For policymakers who want to start improving comprehensive primary health care (PHC), it is often daunting to know where to begin. PHC connects many sectors and involves many different players, so it defies a desire to work from planned blueprints. Unlike a campaign to distribute oral rehydration solution, bed nets, or media messages, there is no pipeline from inputs to outputs to outcomes. Contrasting with commodity coverage campaigns, there is no coverage metric for PHC that counts the numbers of people receiving comprehensive multisectoral population-level PHC.

However, there are ways to benchmark and measure PHC performance. Implementation of PHC becomes the introduction of routine policies and procedures that regularly use these measurements to keep improving PHC and public health operations. This can be done via self-assessments and external assessments (Pan American Health Organization 2001; Alwan, Shideed, and Siddiqi 2016). There can be a disconnect between measures of national performance and performance at the provincial and district levels (Bellagio District Public Health Workshop Participants 2017). Because PHC performance happens close to the people, attention to what is happening outside of the central level is crucial.

In this chapter, we describe an approach that marries total quality improvement approaches, supportive supervision, and benchmark measures of essential public health functions (EPHFs) to improve PHC performance. The tools for this approach were worked out in pilot studies conducted in Botswana, Mozambique, and Angola, and can be applied in a variety of settings.
Advantages of a Public Health Functions Approach to Primary Health Care

PHC has been misunderstood by many. Both the Alma-Ata and Astana Declarations list so many aspirations that PHC might seem amorphous and difficult to pin down. Many confuse the term primary care used by many North Americans to describe generalists’ clinical services with the primary health care term referring to the systematic community transformation described in the Alma-Ata Declaration that is the focus of this book. The 1979 introduction of the term selective primary health care, which was supposed to be an interim strategy to engage external donor support for top down vertical programs, has made the landscape even more confused (Walsh and Warren 1979; Newell 1988).

To a first approximation the following equation can serve:

\[ \text{PHC} = \text{Primary Care} + (\text{Population-Level, Multisectoral, Community-Controlled Public Health}) \]

In other words, comprehensive PHC is the public health system. It surrounds, subsumes, and complements the conduct of primary care and does the community work necessary for health promotion. Despite the conceptual expansiveness of comprehensive PHC, its budgetary profile is tiny. Population-level public health activities are carried out by small cadres of public health practitioners with budgets that are between 1% and 5% as large as the clinical workforce. The basic fact is that sick people seeking clinical services are far more willing to spend money and to create political priority for the cure of their suffering and pain. Healthy people who have not yet become sick are not vocal about their condition—they seldom pay much money to stay healthy, and they are almost never a political force advocating for public spending. When doctors, nurses, pharmacists, and hospital staff worry about the bottom line of their financial support, they will turn toward curing sick people because that pays the bills—preventing sickness for whole populations does not. Cure crowds out prevention in every health system on earth (Bishai et al. 2014). In this chapter, we address the “crowd-out” syndrome and attend to the goal of making measures that can drive systems to achieve comprehensive PHC.

Measurement of comprehensive PHC is the foundation of a system where staff are assigned permanent roles in fostering the execution and improvement of comprehensive PHC. What gets measured gets managed, so developing a workable agenda for PHC measurement is the key to implementation.
Unsurprisingly, the primary care–clinical services dimension has benefited from much more progress in measurement. The numbers and proportions of children receiving vaccines, mothers receiving attended deliveries, and HIV patients getting antiretrovirals are eminently measurement friendly. But if implementation of the PHC agenda settles for measuring just the easily measurable part of PHC, then implementation will succumb to the predictable and universal syndrome in which clinical, curative operations crowd out the population-level preventive operations.

We describe efforts from a variety of countries to use a checklist of things that need to happen when comprehensive PHC is being implemented effectively. With a checklist and a system for improving performance measures, PHC can be effectively scaled up and intensified.

We do not offer a “universal blueprint” but propose a set of feasible steps that can engage each participant in the health system in finding their own role in improving PHC. Unlike a battle plan where vast armies of people and supplies must coordinate movement and activity in time and space, the implementation of PHC is bottom up and crowd sourced. The key is to unlock and energize a community’s preexisting public health assets by systematically making them aware of how their contributions fit into the work of making a population and a place get healthier.

