



BRIGHAM AND  
WOMEN'S HOSPITAL

## CASES IN GLOBAL HEALTH DELIVERY

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### Glossary

Because many terms are used beyond their traditional meaning in global health delivery and because many common health metrics may be unfamiliar, we have created a glossary. While some of the terms can be found in dictionaries, others stem from our own research or from external sources as cited. We invite you to review the terms and think about how they may differ from your conceptions or how they may be changing with time.

#### **Adult HIV prevalence (per 100,000)**

The World Health Organization (WHO) defines adult human immunodeficiency virus (HIV) prevalence as the number of adults (15 years of age and older) infected with HIV per 100,000 adults in the population at a given time. Prior to 2008, this indicator estimated HIV prevalence in adults ages 15–49. In 2008, the Joint United Nations Programme on HIV/AIDS (UNAIDS) Reference Group on Estimates, Modeling and Projections recommended that adult prevalence be extended to include all adults. In countries where HIV is widespread and affects all parts of a population (generalized epidemics), HIV prevalence is based on data obtained from pregnant women in antenatal clinics. In countries where HIV is concentrated primarily in high risk groups, only data on the high risk group are considered.<sup>1</sup>

#### **Adherence**

The World Health Organization defines adherence as “the extent to which a person’s behavior—taking medication, following a diet, and/or executing lifestyle changes—corresponds with agreed recommendations from a health care provider.” Treatment adherence reduces the risk of disease resistance, which can make treatment difficult as in the case of multidrug-resistant tuberculosis (MDR-TB).<sup>2</sup>

#### **Antiretroviral therapy coverage (%)**

The WHO defines antiretroviral therapy (ART) coverage as the percentage of people with HIV who are receiving ART out of the total number of people with HIV who are eligible for ART under current WHO or national guidelines. Data on the number of people receiving ART are obtained from facility-based ART registries and drug supply management systems. ART given for the sole purpose of preventing mother-to-

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child transmission of HIV is not counted in this indicator. The total number of people with HIV eligible for ART must be estimated based on a number of factors. The UNAIDS/WHO Reference Group on Estimates, Models, and Projections has created software for this.<sup>1</sup>

### **Average life expectancy**

The WHO defines average life expectancy as the average number of years a child born in a given year is expected to live based on current mortality rates. Civil registration records are the preferred source of data for calculating average life expectancy; household surveys and population censuses can be used as well. In the absence of complete mortality data, as is often the case in low-income countries, modeling can be used to estimate average life expectancy more accurately.<sup>1</sup>

### **Bilateral**

Bilateral refers to something with two sides. In the field of international relations, bilateral refers to agreements or relationships between two entities. For example, bilateral agreements are frequently used to describe agreements between two countries (e.g., a bilateral trade agreement between the United States and Japan). In the field of global health, bilateral agreements describe country-to-country projects or projects between a donor agency and a country (e.g., The United States Agency for International Development's [USAID] agreement with the Government of Haiti to deliver essential medicines).

### **Care delivery value chain (CDVC)**

The CDVC is a framework used to display the cycle of care. The CDVC for any medical condition starts with prevention and screening, leading hopefully to early detection and diagnosis, followed by preparation for treatment, medical intervention, recovery, and rehabilitation. The care cycle ends with ongoing management of the disease (i.e., breast cancer patients who have successful therapy must often be managed for long periods of time because breast cancer may be a chronic condition). There are four cross-cutting themes throughout the care delivery value chain: knowledge development, informing, measuring, and accessing. Knowledge development refers to investments in human resources for health. Informing refers to health education and the relaying of information from a medical provider to a patient. Measuring refers to the tests, patient records, or other procedures that can identify change in health status. Accessing refers to the extent to which both patients and health care providers can receive or provide care and takes into account transportation, medical center density, and availability of resources.<sup>3</sup>

### **Care delivery**

Care delivery is the activity of supplying and providing health care.

### **Catchment area**

Catchment area is the geographic zone from which a health facility recruits patients.

