired outcomes.

***Common barriers to success***

- Local governments: many are heterogeneous institutions with multitudes of departments that impact economic development and health. They may have pro-poor policies in one department but not in another, dampening the overall effect on communities' well-being.
- Economic development separate from health: Economic development should not be seen as a separate issue from health. In most local governments social and economic initiatives are institutionally separate and often delivered by difference agencies. This creates inefficiencies in services offered, which not only is costly to the local government implementing the services, but has a high opportunity cost for the individuals receiving the services.[167]

## 6. Linking primary health care with public health services

In many LMI countries, providing primary health services is the responsibility of the National Health Department. Clinics from the national level down to the local level are administered by the Health Department and as a result there is no separation between "primary" and "public" health services. In comparison, a concerted effort is often made in the United States to divide up the responsibility for different types of care delivery. For example, it is considered to be consistent with national policy to have public health centers eliminate services that could be handled by primary care providers so as to focus their attention on population-based health. This can be seen, for example, in the push to transfer the responsibility for purchasing and administering childhood vaccines to private providers.[171]

### Integrating public health and primary care services in developed countries

Despite this historic separation of public health and primary care in the United States, there is a growing recognition that better health outcomes could be achieved through better coordination and collaboration between primary care and public health. This is particularly true due to the increased risk of infectious diseases like severe acute respiratory syndrome, bird flu, and H1N1 and the role that primary health providers are called on to play in fighting and treating these diseases. In fact, in 2003 WHO at a meeting on strategic directions for primary care stated that, "the emphasis placed on community participation and intersectoral collaboration is especially appropriate now when so many health issues cannot be effectively be addressed by health systems working in isolation."[172]

While the separation of public health and primary care is the norm in the United States, there are both old and new models that point to possibilities for integration. Community-Oriented Primary Care (COPC), a model of health service development that integrates public health and primary care so as to deliver prioritized services to a defined population, has a long history in the United States. In addition, a recent surge of "multi-service centers" that integrate health with a full range of community support services provides insight to how integration can work in the United States.

### *A brief history of Community-Oriented Primary Care*

COPC has its roots in South Africa where Sidney and Emily Clark developed a model to transform poor, rural Zulu communities by integrating primary and public health approaches within the specific contexts of individual communities. By working to address social, economic, and environmental problems in their communities and by investing in the skills and strengths of community members, Pholela was able to have a long-lasting impact on the lives of those involved. Through their work at the Pholela Center they developed the core goals of COPC: epidemiological assessment of demographically defined communities, prioritization, planned interventions, and evaluation.[173]

Using the lessons learned from Pholela, Tufts University proposed the community health center model to the Office for Economic Opportunity around 1970. The Tufts-Delta Health Center explicitly sought to interweave health with economic development, social change, and community development. The center was designed to serve a specific community—about 14,000 mostly African American residents in Northern Bolivar County in the Mississippi Delta. The center became heavily involved in supporting the community and developing programs to address not only health, but related issues like housing, water supply, and other public health approaches. One major success they achieved outside of the traditional health sphere was in mobilizing the community to take on a racist banking system and advocate for the opening of a bank branch that would serve the community and employ its residents.[174]

There are now over 4,000 federally funded community health centers (including HealthPoint), serving over 15 million people in all 50 states. These centers are unique in that at least half of their board must be patients at the community health center, and integration of health care services is a major focus with clinics focusing explicitly on addressing location-specific health care needs.[175]

### *Types of interventions*

While there are many clinics practicing COPC, the level of integration of services varies dramatically. In some cases services remain firmly in the domain of medical care while in others expansive partnerships have been formed with the goal of connecting clients to a wide range of medical and social services. Often times these partnerships are formed between several organizations that operate out of different facilities, although there is a growing trend to try to provide clients with "one stop shopping" through the creation of "multiservice centers" that consolidate services under one roof.