**Necessary Preconditions**

What makes the steps we propose feasible is that the required new elements are catalysts, not the main ingredients. Comprehensive PHC is multisectoral, but the sectors only need to be coordinated, not created. PHC engages civil society, but it does not have to develop the fundamental institutions of a government. There are preconditions that must prevail to enable PHC, but they are not prohibitive. The major and sometimes most limiting precondition is a desire to improve comprehensive PHC that is shared by leadership and spreads through the ranks. The commitment to building horizontal strength in community-based, multisectoral, population-level prevention is a spark that needs to be carefully tended. Powerful forces will always reward a focus on high-tech, curative specialty services. These services are accompanied by opportunities to allocate large budgets and manage large numbers of workers. Yet in every generation emerge leaders who realize the imperative to work upstream to stop the social and environmental conditions that fill the clinics with preventable sickness and suffering. Enlightened leaders are all
Strategies to Improve Health Care in a District

around, but they are not everywhere. Their commitment to build comprehensive PHC is a necessary precondition.

The second precondition to sustain PHC is a cadre of workers who have job titles placing them squarely in the realm of public health. Some countries call them district health officers, but they can also be public health operatives serving in a hospital, an accountable care organization, a health insurance pool, or even in a large private corporation. Public health spilled out of the exclusive provenance of government-run health departments long ago, and this chapter is relevant to both public health officers and professionals whose public health practice is outside government units.

Envisioning Improved Comprehensive Primary Health Care Performance in a District

What would it be like to be in a place with top-notch comprehensive PHC? What would one see happening? What would people be doing, knowing, and thinking? Describing the ideal in broad terms is a pathway to deriving a set of specifics.

A place with comprehensive PHC would be a place characterized foremost by widespread awareness of what the leading upstream health threats were. Citizens, politicians, and public health technocrats would all share a coherent mental model of what imperiled the people’s health. The understanding would include but also go far beyond familiarity with relative magnitudes of disease incidence, prevalence, and burden. They would share consensus about the local distribution of social risk factors, including reduced livelihoods, stigma, and exclusion. There would be shared understanding of social and biological geography, locating physical risks in the air, water, food supply, and roadways. This knowledge would be common knowledge. Clergy would know, school principals would know, business leaders would know, and local politicians would know, and they would all talk through their options to

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*Figure 3.1. Public health core functions.*
address these problems together. The many and varied community members would transform their awareness to actions that they are responsible for. Through regular check-ins, they would hold one another accountable for working together. Part of what they would need to do would require resources from outside. Since this is an ideal version of PHC, there would be safe, accessible, high-quality primary medical care that has an outreach service and stays responsive to community oversight.

From those general features, we can identify the three specific linked processes: assessment, policy development, and assurance. In comprehensive PHC, these core functions of an aware health system are executed collaboratively across multiple segments and sectors of the community (Centers for Disease Control and Prevention 2018). Table 3.2 offers one possible list of EPHFs, but each setting may establish its own list. Many different parties participate in these core functions, but a strong PHC system will assign a district health officer or public health director to steward the process. This leader will have a core set of professional staff with skills in surveillance, basic epidemiology, health promotion, community relations, and health policy. However, the public health staff will not bear the burden of executing and assuring that public health policies are carried out. Public health professionals convene and engage members of the community to work together.

Assessment, policy development, and assurance (figure 3.1 on page 71) are well aligned with the seven principles of PHC listed in the Alma-Ata Declaration, as shown in table 3.1. However, the Alma-Ata–inspired execution of the public health cycle puts members of the community at the center of policy development and includes them in executing assurance strategies. The public health professionals in this paradigm ally their technical skills in epidemiological surveillance with convening operations to listen and form consensus among the multiple partners in a community who will execute health promotion across multiple sectors.