### **Clinical trial**

A clinical trial is a prospective controlled study involving human subjects that is designed to answer specific questions about biomedical or behavioral interventions (such as drugs, treatments, or devices). In a randomized controlled trial (RCT), participants are assigned by chance alone to either the control group or one or more intervention groups.

**Demand generation**

In health care this term refers to exploring the various initiatives to increase access to and utilization of services. Consumer-directed strategies may include increasing financial incentives (e.g., health insurance) and targeted communication campaigns that increase awareness of health products and services. The end goal is to increase utilization of an organization's products or health services.<sup>4</sup>

**Diagonal approaches**

This concept represents the blending of horizontal and vertical approaches to health care delivery by advocating for the delivery of disease-specific programming (i.e., vertical) through an existing health infrastructure (i.e., horizontal). A diagonal approach takes into account the value of investing in health systems and the rapid results of disease-specific interventions.<sup>5,6</sup>

**DOTS coverage (%)**

Directly observed therapy, short-course (DOTS) is a WHO-recommended TB control and treatment strategy that encompasses five principles: 1) political commitment with increased funding, 2) case detection through quality-assured bacteriology, 3) standardized treatment with supervision and support for patients, 4) effective drug supply systems, and 5) monitoring and evaluation.<sup>7</sup> The WHO began recommending DOTS as a strategy for TB control and elimination starting in 1994.

DOTS coverage represents the percentage of the population living in areas where health services abide by DOTS guidelines. DOTS coverage is calculated by dividing the population within DOTS coverage areas by the national population. The size of "areas" used in the calculation varies from country to country, as "areas" are defined as the lowest administrative unit within the country.<sup>8</sup>

There are several limitations to DOTS coverage as an indicator. Coverage does not mean that all people living in that area actually are able to access DOTS services. A number of barriers, including transportation and economic barriers, could prevent people from receiving DOTS care. Another limitation to this indicator is the fact that not all health facilities in an area of DOTS coverage must adopt DOTS. The presence of one health facility offering DOTS is enough for the entire area to be considered as providing DOTS coverage.<sup>9</sup> This indicator represents area coverage rather than patient care coverage.

**Drinking water coverage (%)**

The United Nations Children's Fund (UNICEF) defines "drinking water coverage" as the percentage of the population (in both urban and rural settings) that is using safe drinking water. Safe drinking water is water that is protected from contamination, particularly from fecal matter. The proportion of the population using "safe" drinking water is likely to be lower than the numbers reported.

The data used to compute the total percentage of the population with access to clean water is typically drawn from national-level household surveys. The WHO and UNAIDS Joint Monitoring Programme on Water Supply and Sanitation (JMP) created a standard questionnaire in 2000 to harmonize surveys regarding water.

**Electronic medical record (EMR)**

An EMR is an electronic record of an individual's health-related information that can be created, managed, or consulted by clinicians or staff. Electronic patient records can improve legibility, documentation, and information available to clinicians while reducing the duplication of tests and easing the process of data

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collection and analysis. Electronic records can allow better integration across physicians and locations and make it easier than current methods to extract results, experiences, methods, and patient attributes.<sup>3,10</sup>

### Expenditure on health

Government expenditure on health as a percentage of total expenditure suggests how significant a commitment the government is making to the health of its people. A relatively high percentage implies that the government is making health a priority. Government expenditure on health as a percentage of total health expenditure shows how much of the health system the government is financing as opposed to private investments, such as out-of-pocket expenses and private donors. The per capita expenditure on health shows how much money each person spends on health on average, including both government expenditure and private expenditure.

The primary data sources that the WHO uses to calculate these indicators are the International Monetary Fund (IMF), government and international financial records; the Organisation for Economic Co-operation and Development (OECD) health data; the United Nations national accounts statistics; and the WHO. Data are cross-checked with the ministry of health in order to verify estimates.<sup>1</sup>

### Gini index

A Gini coefficient is a value between 0 and 1 that represents the degree of income inequality present in a country; the higher the value, the more inequality. The Gini index is the Gini coefficient multiplied by 100 and expressed as a percentage. The Gini index measures inequity in terms of income distribution.<sup>11</sup> Zero indicates absolute equality, that everyone receives the same income, and 100 indicates absolute inequality, that one person receives all of the money. The World Bank publishes these figures.

