



# IMPROVEMENT STRATEGIES MODEL: POPULATION HEALTH MANAGEMENT: EMPANELMENT

Led by: **BILL & MELINDA**  
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## CORE PRINCIPLES OF POPULATION HEALTH MANAGEMENT

Population health management is an approach to primary health care (PHC) provision that integrates active outreach and engagement with the community in care delivery. This approach shifts primary care service delivery from reactive to proactive management of a segment of the population. Effective population health management typically occurs both in established clinics and in the community. It requires a strong organizational structure, efficient information systems, and an appropriate mix and sufficient quantity of providers. Inherent in population health management is the provision of a broad range of health activities including curative and preventive care, health promotion activities delivered through broad public health initiatives, and engagement with social determinants of health. Within the PHCPI framework, four elements comprise population health management:

### LOCAL PRIORITY SETTING

Local priority setting entails the translation of national or regional policies into local strategic action plans that respond to the burden of disease and needs and preferences of the population.

### COMMUNITY ENGAGEMENT

Community engagement is a process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes. Community engagement plays a critical role in planning and delivering services that are person-centered and responsive to population health needs.<sup>(1)</sup> Stakeholders should comprise multiple communities including community members, patients, health professionals, policy-makers and other sectors.

### EMPANELMENT

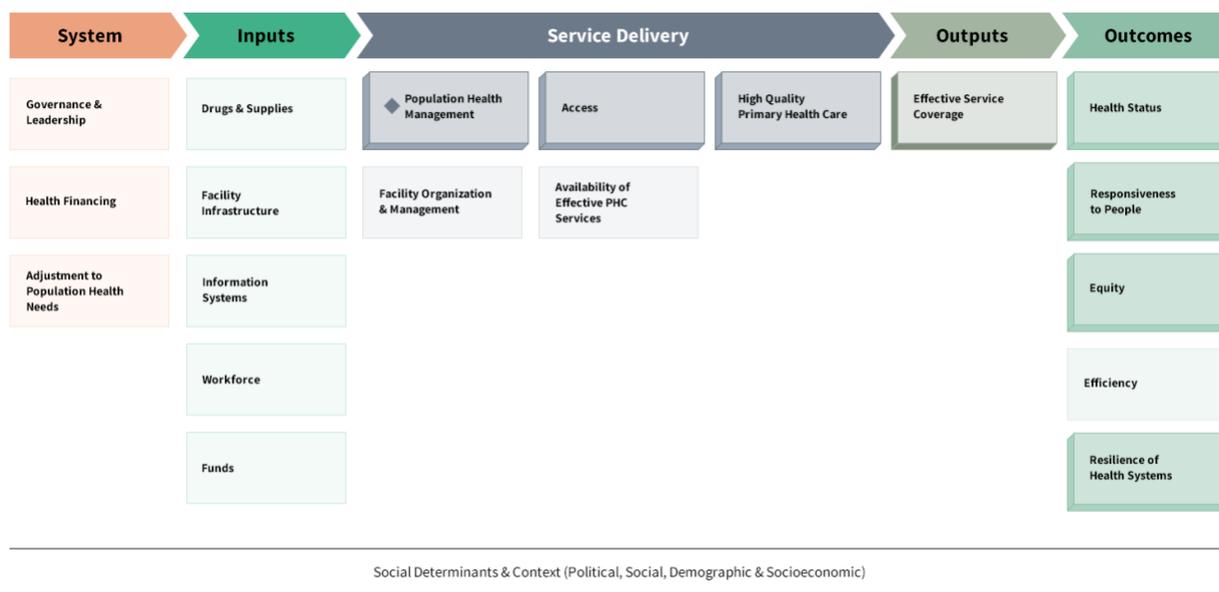
Empanelment (also referred to as population registration or rostering in some areas), a necessary aspect of primary care delivery, is an ongoing and deliberate set of actions to identify, match, and actively review and update data describing a group of people for whom a healthcare organization, care team, or provider is responsible. Additionally, both patients and providers are aware of their relationship. The listing is actively reviewed and regularly updated to ensure accuracy.