Ongoing Supportive Supervision for Primary Health Care

This section lays out a model of an ongoing program of supportive supervision staffed by a public health practice quality support unit. The basic process of PHC strengthening consists of regularly helping the staff of regional and district public health departments assess and improve the quality of their performance. Measurement plays an essential role and is not done for measurement’s sake, nor is measurement done in order to give the chief executive a dashboard that they will use to steer the system or report to funding
agencies. Measurement is done so the professional staff of the public health department can see and improve their professional practice. Practice report cards are meant to be shared with all the staff so that a performance improvement plan can be jointly developed by the workers who will carry out the plan. These improvement plans often incorporate customized programs in professional training designed to address perceived gaps.

Naturally, an important part of the strategy should be developing partnerships with local schools of public health, nongovernmental organizations (NGOs), and selected online resources for professional training. Implementation will also require in-house resources in coaching and mentoring. In any public health agency, there will be some staff with experience and skills that can serve to develop the capacity of coworkers if the system provides for this. In federalized health systems, there is a hierarchy of national, provincial, and local levels so that coaches for local workers can be maintained at the provincial level and coaches for the provincial level at the national level, and so forth. Performance improvement coaches (PICs) would use regular participatory measurements of public health practice quality. They would develop practice improvement plans during on-site visits, and they would follow up progress on the plans. The measurements used for practice improvement would necessarily span the entire assessment, policy development, and assurance cycle. Staffing ratios would be about one provincial coach to about twenty municipalities or districts. With this ratio, a coach would have time to make one daylong visit to each site per quarter and maintain weekly or biweekly telephone contact.
The initial visit of the PIC to a district should provide district public health staff with the necessary training on how to use a performance measurement tool to derive a report card and then to coach them in developing a feasible performance improvement plan. The use of the measurement tool and the drafting of an improvement plan is typically done as a team exercise that would be scheduled over one or several days.

Once the performance measurement results are shared, the team will have a clear picture of how they are faring across several dimensions of public health practice and comprehensive PHC. Instead of making a plan that simultaneously addresses all of them, the PIC should ask the team to focus on only two or three high-priority areas. The best way to begin this process is by walking the team through the performance assessment results, focusing on areas that are weak, and discussing strengths and weaknesses. This is the improvement planning phase, which is a key step in achieving quality and improving performance.

The plan should focus on the dimensions of practice that the team participants believe they could improve the most and the areas that they would find most important to address in order to impact the health of the district or municipality. It is important that the participants discuss how they are choosing the particular priorities and why they believe their chosen areas are important since the decisions should not just be based on low scores but on thoughtfully confronting the results from the tool with the current public health reality of the district. Once a decision has been made about which functions to work on, the team should spend time listing the top barriers to improving performance on those functions. This discussion should be guided by asking why they feel that each public health function is not currently being performed at an optimal level. It is important to always emphasize and recognize that funding, resources, and time are a constant problem in any health system, so other types of barriers should be considered because the goal is to gain an in-depth understanding of all the reasons why practices were not being performed at an optimal level at the time of the assessment. At this point, participants should keep in mind that barriers may overlap, and they may include cultural, community, environmental, health system factors or infrastructure-type barriers. The next step is to narrow down the identified barriers to those that are most significant or the most difficult to overcome. Staff should also be able to think through which area has barriers that are the most complicated or insurmountable and which has barriers that are more amenable to change. A ranking system of the easiest and most difficult barriers could be used.
Public health practice measurement efforts go back to the early twentieth century (Winslow 1925). In 1925, the American Public Health Association developed an appraisal form and later an evaluation schedule to help public health departments document their performance (Derose et al. 2002). The Centers for Disease Control and Prevention (CDC) developed a list of “ten public health practices” in 1989 (Dyal 1995), which later evolved into the list of “ten essential services” (Derose et al. 2002) that has been used to benchmark practice in the United States. To avoid confusion about the word “services,” this list of ten things that public health agencies do is usually called the “ten essential public health functions” (EPHFs). In the United States, the CDC has developed a widely modified package of measurement instruments for EPHFs called the National Public Health Performance Standards Program that are used in many local and state health departments. The measurements of performance are the foundation of performance improvement (Corso et al. 2000; Upshaw 2000). The ten canonical EPHFs are shown in table 3.2.