### Global health initiative

Global health initiatives are programs typically targeting specific diseases and are intended to leverage additional resources to facilitate health efforts.<sup>12,13</sup> Major global health initiatives include:

- *The US President's Emergency Program For Aids Relief (PEPFAR)*. Enacted by the US Congress in 2003 and renewed in 2008 for an additional five years with USD 48 billion in funding, this legislation represents one of the largest efforts by a country to address a single disease globally. PEPFAR aims to create sustainable in-country HIV/AIDS programs; strengthen the ability of local partners to address the epidemic; focus programming on prevention, care, and treatment; align HIV/AIDS programs with other global health programming; and investigate innovative ways to track the progress and impact of programming.<sup>11</sup>
- *The Global Fund to Fight AIDS, Tuberculosis and Malaria*. Founded in 2002, the Global Fund is a public-private partnership that leverages finances and distributes resources to prevent and treat HIV/AIDS, tuberculosis, and malaria. By the end of 2011, the Global Fund had approved funding of USD 22.6 billion dollars to provide AIDS treatment for 3.3 million people, tuberculosis treatment for 8.6 million people, and distribute 230 million insecticide-treated nets to prevent malaria.<sup>14,15</sup>
- *Roll Back Malaria, Stop TB, and the Global Alliance for Vaccines and Immunization (GAVI)* are global health initiatives that have brought significant attention and resources to malaria, TB, and childhood vaccinations, respectively.

### Gross domestic product (GDP)

The gross domestic product (GDP) is a measure of a country's economic performance. GDP can be measured in three ways: by looking at production, expenditure, or income. These three methods of

calculating GDP theoretically should lead to the same results. The World Bank calculates GDP based on production, the value of all goods produced, according to national accounts.<sup>16</sup>

There are multiple ways to calculate and present GDP. A raw GDP calculation produces a value of GDP at current prices, but it does not take inflation into account, making it impossible to calculate change in GDP or growth over time. Constant GDP adjusts the raw GDP based on inflation so that the GDP is constant based on a baseline year. There is no rule regarding how to choose a baseline year, and baseline years are not standardized. GDP in **purchasing power parity (PPP; see below for more)** represents how much of a bundle of goods and services a country could buy using 1993 US dollars. The GDP in PPP allows for comparison of real purchasing power across countries but does not provide a sense of overall wealth.<sup>17</sup> GDP per capita is the total GDP divided by a country's population and helps to adjust GDP based on population growth. If the population is growing, in theory, the GDP must grow as well in order for the average person to produce the same amount.<sup>18</sup>

### **Health information system**

A health information system includes the resources, devices, and methods required to optimize the acquisition, storage, retrieval, and use of information in health and biomedicine. A common example of a health information system is sentinel disease surveillance. In this system, medical providers in specified locations relay data on a predetermined set of health indicators to public health officials in order to monitor the health of a population. Different components of health information systems include electronic health records that provide patient information to providers and operations information to administrators; mobile phones that remind patients to take their medications through a text message; and handheld computers that allow health care providers to enter health data from different locations.<sup>10</sup>

### **Health outcomes**

In the field of public health, health outcomes are “indicators of health status, risk reduction, and quality-of-life enhancement. Outcomes are long-term objectives that define optimal, measurable future levels of health status; maximum acceptable levels of disease, injury, or dysfunction; or prevalence of risk factors.”<sup>15,19</sup>

### **Horizontal approaches**

Horizontal approaches focus on building health system infrastructure, including workforce, supplies, and information systems. The approach aims to strengthen the overall structure and functions of the health system rather than specific disease programs.<sup>5, 6, 20</sup>

### **Hospital beds (per 10,000)**

This indicator signifies the number of hospital beds that exist per 10,000 people. Hospital beds include inpatient beds and maternity beds, but do not include delivery beds and cots. The density of hospital beds is one of the few indicators that reflects the level of service delivery in a country.<sup>21</sup> The WHO suggests a correlation between the income of countries and the number of hospital beds per 10,000 people; high income countries tend to have far more hospital beds per 10,000 people than low income countries.<sup>22</sup> However, countries of the same income level can vary greatly in number of hospital beds per 10,000.