### PROACTIVE POPULATION OUTREACH

Proactive population outreach involves health systems actively reaching out to communities, particularly those that are underserved or marginalized, to provide necessary services aligned with local priorities and burden of disease, and link those in need to primary health care. Examples of proactive population outreach include mobile health units, transport systems, health based care, telemedicine and proactive follow-up with patients chronic illness.

## WHAT COULD YOUR COUNTRY ACHIEVE BY FOCUSING ON POPULATION HEALTH MANAGEMENT?

Population Health Management is the foundation of primary health care service delivery and, when done effectively, can contribute to an array of downstream effects:



## SUGGESTED PATHWAYS FOR POPULATION HEALTH MANAGEMENT

### STEP 1: EMPANEL THE TARGET POPULATION

To achieve effective population health management, providers or care teams must be able to list and locate the patients for whom they are responsible. Thus, empanelment - the assignment of a population of patients to a provider or care team - is a logical starting point and a necessary organizational structure for population health management. (1) While empanelment can serve as an organizational foundation for effective population health management, it may not be easily implemented in all settings. In these situations, empanelment should remain an aspiration, but other population health management activities can be implemented at the same time.

Populations may be empaneled in a variety of ways, including by geography, voluntary enrollment, or insurance scheme. Ideally, the entire population within a given area should be empaneled to provider teams. This may be difficult or impossible in dense urban areas, areas with large and transient migrant populations, and areas with large numbers of private PHC providers who do not coordinate with a government or larger organizational entity. However, empanelment in mixed public/private PHC systems is possible. (2) While a country works towards achieving complete empanelment, stakeholders may choose to start by empaneling certain subgroups of a population with specific health needs.

### STEP 2: USE PANEL DATA TO INFORM LOCAL PRIORITY SETTING

After a population is empaneled, providers can shift their focus towards proactive care and health management. Data and registers from the empaneled population can help providers to track the health information of individual patients, plan public health services such as immunization campaigns, and

explore indicators of access, utilization, and health outcomes that in turn inform local priority setting. (3)  
The identified priorities will define the mix of services and medical expertise necessary to manage the patient panel.

### **STEP 3: BASED ON IDENTIFIED PRIORITIES, DESIGN SYSTEMS FOR OUTREACH IN COMMUNITIES AND HOMES**

After identifying priority services, decision-makers and implementers can work with communities to determine which services would be most effectively delivered in communities and homes. Often, preventive care or education-based interventions are best suited to community-based care. Ideally, all people would receive proactive care in their communities, but often it may be more feasible to start with specific groups that require special care or attention, such as pregnant women, people with chronic diseases, or children. When planning proactive population outreach, implementers must consider which cadre of provider would most effectively deliver these services based on cost effectiveness, availability, and training. Community members should be consulted throughout the planning process to ensure acceptability of services.

## EMPANELMENT

“Empanelment (sometimes referred to as rostering) is a continuous, iterative set of processes that identify and assign populations to facilities, care teams, or providers who have a responsibility to know their assigned population and to proactively deliver coordinated primary health care towards achieving universal health coverage.” (4) It is the organizational foundation for population health management and enables health systems to improve the patient experience, reduce costs, and improve health outcomes.(4,5) Empanelment establishes a point of care for individuals and simultaneously holds providers and care teams accountable for actively managing care for a specific group of individuals. Empanelment also provides a population denominator so stakeholders can more easily interpret data, track performance, and effectively plan services. Empanelment is synonymous with “rostering,” and “catchment” or “panel” refers to the population assigned to a care team, but not the provision or management of care for that group.