These interventions are very place specific and focus on collaborating across the local landscape of available services. Programs make an effort to create broad partnerships that will respond to a wide range of needs in the target population. Interventions often include a combination of several (although rarely all) of the following:

- *Holistic medical treatment:* primary, dental, mental, behavioral, and alternative medical care, and more.
- *Public health:* education and support services around diabetes, nutrition, HIV, parenting, domestic violence, food security (food pantries), and more.
- *Community empowerment and training:* adult education and training (English as a second language [ESL], General Equivalency Diploma [GED]), computer literacy, financial skills, recreation and fitness, civic engagement, and more.
- *Services for the homeless:* housing, mental health, financial and substance abuse counseling, food pantries, job training, and more.

Through both expanding the range of services available within the health care center and by forming creative partnerships, projects seek to address the full range of issues that can impact the health of the individual, the family, and the larger community.

### *Target populations*

Both COPC practices and multiservice centers tend to target a specific geographic area. For example, the Cambridge Health Alliance is, "an academic public health care system and integrated delivery network that serves seven major communities with large low-income, immigrant populations north of Boston, MA."[176] Approximately two-thirds of community health center patients are minorities, and in 2003, 69 percent of patients lived at or below 100 percent of the poverty line, and 90 percent lived at or below 200 percent of the poverty line.[175]

### *Common success factors*

- Combine clinical approaches with community involvement.
- Take the time to educate staff about the resources—they need to understand them deeply in terms of availability, accessibility, and value. It is important to be able to fully explain why the referral is being made and what the patient should expect.
- Employ intermediaries or "boundary spanners"—people with a foot in both worlds so that they can overcome barriers due to the lack of existing infrastructures.
- Motivate people along the way—making the connection to a resource is not enough; clients need support to ensure that they follow through on their intended actions.

### *Common barriers to success*

- Lack of reliable reimbursement and thus a dependence on external funding sources.
- Difficulty of incorporating COPC training into traditional medical school and residency structure.
- Lack of understanding of the basic concepts of COPC, which makes it hard to teach.
- Cost and time required for COPC activities.
- Lack of resources.
- Appropriate training and the time required to build capacity for behavioral counseling and follow-up care (assessing risk, making referrals, maintaining knowledge about area resources).

## Integrating public health and primary care services in developing countries

In developing countries, where access to primary care is severely limited by cost, human resources, and infrastructure barriers, outcome-oriented public health priorities are often the foundation for other health services offered. In many circumstances the only holistic health care an individual, particularly a child, will receive occurs at the time that he or she accesses a particular health service, such as HIV testing, family planning counseling, or immunization. As a result, health program planners in developing countries recognize and make attempts to optimize the brief and infrequent encounters individuals have with health professionals by integrating critical primary care components into outcome-specific health care.

### *Types of interventions*

One of the most common examples of integration of outcome-specific services is the effort to combine child survival interventions with immunization. This endeavor was designed to piggyback child health on the robust distribution system and human resource structure of the Expanded Program on Immunization (EPI) in order to improve the depth and breadth of coverage for vital child survival interventions. Engaging health workers who are already in the community providing outreach immunization services economizes on human resources and logistical costs while increasing the reach of well-child services. Interventions often integrated with EPI include vitamin A supplementation, growth monitoring, insecticide-treated bed net (ITN) distribution, retreatment of ITNs, health education on home management of fever, HIV/AIDS awareness, family planning services, distribution of iron tablets, and distribution of anti-helminthics.[177]

The WHO Global Immunization Vision and Strategy explicitly recognizes the opportunity to improve child survival by integrating other health interventions with immunization systems.[178] The robust structure of EPI, which has achieved 90 percent immunization coverage globally, has the highest coverage of any global health initiative.[179] Child survival interventions have been integrated with immunization as part of routine immunization services, periodic intensification of routine immunization services (PIRI), and supplemental immunization activities (SIAs). PIRI activities such as Child Health Days offer delivery of broad packages of child survival interventions, including immunization, vitamin supplementation, and well-child education, and are usually conducted two or three times per year.[180] For example, in Zambia, distributing ITNs during a measles vaccination campaign resulted in a five-fold increase in household use of bed nets, from 16.7 to 81.1 percent.[181] Since ITNs are most effective when distributed immediately preceding the rainy season, integrating distribution with a vaccine campaign was a highly effective and cost-effective mechanism for malaria prevention. Additionally, integration of Vitamin A supplementation into immunization services has been shown to reduce vitamin A deficiency, helping avert 240,000 deaths in 50 countries in a single year, and contributing to a decline in night blindness from 0.37 to 0.05 percent.[95]