### **Incentive**

An incentive can be an inducement or supplemental reward that serves as a motivational device for a desired action or behavior.

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Performance-based incentives are monetary payments or other rewards that are provided on the condition that one or more indicators of performance improve, that predetermined targets are met, or both.

In the public sector, where managers and providers' salaries tend to be based on seniority, the incentive structure often results in providers failing to exert significant effort. In the private sector, by contrast, providers tend to be paid per service and paid more for some types of services, such as curative, than for others, such as preventive care and health education.<sup>23</sup>

### **Infant Mortality**

See "Under-Five and Infant Mortality."

### **Inputs**

Inputs are resources used in a program, including monetary and personnel resources from a variety of sources, as well as curricula and materials.<sup>24</sup>

### **Integrated care**

Integrated care harmonizes human, financial, capital, and information resources necessary to deliver health care services to improve access, efficiency, and overall satisfaction with the health system. The organizing principle of service delivery centers on the patient. In receiving non-integrated care, patients interface with multiple health providers through multiple delivery systems. For example, an integrated care model for HIV/AIDS prevention would provide co-located HIV/AIDS prevention, treatment, and care services through existing primary care facilities.<sup>25</sup>

### **Intervention**

In the field of public health, this term describes a program or policy that affects change on a health problem. In global health, for example, delivering insecticide-treated bed nets is an intervention designed to reduce the incidence of malaria. Health interventions can be grouped into the following categories: health promotion, specific protection, early case finding and prompt treatment, disability limitation, and rehabilitation. In clinical medicine, an intervention is usually undertaken to treat or cure a condition.<sup>19, 26</sup>

### **Literacy**

The United Nations Educational Scientific and Cultural Organization's (UNESCO) definition of literacy is the ability to read and write a short statement about one's own daily life. The ability to read but not write or vice versa does not qualify as literacy. However, a person who can read and write only the most elementary phrases would be considered literate, even if the individual is not functionally literate.<sup>27</sup> Literacy often includes the ability to perform basic arithmetic as well, but definitions of literacy are not standardized. Literacy rates are not available in many countries for a number of reasons, ranging from countries being unwilling to publish literacy rates to countries no longer collecting data on literacy under the assumption that national education coverage negates the need for literacy data. Literacy data are collected from population censuses and household surveys. When surveys do not contain questions specifically assessing literacy, the highest level of education achieved can be used as a substitute with the assumption that individuals who have attended grade five in primary school are literate and individuals with less or no schooling are illiterate.<sup>27</sup>

**Lost to follow up**

In research, lost to follow up refers to study participants who drop out of a cohort because they were not able or did not want to participate in data collection and to patients who do not return to an appointment for a treatment. If there is loss to follow up after starting a treatment, disease resistance may occur and research results may not be valid. Lost to follow up may occur due to unstable social and economic conditions in which people do not return for treatment due to prohibitive costs, lack of transportation, frequent migration, or threats to personal safety. Lost to follow up may also result from poor program planning and design that does not adequately account for the barriers people face in accessing care or provide adequate incentives.<sup>28, 29</sup>

**Malaria cases (per 1,000)**

The definition of a malaria case is fever with parasites and applies to all people in need of antimalarial treatment. The number of malaria cases is estimated using two methods. The first method adjusts the number of reported cases of malaria based on how complete the reported data is. The second method, which is more commonly used in the African Region, bases estimations on the relationship between the risk of transmission and case incidence. Data for estimating the number of malaria cases are drawn from health management information systems of ministries of health, from disease surveillance systems, and from household surveys.