In the late 1990s, the World Health Organization (WHO) developed a task force to examine the concept of EPHFs. A group of 145 public health experts from all of the world’s regions were queried using the Delphi method to determine priorities and make recommendations for member countries. The consensus was that country health ministries and regional offices need to work to define national-level lists of what is deemed essential and that the list should vary from country to country (Bettcher et al. 1998). WHO has encouraged its regional offices to develop context-specific measurements of EPHFs, and these have been carried out in regional offices for all of the Americas (Bettcher et al. 1998), resulting in the landmark study, Public Health in the Americas, spearheaded by Pan American Health Organization (PAHO) regional director George Alleyne (PAHO 2001). Several WHO regional offices have developed measurement tools to assist ministries in assessing performance (Martin-Moreno et al. 2016; World Health Organization Regional Office for the Eastern Mediterranean 2017). The CDC has worked with the International Association of National Public Health Institutes to develop exercises, such as the Staged Development Tool, that help national-level public health officials assess their public health functions and form policies to prioritize improved performance (Barzilay et al. 2018).

In a parallel and somewhat confusing development, the Primary Health Care Performance Indicator (PHCPI) project has produced a suite of PHC vital signs profiles to gather core indicators of what it calls “PHC.” However, in practice, the PHC measures are about the clinical primary medical care system and have little overlap with EPHFs. The conceptual framework for PHCPI is designed explicitly to move inputs into service delivery to produce service outputs and clinical outcomes (Veillard et al. 2017). The PHC vital signs profile has indices to measure access to clinical services, quality of clinical services, and social equity in access to clinical services. Most countries that have used it so far have not attempted to use the index of performance of population health. Perhaps in the future, the well-developed EPHF toolkits developed by the CDC and WHO will find a way to help PHCPI users develop assessments of a more comprehensive concept of PHC.

There has been substantial effort to engineer the content of PHC performance measurement...
tools; however, in practice the procedures for developing that content are equally important. Inclusion, participation, and transparency matter. This lesson was learned the hard way in the Canadian province of Ontario, where the provincial Ministry of Health developed and published a set of Ontario Public Health Standards (OPHS) designed to bring accountability to the practice of local boards of health (Schwartz et al. 2014). The OPHS included fourteen indicators and drew data from existing sources in the local system. Managers and chief medical officers of the public health units referred that the indicators that were chosen were “not indicative of the effectiveness of our services,” “lacking relevance to us,” “number counting,” and being “beyond our control.” They also said that the accountability system related more to a bureaucratic compliance with the OPHS than generating learning to improve performance and the health of the local population. Approaches that define standards independently from the providers who will use those standards are likely to fail, as their understanding of what drives performance often does not take into account important nuances of daily work (Forster and Walraven 2012).

The Use of EPHFs in Karnataka, India

Karnataka, a state in India, experienced considerable growth in the 1990s. Despite economic improvements, in the early 2000s the need to tackle disparities in health outcomes across several indicators was clear. In order to improve health outcomes, the approach of targeting EPHFs was taken by considering a broader perspective on public health, in which the participation of public health actors would play a key role.

The State Government of Karnataka created an independent task force to address the health sector through such a perspective and to allocate resources by setting up systems for public accountability. The system performance was to be examined against a list of core public health functions. With the support of the World Bank, a project was launched using this considerably novel approach. It was expected that by addressing the system through a wider lens, all aspects of public health would be assessed and addressed, and improvements would be observed in the outcomes that were considered most important, such as maternal and child health and infectious diseases.

Results-based EPHF indicators were developed and assessed over the following fifteen years. This approach required training and a change of culture to achieve results and sustain the changes in the long term. In practical terms, health was addressed at the local level through district health officers in a continuous process of working closely with those who executed public health toward assessment and policy development considering EPHFs. DHOs achieved consensus on the EPHF to prioritize and made recommendations for action.