### WHAT SHOULD I KNOW BEFORE BEGINNING IMPLEMENTATION?

There are numerous reasons why stakeholders may determine that empanelment would be a worthwhile intervention. Empanelment can improve health outcomes by ensuring responsibility for a group of patients regardless of if they seek care, rather than reactively treating patients who access health services. Empanelment also gives stakeholders a stable and updated “denominator” to understand the population for which a primary health care clinical service unit is responsible. Empanelment creates a process for knowing and understanding who and which communities the clinical teams are accountable and responsible for over time. Without understanding this baseline measure, and the segments of the population (numerators) that make up this denominator, it is difficult to effectively plan and implement population health strategies. Further, in order to shift PHC service orientation from a purely reactive one to proactive over time, empanelment is necessary and will make proactive population outreach more effective.

Some indications that empanelment is needed may include:

- ▶ A significant portion or specific segments of the population do not have a usual source of care
- ▶ Patients are over-utilizing higher levels of care for needs that can be addressed in primary care settings
- ▶ A population experiences significant morbidity and mortality from preventive causes
- ▶ Patients feel that care is of poor quality and not responsive to their needs
- ▶ Providers or care teams receive too few or too many patients relative to their capacities.

Users can find additional details for the key phases needed to implement and sustain effective empanelment in the Joint Learning Network’s overview on [Empanelment: A Foundational Component of Primary Health Care](#).

### CREATING A PATIENT PANEL

There are three general methods of empanelment countries can implement to achieve widespread empanelment: geographic, voluntary, and insurance-based (though other forms can exist, including empanelment to private provider groups). These methods are not mutually exclusive and can occasionally co-exist, such as in Turkey. A brief case study on Turkey is described in “What others have done”. Countries may also choose to begin empanelment by focusing on target groups with specific health needs,

as discussed above. However, this should be supplemental to efforts to achieve widespread empanelment using one or a combination of these three methods.

Geographic empanelment uses pre-existing geographic or municipal boundaries to assign individuals to a provider or care team. While this is the simplest method of empanelment and supports strong [geographic access](#) to PHC, it may be perceived as limiting the autonomy of patients to choose their providers and subsequently decrease patient trust in the system. Geographic empanelment is also dependent on PHC services provided by a governmental entity, and low rates of private PHC use.

Voluntary empanelment prioritizes patient autonomy and allows patients to choose their provider or care team.<sup>(5)</sup> It is often more adaptable to mixed private-public PHC markets. The final method of empanelment is insurance-based, which may be feasible if providers and patients are linked to a specific insurance scheme, and a care team only sees or is responsible for particular enrollees in an insurance scheme. In these cases, the insurer may assign the provider or care team. Insurance-based empanelment can work in a variety of public, private, or mixed systems, but it is dependent on a formal insurance entity and broad universal health coverage by that entity or mix of entities.

Stakeholders may ask some of the following questions to help identify which method would be best in a given context:

- ▶ Are there sufficient numbers of providers within a geographic area to give patients a choice of providers while also ensuring that they are geographically accessible?
- ▶ Are there certain insurance schemes in place in the region such that providers' workload or logistical requirements would be significantly more efficient if they only provided care to enrollees?
- ▶ Are there any insurance schemes in place that already have an informal or formal empanelment systems but are not at a national level?
- ▶ Are there sufficient information systems in place to track patients if they were given the choice to switch providers? Are they capable of tracking a panel for facility and outreach care?

After establishing the appropriate method for assigning panels, stakeholders must determine how many individuals or families should be included in each panel. This requires consideration of patient-provider supply and demand as well as the package of services that will be delivered through PHC and the capacity of the workforce to effectively provide these services to their assigned population to ensure that providers are not overburdened and can effectively care for all people within their panel. However, the size of a panel and the specific considerations involved in determining panel size will differ based on local context. Population profiles and needs should be considered to ensure that care teams are not overburdened by caseload or by substantial health needs. In general, stakeholders should consider the number and capabilities of the providers within a care team, the time and human resources needed to fulfill various activities undertaken by the team (i.e. education, community outreach, curative care, preventive care), and any data on the specific needs of the population that may influence the degree of care they require. Once patients are linked to a provider or care team, a patient's first point of contact has been clarified and should be deliberately reinforced during subsequent visits to the facility and during community-based care.