**Maternal mortality (per 100,000 live births)**

Maternal mortality reflects the risk involved with each pregnancy.<sup>1</sup> The indicator presents the number of deaths in women from any cause related to or made worse by pregnancy and the management of pregnancy, up to 42 days following the termination of pregnancy, each year.<sup>30</sup> Data to determine maternal mortality can be collected from a number of sources, including health facility records and household surveys. Data quality is often poor, largely due to underreporting and incorrectly classified pregnancy-related deaths. Data is often adjusted to account for underreported maternal deaths.<sup>1</sup>

**Mobile health (mHealth or m-health)**

mHealth refers to medical and public health practices supported by mobile devices such as mobile phones, tablet computers, personal digital assistants (PDAs), and other wireless devices. mHealth applications may involve collecting community and clinical health data, delivery of healthcare information to practitioners, researchers, and patients, real-time monitoring of patient vital signs, and direct provision of care (via mobile telemedicine). mHealth can be a means of providing greater access to larger segments of a population in developing countries, as well as improving the capacity of health systems to provide quality healthcare.

**Multilateral**

In global health, the term multilateral refers to more than one contract or agreement between more than two international entities. For example, the World Health Organization is a multilateral organization that has a global membership, multiple programs, and a varying presence in countries all over the globe. After the earthquake in Haiti in 2010, a multilateral response, involving numerous non-governmental organizations, medical organizations, and countries, worked to repair basic infrastructure and deliver essential health care.

**Nursing and midwifery density (per 10,000)**

See “Physician density/Nursing and midwifery density (per 10,000).”

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### Operations

Operations transform resource or data inputs into desired goods, services, or results, and create and deliver value to the customers. Two or more connected operations constitute a process and are generally divided into four basic categories: 1) processing, 2) inspection, 3) transport, and 4) storage.

### Outputs

This term relates to the direct products or deliverables of program activities.<sup>24</sup>

### Parastatal organization

An organization controlled wholly or partly by the government, having some political authority and serving the state indirectly.

### Physician density/Nursing and midwifery density

The physician density is the number of physicians for every 10,000 people, including both generalists and specialists. Similarly, nursing and midwifery density is the number of nurses and midwives for every 10,000 people. Administrative reporting systems in health facilities, census data, and surveys reporting occupations provide data for calculating physician or nursing density.

Variation in data sources and position definitions between countries makes cross-country analysis difficult. Some official reports do not indicate whether the data is representative of both public and private data.<sup>1</sup>

The WHO suggests countries need at least 23 physicians, nurses, and midwives per 100,000 people to provide sufficient health care.<sup>31</sup>

### Population (thousands)

Population represents the number of residents in a particular country at a given time. Population includes all residents, regardless of their citizenship or legal status. However, refugees in a country who are not permanently settled are not counted in that country's population estimates.<sup>32</sup> Population data are drawn or extrapolated from census data.

### Poverty rate (% of population living under USD 1.25 a day)

The World Bank determines the standards and definition for this indicator. The poverty rate represents the percentage of the population that is living below the international poverty line, defined as USD 1.25 per day in 2005 purchasing power parity (PPP; see "**Purchasing Power Parity**").<sup>33</sup> This amount signifies the lowest level of income needed to achieve an adequate standard of living.<sup>17</sup> A household that consumes less than USD 1.25 in PPP a day per person is considered to be living in absolute poverty.<sup>34</sup> Data regarding consumption within a household are used to estimate poverty. Information needed to calculate the percentage of the population living below the international poverty line comes from household surveys.<sup>35</sup> The USD 1.25 per day poverty line is converted to local currency using the most recent PPP data available from the World Bank.<sup>36</sup>

While the purpose of expressing the poverty line in PPP is to allow for comparisons between countries, poverty is a relative term with varying definitions. Even within a country, cost of living varies between rural and urban settings.<sup>36</sup> For example, in 2005 the poverty line for an individual under 65 in the United States was USD 10,160 per year (USD 846.67 per month).<sup>37</sup> In the same year, India's urban poverty line was about USD 12 per month, and its rural poverty line was about USD 7.50 per month.<sup>38</sup>



**Primary care**

Ideally primary care is the level of a health system that provides entry into the system, addressing all new needs and problems, including prevention, and that provides person-focused (not disease-oriented) care, over time for common conditions. Primary care often includes many basic maternal and child health care services such as family planning and vaccinations. Secondary care includes services provided by a specialist or facility upon referral by a primary care physician. Tertiary care is often provided in a health care facility that includes highly-trained specialists and advanced technologies. While primary, secondary, and tertiary care may be combined into an integrated care system, the terms are still often used to define packages of care.