Many improvements were observed, including an increase in the number of deliveries taking place in a health facility (from 65% to 94%). Among poor women, the percentage rose from 35% to 77%. In addition, health personnel were training in the areas of organizational development and quality assurance, which are crucial for the continuous process of assessment and reassessment required by EPHFs. Positive results were observed in all EPHFs, including health promotion in the areas of food safety and communicable and noncommunicable diseases, and linking people to health services, with a successful cervical cancer screening program and the implementation of regulations and public laws (World Bank 2003, 2018).
Based on all these reflections about existing assets and strengths, and the number of barriers and level of difficulty of the barriers to be overcome, the team should finally be able to choose a small number of public health functions that they would like to focus on.

There are a few different ways a team could go about focusing on a chosen function, but one would be to consider the top challenges and the root causes of those challenges as well as the resources available and the types of barriers faced. The participants should have a clear understanding of the most significant challenges to improving their performance.

The next phase would be to brainstorm ideas on ways to overcome challenges given the resources. It is crucial to open space to creatively consider the strengths that do exist in the community. Staff should think about partners they could work with to overcome those challenges. Such partners could be influential people in the community, NGOs working in health or development, other government workers (across sectors), or government-affiliated contractors. The idea is to focus on anyone who could be of help and how they could be engaged in the process of improving public health practice. In this step, it is important to consider ways to reach out or cooperate with other stakeholders, even those who may fall outside the government or health sector. There is an opportunity to share the workload of strengthening public health practice with different organizations. Reaching out to them to brainstorm ways to work together, one might consider sharing data, technology systems, or expertise on a given topic, or partnering for health promotion. Steps to engage partners may be as simple as setting up a preliminary meeting to discuss competencies or could be more advanced—for example, putting on a workshop in the district to emphasize the importance of the work needing to be done and inviting multiple potential partners. While the officer(s) should list ideas as to how to engage the partners, the team should also encourage discussion on ways to engage others working in the community and examine which partners may be most likely to help improve public health practice.

The next step is to consider the solutions for overcoming barriers based on their potential impact to improve performance and to consider the feasibility of the solutions given. For each solution the team has laid out, now they must consider how difficult it would be to carry out. They also have to determine how much impact a solution could have on the system if it were carried out successfully. It is important to focus on one solution at a time, thinking about how feasible and impactful each solution may be simultaneously. For feasibility, the element to consider is the timeline (how soon
they could realistically carry out that solution), resources required to carry out the solution (few versus many), and the social or political environment necessary to achieve their solutions. For impact, it would be necessary for staff to consider whether the solution would lead to major changes or minor changes in the achievement of the community’s public health goals.

After looking at solutions to improve EPHFs, choosing one that seems most feasible, actionable, and with the highest impact on EPHF strengthening is necessary. The team needs to list steps as to how they should go about carrying out that specific solution. For this step to work, they should break this process down into basic, simple, and clear steps such as “arrange meeting with the local NGO working in the area” or “form team to develop assessment of the availability of technology in the district” all the way through the point where the overall progress should be reevaluated at three or six months. A realistic timeline for the steps listed (improvement plan) should be written down, and dates for completion should be agreed upon among team participants considering a three-month time frame.

A Network of Supportive Performance Improvement Coaches

In this model, after improvement plans have been established, follow-up is an essential step in successfully achieving improvement, as it fosters accountability and continuity of the strategy. Additionally, it is necessary that the PIC maintains constant contact with the local offices, whether it is by making weekly phone calls to follow up on progress or by making use of other communication technologies, such as WhatsApp or SMS to, encourage the continuity of the performance improvement plan. Furthermore, one visit to each district should take place monthly or bimonthly to thoroughly discuss progress and difficulties, and to motivate district health officers and staff.

The network of comprehensive PHC performance improvement would not bring excessive costs. Very frequently, the staff who do the work of PHC are typically already on the payroll, but they are pulled toward clinical services management and deprioritize the more high-yield work of addressing root causes of disease. More importantly, the communitarian approach to convening and identifying community strengths and assets brings new resources to work on health promotion that are not typically a part of clinical health care budgets.