An [implementation guide](#) developed by the Safety Net Medical Home Initiative in the United States highlights various considerations for implementers when instituting [empanelment](#). Although these guides were developed for a high-income setting, they provide relevant information on the sequential steps needed to empanel a population and tools that would facilitate decisions regarding appropriate panel sizes.

Recognizing that empanelment relies upon data on the relevant populations, the absence of a civil registration and vital statistics (CRVS) system may present a bottleneck to the establishment of patient panels. Without a CRVS system, stakeholders seeking to empanel their population may have to perform a census which is timely, costly, and often not within the scope of providers' training. More information on CRVS systems is provided by the [WHO](#) and the [Health Data Collaborative](#).

## EMPANELMENT OF POPULATION SEGMENTS

While complete empanelment is a key goal for effective population health management, very few countries have achieved 100% empanelment in practice (some countries that have achieved >90% empanelment include: England, Scotland, Netherlands, Denmark, Finland, Estonia, and Costa Rica). Countries may choose to begin empanelment by selecting target groups that are particularly vulnerable or in need of specialized services and placing these populations under the purview of specific care teams, also known as selective empanelment. (6)

The [Sustainable Development Goals \(SDGs\)](#) released by the UN in 2015 included health targets for priority groups under Goal 3: Ensure healthy lives and promote well-being for all at all ages. The targets call for efforts that will support reductions in maternal and under-5 mortality, end the epidemics of AIDS, tuberculosis, and malaria, reduce mortality from non-communicable diseases, and ensure access to sexual and reproductive health services.(7) Additional information on the SDG goals can be found on the [Global Goals](#) website. While working towards full empanelment, these priority groups - women of reproductive age, children under 5, people living with HIV/AIDS, and individuals with chronic diseases - are all segments of the population that could be initially empaneled and would benefit from proactive services and monitoring by providers. For instance, a few community health workers may be responsible for all women of reproductive age within a given geographic catchment and provide these women with necessary referrals to prenatal care and birthing services, ensuring access to preventive services that may eventually result in a reduction in maternal mortality.

This form of empanelment can also create a population denominator for these sub-groups of the population and help countries measure and achieve specific targets, including effective coverage. (4) However, while empanelment of sub-populations based on health needs is a start, to achieve UHC it is important to note that this method of empanelment is meant to lead towards a holistic goal of population-wide empanelment to ensure that no one gets left behind. The selection of sub-groups and accompanying services is discussed in greater detail in [proactive population outreach](#).

## EMPANELMENT AS A TOOL TOWARDS INTEGRATED AND PEOPLE-CENTERED MODELS OF CARE

Empanelment is an important foundation for population health management. In addition to providing logistical structure and clarity to patients, empanelment can enable a patient-centered model of care where providers assume proactive responsibility for their panel, regardless of whether or not patients visit the facility. While empanelment is a critical component, this must be achieved in conjunction with the other elements of population health management, namely local priority setting, community engagement, and proactive population management. When empanelment is not technically feasible, other parts of population health management can be prioritized until policy and community contextual elements enable empanelment to be implemented.

One method for promoting continuous, accessible, and coordinated care within a panel is a gatekeeper method for accessing higher-level or specialist care for non-emergencies. In an "explicit" gatekeeper model, patients can only receive care from secondary or tertiary facilities if they first seek an approved referral from their primary care provider. By contrast, "implicit" gatekeeping occurs if patients are

encouraged but not required to visit their primary care provider before seeking secondary or tertiary care.(5) Gatekeeper systems can help reduce over-utilization of higher levels of care while ensuring that primary care providers are aware of all of the health needs of their panel, even when they must be addressed by specialists. This can improve coordination and continuity of care. However, it is important to note that gatekeeper models can limit access to needed specialty care if the system is not well-planned. Gatekeeping is only effective if the following elements are in place: clear communication of patient panels; trust and respect between patients and providers; timely appointment availability at primary and specialty care facilities; effective referral systems, including communication between levels of care; and geographically and financially available primary and specialty care services.