In addition, international NGOs have begun exploring the feasibility and effectiveness of integrating family planning services with immunization. By training health workers to counsel and offer family planning at the time of a child's immunization, far greater numbers of mothers are reached with important messaging than would otherwise be accessed. They are reached during critical postpartum intervals when it is optimal to begin new contraceptive methods, and encouraging prolonged birth spacing has positive overall health outcomes.[182] While there is limited evidence in this area, preliminary evaluations indicate

that offering family planning services to mothers bringing their children in for routine immunization increases demand for long-term contraceptive options without adversely affecting rates of immunization visits.[182] For example in Togo, incorporating family planning counseling and referral into routine immunization visits was associated with a 54 percent increase in the average number of new family planning clients.[183]

There is a growing trend of integration of public health interventions into more holistic health care in developing countries as well, although mainly this approach has been introduced by NGOs in isolated clinics or regions, separate from the formal country-wide health care system. For example, Renascer is a Brazilian NGO (http://www.saudecrianca.org.br/) that integrates health care with a broad array of public health services. The program recruits high-risk families based on child hospital admissions and provides support in five key areas: health, professional training, housing, education and citizenship. Through on-going support and access to this integrated set of skills-building opportunities, they have been able to reduce child readmission rates in the hospitals where they work. Renascer's model has been replicated in numerous locations in Brazil.

### *Target populations*

In developing countries, integration of public health programs is implemented to address gaps in coverage of one or more key health indicators. Usually these gaps are situated around hard-to-reach populations, particularly rural populations with limited access to traditional health clinics. Other marginalized populations, such as transient workers and inhabitants of slums may also benefit from integrated approaches to health care.

### *Common success factors*

- Strong organization: Adapting an already strong system to include additional services is much easier and cost-effective than establishing an entirely new vertical program.
- Outreach: Using CHWs and other outreach strategies that are common in immunization brings services to the periphery.

### *Common barriers to success*

- Disparate coverage. Concentration of interventions around existing systems may result in compounded disparity by providing more services to people who already have access to health services. Individuals who are not already reached by one vertical system, such as immunization, will not have access to any health services that are added into that system. Alternatively, un-integrated programs may seek out different target populations, providing fewer services to more people.
- Lack of evidence. In spite of a growing trend toward integration, there is minimal evidence-based evaluation of this approach, and the data that are available offer conflicting interpretations of the effectiveness of integration.

# Conclusion

The G2L Initiative has the goal of improving health outcomes and reducing health disparities in the local communities of South King County through use of novel and effective strategies from the global health arena. This landscape analysis, performed on behalf of the G2L Initiative, focused on six global health strategies with the goal of assessing the evidence behind each strategy's outcomes and synthesizing the key lessons learned from each, including the factors that both enhanced and hindered their success. While our focus was on the international context in which each of these strategies has been implemented, we also reviewed literature from domestic examples to provide a useful comparison in the lessons learned, specifically with attention to the different types of populations, health needs, and overall geographic and social environments in which these strategies were used.

Of important note, while each of strategies reviewed has been used *across* a wide array of populations, both globally and domestically, there are no examples in which these strategies have been tailored for use *within* a population as diverse in racial, linguistic, and sociocultural backgrounds as found in Tukwila and SeaTac. The G2L Initiative will have a unique opportunity to tailor the use of strategies such that it will meet the needs of a multitude of distinct and overlapping populations within these broader communities. As highlighted as a success factor in many of the strategies above, the involvement of the participating communities in the design and development of this intervention will be a key component to ensuring the successful adaptation and the long-term success of this initiative.

It is hoped that the lessons learned from the experience and extensive evidence-base on these strategies, both in the global and domestic arenas, can inform the design and development of an integrated health promotion program that successfully reduces disparities and improves the health of men, women, and children in South King County.