**Private sector**

The private sector refers to the part of the national economy that is not under direct government control. It includes the personal sector (households) and corporate sector (companies) and is responsible for allocating most of the resources within an economy. In health care, this may involve businesses, non-profit organizations, or individuals.

**Public sector**

The public sector refers to the part of national economy providing basic goods or services that are either not, or cannot be, provided by the private sector. It consists of national and local governments and their agencies.

**Purchasing power parity**

Purchasing power parity (PPP) is the rate of conversion that equalizes the purchasing power of different currencies. PPP is based on the theory that in an ideal market, identical goods should only have one price internationally. In theory, this means that a bundle of goods should cost the same across countries once exchange rates are taken into account.<sup>39</sup> PPP represents the real purchasing power rather than the monetary value of GDP. PPP is based on 1993 USD. This means that PPP represents the amount one would have to spend in a given currency in order to acquire a bundle of goods and services that could be bought for one 1993 USD.<sup>40</sup>

**Quality**

Quality refers to the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.<sup>41</sup>

**Quality improvement**

Quality improvement involves both prospective and retrospective reviews. It is aimed at improvement—measuring where you are and figuring out ways to make things better. It specifically attempts to avoid attributing blame and to create systems to prevent errors from happening.<sup>42</sup>

According to Michael Porter, quality improvement is the best way to produce fundamental cost reduction in health care delivery. Quality improvement measurements should be based on health outcomes and patient satisfaction and establish a means to compare health providers and set the stage for competition.<sup>43</sup>

**Scale (operating at scale)**

Scale refers to the relative size or extent of something. Operating at scale is the ability to sustain efforts beyond the initial period of scaling up.

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### Scaling up

Scaling up describes the goal or process of expanding the coverage of health interventions. Four different types of scale up have been proposed:<sup>47</sup>

- **Quantitative:** geographic spread, expanding in size
- **Functional:** expanding the scope of activity
- **Political:** efforts to influence the political process
- **Organizational:** expanding an implementing organization, involving other organizations, or creating new organizations

There is no consensus on what level of coverage is required for a program to be seen as having successfully “scaled up.” According to the World Health Organization, scaling up is defined as deliberate efforts to increase the impact of health service innovations so as to benefit more people and to foster policy and program development on a lasting basis. The approach to scaling up health service innovations is also grounded in the principles of respect for, fulfillment of, and promotion of human rights.<sup>48</sup>

### Shared delivery infrastructure

While the value chain should be thought of in terms of specific medical conditions, shared delivery infrastructure is the overlap in activities across multiple value chains for various medical conditions or areas of risk. Michael Porter describes two types of shared delivery infrastructure: “synergies across diseases (demand side); and synergies in care delivery activities themselves (supply side).” An example of demand-side synergies would be promoting consistent condom use to prevent not only HIV but also other sexually transmitted infections and pregnancy. Supply side synergies can improve the ability to efficiently access patients, enable better utilization of scarce facilities and personnel, and take advantage of economies of scale. A shared delivery infrastructure for treating HIV/AIDS includes integrating HIV testing into a primary health care setting. For tuberculosis an example would be health clinics and community health workers who improve compliance with tuberculosis treatments while simultaneously addressing other conditions. Shared delivery infrastructure analysis enables programs to identify opportunities to leverage existing resources to improve delivery either by building on what is there themselves or partnering with other programs.<sup>49</sup>

### Social determinants of health

Social determinants of health include the economic and social conditions that influence individual and group differences in health status. They are risk factors inherent in one’s living and working conditions rather than individual factors (such as behavioral risk factors or genetics) that influence the risk of or vulnerability to a disease or injury. Social determinants of health are shaped by public policies and the distribution of money, power and resources at global, national and local levels.

### Stakeholders

A stakeholder is a person, group, or organization that has direct or indirect interest in an organization because it can affect or be affected by the organization’s actions, objectives, and policies. Key stakeholders in a health system include: government, donors, payers, policy makers, health providers, the private sector, and patients.