Reorienting a health system to proactively manage the care of a panel of patients often requires a behavior shift for all providers involved. In order to facilitate this change, facilities must have strong and engaged leadership and managers who can communicate the goals of empanelment and guide employees through new systems or processes.(8) Leadership qualities are discussed in greater detail in the [facility organization and management](#) Improvement Strategies module.

## WHAT HAS BEEN DONE ELSEWHERE TO IMPROVE EMPANELMENT?

While the merits of empanelment have been documented in high-income settings, particularly throughout Europe, little peer-reviewed literature exists evaluating different models of empanelment in LMIC. Despite this gap in the literature, many countries have adopted various models of empanelment as a means to achieve population health management. [Costa Rica](#), [Ghana](#), [Brazil](#), [Turkey](#), [Estonia](#), and [Ethiopia](#) are among the countries that have integrated empanelment into various health care reforms over the last few decades, demonstrating the effect that empanelment can have on access, high quality PHC, and eventually outputs and outcomes. Because empanelment is often integrated into a package of reforms, it is difficult to attribute positive outcomes to empanelment alone, though many of these case studies have demonstrated tangible improvements in service delivery and health outcomes.

### TURKEY

The experience in Turkey demonstrates a mix of geographic and voluntary empanelment. Under the Health Transformation Programme (HTP), Turkey established geographically distributed medicine centers with assigned patient panels (HTP). Initially, patients are assigned a physician based on geographic catchment areas as a means to improve geographic and timely access to care. However, after this initial geographic empanelment, patients were free to switch providers at will. (5,9) While this system does prioritize patient choice and establishes a first point of contact, there are multiple opportunities for improvement. First, catchment areas are not determined based on population profiles and burden of disease, resulting in panels with needs that surpass other panels of equal sizes. Secondly, patient registers are not capable of tracking when patients switch providers, compromising coordination of care and underscoring the necessity of pairing empanelment - and all population health management activities - with strong information systems.

### ALASKA, UNITED STATES

In contrast to Turkey's challenges with tracking patients during voluntary empanelment, the Southcentral Foundation (SCF) Nuka System of Care serving Alaska Native and American Indian people in Alaska, United States has achieved efficient voluntary empanelment through the support of an Empanelment Department. The population served by SCF is largely poor, rural, marginalized, and suffers from high rates of chronic disease. Catalyzed by a law passed by the United States Congress, SCF has been tribally owned and managed since 1997. As such, patients are called "customer-owners" and have significant oversight into the functioning of their health system. Customer-owners can join open enrollment panels at any time or join a panel to which his or her family already belongs, even if it is not accepting new patients otherwise. (10,11) Each panel includes approximately 1500 customer-owners, and care teams comprise a primary care physician, nurse case managers, certified medical assistants, and administrative staff. The Empanelment Department and SCF staff assist in all aspects of panel placement and management, helping to improve relationships between primary care providers and customer-owners if conflicts arise or matching customer-owners with a new panel as needed. In addition to checking empanelment status at each visit, staff work to ensure continuity of information and communication between providers when patients switch panels. This constant monitoring and support requires significant human resources and efficient information systems. (10)

### COSTA RICA, GHANA, AND BRAZIL

Empanelment was a central component of health care reforms introduced in the early 1990s in Costa Rica, Brazil, and Ghana. The Equipo Basico de Atencion Integral de Salud (EBAIS) model in Costa Rica and the Family Health Strategy (FHS) in Brazil established multidisciplinary care teams to provide

comprehensive care to a geographically empaneled population of approximately 3500 and 4500 individuals, respectively.(12,13) A similar reform took place in Ghana where trained nurses called Community Health Officers (CHOs) provided health services to an empaneled population both by way of door-to-door services and at Community-based Health Planning and Services (CHPS) compounds. All three countries demonstrated significant gains in access to PHC: during the first decade of implementation, access to PHC services in Costa Rica increased from 25% to 93% (12), coverage in Brazil increased from 4% in 1998 to 62% in 2014 (14), and the pilot experiment for strengthening CHPS implementation in a Northern region of Ghana demonstrated an eight-fold increase in encounters with health services.(15)