# Appendix A: Methods

A systematic review of published literature was conducted for each of the six strategies as described below. In addition, we conducted an online search of grey literature as well as solicited input from PATH experts and experts from a range of Washington-based global health institutions. The complete list of references is included as Appendix B. The inclusion of the online search and examples provided by partner organizations offered additional depth to the published literature and helped to mitigate suspected publication bias due to the innovative nature of the strategies, the financial and logistical constraints of field implementation, and the prevalence of more descriptive operations research and project summaries.

The composite body of literature and notes was then mined for common success factors and lessons learned. While each strategy was researched separately using independent search terms and analyzed separately, there was substantial overlap in the results. Reports and articles on activities highlighting one strategy often turned up in other searches. Those approaches that drew from two or more of the highlighted strategies were selected for illustrative case studies when possible.

## Search strategy: Training and deploying community health workers

An initial search of peer-reviewed literature yielded over 1,000 relevant results. Following an initial review of abstracts, the body of literature was narrowed to 56 publications which were scanned in full-text review. Because of the abundance of literature on community health workers, a limited online search was used to supplement findings on specific programs identified in the literature search or by expert colleagues. In addition, expert colleagues shared lessons learned from their own experiences, including two reviews of the literature.

## Search strategy: Using technology to overcome health barriers

The initial peer-reviewed literature search yielded 151 relevant results which were narrowed in initial review of abstracts to 47 full-text reviews. The search terms used for the systematic review were combinations of particular words: cellular, mobile, phone, health, information, systems, mobile health (mHealth), and telemedicine. The same terms were used in an online search of grey literature with 50 hits for the entire search phrase. This yielded an additional 8 full-text reviews. Finally, discussions with expert informants resulted in 6 additional references.

## Search strategy: Generating focused campaigns around health issues

An initial general search of the literature using the terms “public health campaign” generated over 45,275 results. Further narrowing to limit the scope of the literature review included the words “routine, immunization, behavior change, family planning, and malaria.” The search was then limited to include only publications from the years 2008 and 2009. In all, the search returned 2,416 results. Results were then sorted by date and scanned for relevance until 20 articles representing campaigns in low- and middle-income countries and 10 articles representing campaigns in wealthy countries were identified. A total of thirty references was considered sufficient saturation for the purposes of this review. In addition, expert colleagues shared from their own experiences.

## Search strategy: Mobilizing and empowering community-based organizations

An initial search of the literature using the search term "community based organization" AND "health" generated 1,072 results. The search was then limited to results from 2008 and 2009 yielding 329 titles for review, and was scanned for relevance until 20 articles were identified representing programs engaging CBOs in developing countries and another 20 were identified for developed countries. For this topic, 40 articles were considered sufficient saturation for the purposes of this review. Review of selected reference lists generated an additional 5 references. In addition, partner organizations shared experiences from their own projects.

## Search strategy: Linking health with local economic development

An initial search of the literature using the search terms "economic development," OR "social capital," AND "income," OR "income growth," AND "poverty reduction," AND "health," AND "community," AND household" resulted in 788 hits. Articles pertaining to environmental policy and development were excluded for the sake of this landscape review, generating 649 titles for review. These were then limited to references published in 2008 and 2009, yielding 173 references. The abstracts and full texts were reviewed until 20 articles were identified describing the impact of community-level economic development on health outcomes in developed nations for the entire search phrase. An additional 20 articles were identified for developing countries. For this topic, 40 articles were considered sufficient saturation for the purposes of this review. The same terms were used in an online search of grey literature. In addition, expert colleagues shared lessons learned from their own experiences.

## Search strategy: Linking delivery of primary health care with public health services

From a general search of online literature using the following search terms "public health primary care integration," "community-oriented primary care," and "multi-service center" a total of 15 articles were selected for full-text review. In addition, grey literature from domestic organizations was searched using the same search terms. From a general search of the literature using the terms "health," "communication," "integration," "campaign," "immunization," "vitamin A," and "bed nets" 7 articles were selected for full-text review. In addition, another 3 articles were identified through a network search of references.

# Appendix B: References and other resources

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