### Strategic framework

A strategic framework guides the overall structure and operation of a system, the relationship among its constituent parts, and the choices that shape overall system performance. A conceptual framework can be

understood as a set of broad ideas or questions used to organize the presentation of data so as to make their meaning clearer and to guide the course of subsequent research.<sup>50</sup> A strategic framework is needed for problems involving complex systems in which the components are interdependent and optimal choices depend on local circumstances. Here, reductionism, or looking at each part separately, will fail. In addressing any complex managerial problem, a strategic framework is needed to define the important choices and the questions that will allow practitioners to select the best, individualized approach for their particular circumstances. A strategic framework can be used prospectively for planning or retrospectively to study or analyze past performance and decisions.<sup>51</sup>

### **Strategy**

Strategy is the creation of a unique and valuable position, involving a different set of activities. Strategic positioning aims to achieve sustainable competitive advantage by preserving what is distinctive about a company. It means performing different activities from rivals or performing similar activities in different ways.<sup>52</sup> In public health, rivalries may be such things as social stigmas or norms that programs are trying to overcome; organizations may be competing against existing biological, social, economic, or cultural forces.

### **Structural risk**

Structural risk stems from aspects of the environment that increase vulnerability to disease or promote risky behavior. Structural risk may stem from such issues as economic inequity, gender dynamics, or the political environment. For example, commercial sex workers may take part in unsafe sex, putting themselves at risk for sexually transmitted diseases, due to financial insecurity and the need to generate income as well as the lack of legislation protecting them or regulating the industry.

### **Supply chain**

In general, a supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain parties can include raw materials suppliers, manufacturers, transporters, wholesalers/distributors, and retailers. The combined efforts of the various parties determine the cost effectiveness and responsiveness of the supply chain in satisfying customers. The wide variety of parties, relationships, products, and requirements involved in the supply chain make it a complex, dynamic system. This system can be characterized as a network that supports three types of flows: materials, information, and finances.

In global health, supply chains can encompass activities such as intricate forecasting, negotiating for price reductions, transporting sensitive cargo over thousands of miles, disentangling the red tape of customs regulations, and maintaining trained personnel.<sup>53</sup>

### **Sustainability**

Sustainability can refer to four major outcomes: 1) Continuing the project activities within the funded organization that were developed and implemented during the period of the external grant funding, 2) Sustaining benefits for intended clients, 3) Maintaining the capacity of a collaborative structure, such as a coalition, or 4) Maintaining attention to the issues addressed by the program, including processes that continue advocacy efforts or that help to spread the concepts or beliefs underlying a program.<sup>54</sup> Evaluating or measuring sustainability requires different types of analysis and data depending on which specific outcome is being assessed.

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### **System (health system)**

A health system consists of all the organizations, institutions, resources, and people whose primary purpose is to improve health. This includes efforts to influence determinants of health as well as more direct health-improvement activities. The World Health Organization describes the health system in terms of six "building blocks": service delivery, health workforce, information, medicines, financing, and governance.<sup>55</sup>

### **Tuberculosis prevalence (per 100,000)**

Tuberculosis (TB) prevalence illustrates the number of people for every 100,000 in a population that are suffering from TB at any given time. TB prevalence is very responsive to changes in burden of disease, including changes due to treatment, prevention, or death. Prevalence ideally is based on data from population-based surveys. Surveys are especially important when health system data are lacking, but they are expensive and difficult to implement.<sup>1</sup> In the absence of surveys, prevalence estimates can be calculated based on incidence. The WHO annually publishes estimates of TB prevalence provided by each country.