As demonstrated by these countries, the most immediate result of geographic empanelment was the establishment of a geographically accessible first point of contact in the health system. Additionally, Costa Rica, Brazil, and Ghana all coupled empanelment with the deployment of CHWs to communities. After establishing panels, CHWs were able to provide integrated, person-centered care and form continuous relationships through regular home visits and community-based care. More information on community-based care can be found in [proactive population outreach](#) and [provider availability](#).

Learn more about [Costa Rica](#), [Ghana](#), and [Brazil](#).

## WHAT QUESTIONS SHOULD BE CONSIDERED TO BEGIN IMPROVEMENTS?

The questions below may be a useful starting place for determining whether Empanelment is an appropriate area of focus for a given context and how one might begin to plan and enact reforms:

### **IF EMPANELMENT DOES EXIST, HOW IS THE POPULATION ASSIGNED TO A PROVIDER OR CARE TEAM AND WHAT PORTION OF THE POPULATION IS EMPANELED?**

As discussed in “what it is”, populations can be empaneled in a variety of ways, including geographically, voluntarily, or through insurance. As a country’s health system changes, it may be important to re-evaluate methods of empanelment. Additionally, countries may begin by empaneling only a segment of the population and adopt new methods as the context becomes more conducive.

### **IF EMPANELMENT EXISTS, WHO IS TASKED WITH UPDATING AND MAINTAINING PATIENT PANELS? WHAT IS THE PROCESS FOR MANAGING PATIENT PANELS TO ENSURE THEY ARE ACCURATE AND REFLECT THE PATIENTS FOR WHOM THE PROVIDERS OR CARE TEAMS ARE RESPONSIBLE/ACCOUNTABLE?**

It is important to have a clearly identified person within a care team who is responsible for updating and maintaining patient panels. This will differ facility to facility, but some options include: administrative staff members or nurses who confirm, communicate, and make changes to panel assignment as needed during facility visits or community-based providers who assess empanelment during community outreach.

### **HOW DO YOU ENSURE THAT PROVIDERS AND CARE TEAMS UNDERSTAND EMPANELMENT AND HOW IT IMPACTS THEM?**

Providers must understand how they can access patient panel information and how to contact or provide outreach to these individuals in order for the community to benefit from empanelment. This functionality should be integrated into facility-based information systems. Additionally, if empanelment is a new intervention, it is important for facility leaders to create protected time for providers to ask relevant questions and understand how this change will impact their responsibilities.

### **BETWEEN VISITS TO THE FACILITY, WHAT IS THE PROCESS TO IDENTIFY WHICH SEGMENTS OF PATIENTS ARE CONTACTED WHEN? HOW ARE EVIDENCE-BASED GUIDELINES INCORPORATED INTO THIS PROCESS? HOW ARE GAPS IN CARE IDENTIFIED AND ADDRESSED WHEN PATIENTS VISIT THE FACILITY?**

Proactive population outreach can be facilitated through empanelment. Using patient registers for the empaneled population, facility managers can consider the type and frequency of outreach needed. More information can be found in the [proactive population outreach](#) module.

### **WHICH TYPE(S) OF EMPANELMENT WOULD BE MOST APPROPRIATE IN A GIVEN SETTING?**

Factors that may impact this choice include: the package of services expected to be delivered through primary health care; geographic availability and skill mix of providers to deliver the expected package of services; informal empanelment systems already in place through geographic catchment areas or

insurance schemes; and availability of information systems to identify patients and track them as they move between panels.

### **WHAT ARE THE CURRENT HEALTH NEEDS OF THE PANEL, AND WHAT MIX OF PROVIDER TEAM CAN BEST MEET THESE NEEDS?**

This will depend upon the training, capabilities, and availability of the health workforce as well as the national Basic Package of Essential Health Services. More information can be found in [local priority setting](#) and [team-based care organization](#).