To form an idea of what it might cost, consider a country like Angola, with 173 municipalities. A PHC improvement network would require eight PICs.
They would be responsible for the supportive supervision of about twenty municipalities each, and there would be one coordinator overseeing the work of all coaches. PICs should live in the same, or adjacent, province where the municipality is located to facilitate travel. Considering wages, transportation, per diem, material, and 346 visits to municipalities per year (two per municipality), the estimated costs would be US$700,000. This investment would offer better performance for the many individual disease programs operating in Angola, such as yellow fever, malaria, tuberculosis, HIV, and Ebola. (For an example, see chapter 4 on PHC’s impact on polio control.)

Improving Comprehensive Primary Health Care and Public Health Everywhere

In 2016, the Sixty-Ninth World Health Assembly adopted a resolution for member states to strengthen the EPHF to support achievement of universal health coverage and the Sustainable Development Goals (World Health Organization Executive Board 2016). The mandate recognized the importance of the public health functions as cost-effective, comprehensive, sustainable, and a means to improve health and reduce the burden of the disease while also noting the importance of public health strengthening in achieving the SDGs (World Health Organization Executive Board 2016). Further, it called on the World Health Organization to develop technical guidance on the application of EPHFs; facilitate international cooperation to build necessary institutional, administrative, and scientific capacity to support the EPHF; to take the lead in promoting cooperation and coordination for health systems strengthening in the area of EPHF; and to report to the World Health Assembly on the implementation of this and its contribution to the achievement of 2030 SDG targets (World Health Organization Executive Board 2016).

The World Health Assembly resolution echoes developments in high-income countries as well. In the United States, Public Health 3.0 calls for strengthening public health practice via a focus on the EPHF and a renewed focus on the power of public health to convene sectors and communities to address the social determinants of health (DeSalvo et al. 2016). Public Health 3.0 highlights the role of public health leadership in multisectoral partnerships, emphasizing a need for public health to take on the role of “chief health strategist” in communities in order to bring together community members, public health, and other sectors to address health challenges through locally adapted
Health in All Policies (HiAP) approaches (DeSalvo et al. 2016). In order to achieve this vision of Public Health 3.0, the public health workforce needs to be resourced and trained on how to carry out the EPHFs, which includes how to act as a community convener and mobilizer. A stronger public health workforce that can convene communities and lead change across sectors for health will have significant implications for achievement of the HiAP, One Health, universal health coverage, and, ultimately, the SDG agendas. (See chapter 5.)

Making comprehensive PHC the foundation of health systems that can make progress toward achievement of the SDGs begins with recognition that public health functions are distinct from clinical services and their professional staff needs to realize their full potential and importance in this distinct role. Public health departments require their own resources, leadership, and frameworks for performance measurement in order to avoid being crowded out by clinical service provision. Further, public health departments

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<th>Table 3.2. The ten essential public health functions map</th>
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*Note:* Divided into three continuous operations in a cycle: *assess* health and health threats, *policy development* among the broad community in policy solutions, *assure* that solutions are carried out across multiple sectors.
need a clear mandate that outlines their core functions and allows them to measure their performance, analyze strengths and weaknesses, and act to ensure all functions are carried out, with mentorship and information available on how to continuously improve. An important strategy paper for the United Kingdom suggested ring-fencing public health budgets in the National Health Service so that all citizens would have equal access to high-quality public health operations.

The opportunity to achieve the SDGs through a public health framework is especially appealing because it does not require a new workforce or a new framework. In fact, public health officers are already in place in districts across the world, and the EPHFs framework already provides a structure through which the SDGs can be achieved (see chapter 5). Strengthening public health practice will require retraining and reorientation of the existing public health workforce in order to turn public health workers into community “chief health strategists” capable of using data to convene and mobilize communities and stakeholders for multisector action. The future public health workforce must be trained and motivated to effectively carry out each of the EPHFs in partnership with communities and other sectors. Workers will need resources devoted to strengthening their capacity to practice community-engaged public health and will need ongoing technical assistance and leadership from the World Health Organization with its regional offices and country health ministries to ensure that there is leadership and guidance for district public health officers to become experts in carrying out the EPHF.

REFERENCES (SEE PAGE 341 FOR FULL CITATIONS FOR BOXED TEXT)