### **Under-five mortality and infant mortality (per 1,000 live births)**

The under-five mortality rate represents the probability of a child dying before his or her fifth birthday. Similarly, the infant mortality rate represents the probability of a child dying before his or her first birthday. Five causes account for half of all under-five mortality: pneumonia, diarrhea, malaria, measles, and AIDS. In addition, neonatal causes account for 37% of under-five mortality.<sup>56</sup>

Data to calculate under-five and infant mortality rates often are collected from vital registration systems, census, and surveys.<sup>57</sup>

Under-five mortality rates are perhaps more reliable than infant mortality rates due to data collection challenges. Data collected from household surveys may fail to report births and deaths, making it difficult to provide completely accurate data surrounding child mortality. In addition to these challenges, age heaping presents another challenge in determining infant mortality. If a mother reports that her child was one year old at the time of death when really the child was 10 months of age, the death would be counted in under-five mortality but not in infant mortality. While the reporting of infant mortalities as mortalities at one year of age skews data regarding infant mortality rates, it does not impact overall under-five mortality.<sup>1</sup>

### **Undernourished (%)**

The percent of the population that is undernourished is the portion of the population whose food intake is less than the minimum needed calories for the average person. The United Nations Food and Agriculture Organization (FAO) calculates what percentage of a population is undernourished based on the amount of food in a country available for human consumption per person, the extent of inequality in access to food, and the minimum number of calories needed per person. One limitation of this indicator is that it relies on accurate data on food availability, inequality, and energy requirements. Even a small inaccuracy in any one of those data could impact the overall calculation largely, misrepresenting the prevalence of hunger.<sup>30</sup>

### **Urban population (%)**

This indicator represents the number of people living in an area that has been determined an urban area as a percentage of the total population.<sup>1</sup> A standardized definition of rural and urban does not exist across countries, but is determined by each country. Neither all rural nor all urban areas share the same distinguishing traits with each other. It is generally assumed that urban areas are richer and the population living there maintains a higher standard of living than their rural counterparts, though that is not always the case in industrialized countries. Generally urban areas are determined based on population density.

Data regarding urban areas over time allow for calculations of rates of urbanization. Data for this indicator primarily come from census data.<sup>32</sup>

### **Vaccination rates (% DTP3 coverage)**

Vaccination rates represent the percentage of one year olds who have been given three doses of the DTP3 vaccine (combined vaccination for diphtheria, tetanus toxoid, and pertussis) in one year. Data for calculating vaccination rates are collected from health system reporting and household surveys theoretically, though both sources are not always collected for all countries. Vaccinating children is a key factor in reducing under-five mortality rates and controlling disease in a population.<sup>1</sup>

### **Value**

In healthcare, value is the health outcomes achieved per unit cost expended per dollar of cost expended. Value is gained by the configuration of health-delivery activities, including both medical and management processes. A focus on value can inform how providers increase quality, promote equity, and manage costs to maximize population impact. The lens of value recognizes that the product of a delivery system is health, not treatment.<sup>51</sup>

### **Value chain**

1. To analyze the specific activities through which firms can create a competitive advantage, it is useful to model the firm as a chain of value-creating activities. Michael Porter identified a set of interrelated generic activities common to a wide range of firms.<sup>60</sup> The resulting model is known as the value chain.
2. A value chain is a chain of activities. Products pass through all activities of the chain in order, and with each activity the product gains some value. The chain of activities gives the products more added value than the sum of added values of all activities.

The standard value chain categorizes the generic value-adding activities of an organization. The “primary activities” include: inbound logistics, operations (production), outbound logistics, marketing and sales (demand), and services (maintenance). The “support activities” include: administrative infrastructure management, human resource management, information technology, and procurement. The costs and value drivers are identified for each value activity. The standard value chain provides the framework for the design of the care delivery value chain.

### **Value proposition**

The set of benefits delivered to customers. Defining a value proposition necessitates specifying what customers you serve, which of their needs or desires you are addressing, and at what relative price.

### **Value-based care**

Value-based care stipulates that maximizing patient value (see “value” above) should drive the design of health care programs.

### **Vertical approaches**

Vertical approaches focus on a specific medical condition, and investments are made in human resources, infrastructure, management capacity, and planning mechanisms to treat the condition independently of the local health system. This approach focuses on technical interventions for specific disease priorities.<sup>5, 6, 20</sup>

## **Glossary**

### **Virtual private community**

A virtual private community is a group of individuals unified by a specific knowledge base who generate value through their online interactions, such as sharing ideas and collaborating on projects. If individuals wish to join the community, they must request membership and the community moderator must approve it.<sup>61</sup>

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