### **WHAT IS THE APPROPRIATE SIZE AND MIX OF PATIENT PANELS?**

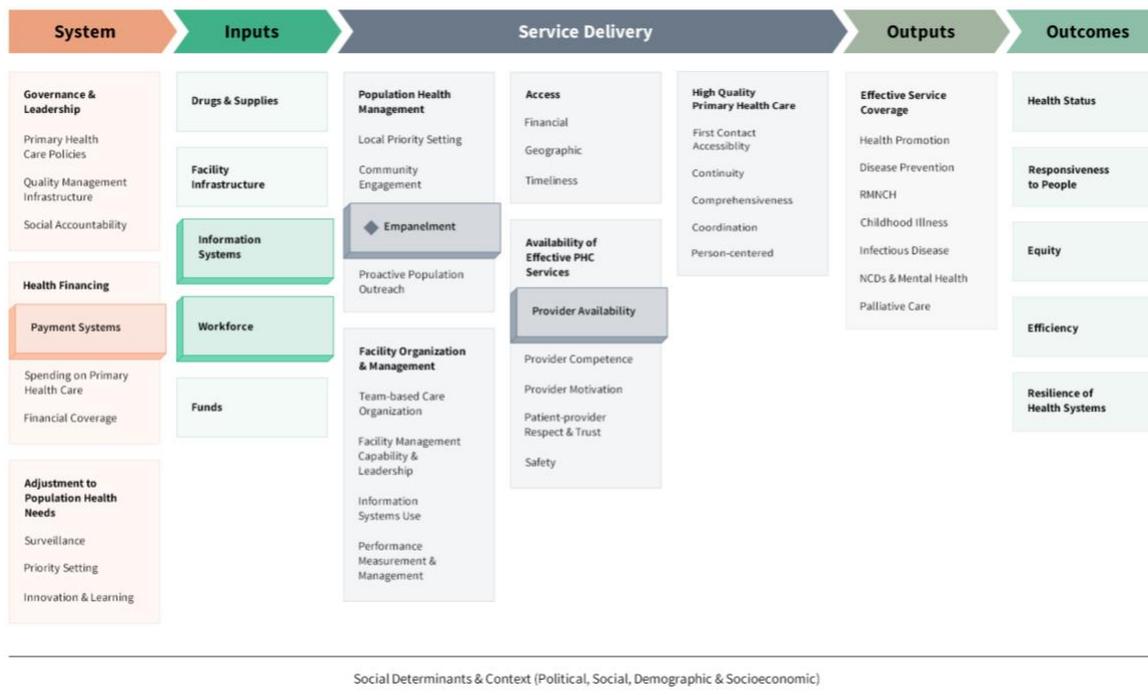
This should be determined in conjunction with the question above; the capacity of the provider team and needs of the population will help determine the appropriate panel size.

### **WHAT IS OR SHOULD BE THE PROCESS TO ENSURE THAT PROVIDERS AND/OR CARE TEAMS KNOW HOW AND WHERE TO REACH PATIENTS, INCLUDING THOSE WHO DO NOT COME INTO THE FACILITY? WHAT RESOURCES ARE AVAILABLE TO CONTACT PATIENTS AND CONDUCT OUTREACH (I.E. COMMUNITY-BASED PROVIDERS AND INPUTS TO SUPPORT THEIR WORK)?**

Providers should be able to easily access patients when needed to ensure that patients are receiving care whether or not they proactively contact the health system. This will depend on the reliability of contact information, the ability for providers to spend time in communities, and communication technology. Proactive outreach to the panel is an important component of empanelment, and the relevant providers should be identified to conduct this outreach. These services are typically provided by Community Health Workers or similar cadres. More information on community-based providers can be found in [proactive population outreach](#) and [provider availability](#).

## WHAT ELEMENTS SHOULD BE IN PLACE TO SUPPORT EFFECTIVE IMPROVEMENTS?

In order for interventions aimed at improving Empanelment to be most successful, the following elements of the [PHCPI Conceptual Framework](#) should be in place or pursued simultaneously:



### SUPPORTIVE PAYMENT SYSTEMS

Empanelment may be challenging in fee-for-service payment environments without additional incentives given to providers to deliver preventative and proactive care, since often such care is not associated with specific billing codes. Providers who receive fee-for-service payments typically estimate panel sizes based on those who actively seek care, overlooking those who do not have access to PHC. (16) By contrast, capitation payment systems may enable providers to allocate time and resources based on the size and health needs of their panel. Capitation is common in many European countries with national health systems and universal patient registers. A recent [study](#) evaluated revenue gains under different payment models supporting patient-centered medical home models in the United States, finding that per-member-per-month payments (a type of capitation) increase practice revenue while increased fee-for-service payments do not. (17) However, while current per-member-per-month payments enhanced revenue, this was not sufficient to incentivize and sustain practice transformation efforts that deliver on high-value care, such as changes to staffing ratios and service delivery strategies. To achieve sustained transformation efforts and investment in high-value primary care in the long-term, more radical payment reforms, specifically those that target funding toward the delivery of comprehensive services and away from fee-for-service payment models, are needed. (17)

Learn more in the Health Financing Improvement Strategies module (forthcoming).

## INFORMATION SYSTEMS

Successful empanelment depends on information systems with broad, fundamental capacities to identify, track, and stratify a given patient population. Patient registers and civil registration and vital statistics (CRVS) systems are crucial for care teams to locate, contact, and list their panel for planning purposes and must be coupled with medical record systems that enable a provider to track the health of individual patients in order to provide the most appropriate, continuous, and coordinated care.(16)

In addition to information systems capable of retaining patient panels and recording patient medical information, further efficient, effective, and innovative use of these systems has been shown to contribute to population health management in empaneled populations. During monthly household visits, community health agents in Brazil collect individual and household-level data to keep updated vital registers and data on burden of disease and health needs.(14) Similarly, in Costa Rica, data feedback loops and efficient communication of information enable the development of targeted action plans and management contracts, targeting the specific health needs of the population.(12) Additionally, information systems that incorporate personal health records have the potential to engage patients in their own care and improve health literacy.(18)

Learn more in the [Information Systems](#) Improvement Strategies module.

## WORKFORCE AND PROVIDER AVAILABILITY

There must be an adequate number of reliable providers to serve an empaneled population, thus provider supply is a crucial component in determining panel size. If supply and demand are unbalanced, population health management will not be feasible. Additionally, the composition of the workforce is an important consideration when determining if and how to integrate multidisciplinary teams. While there are no guidelines or toolkits in LMIC on the appropriate provider to patient ratio for panels, care teams in Brazil and Costa Rica have managed panels of approximately 3500 and 4500 individuals, respectively.(12,19) A study in the United States found that a single provider can reasonably manage care for 983 individuals, while a care team with substantial delegation may be capable of managing care for a panel size of 1947 individuals.(20) These panel sizes are meant to be guidelines and not prescriptive as panel size depends on myriad contextual factors such as demographics, burden of disease, and the capabilities of members of the care team.

Learn more in the [Workforce](#) and [Provider Availability](#) Improvement Strategies modules.

## TEAM-BASED CARE ORGANIZATION

In many LMIC, multidisciplinary teams have been the cornerstone of population health management and pursued in tandem with empanelment. Delegation of care between team members can result in more efficient and comprehensive care. A 2012 analysis using data from the United States found that delegating care to non-physicians on the team could help teams support double the size of a panel compared to care provided by a physician alone.(20) It is important to note that delegation - or task shifting - should always be accompanied by the appropriate training for providers who assume new responsibilities. Care teams can drive improvements in health outcomes by increasing the contact individuals have with the health system, often through the provision of community-based care. The value of care teams working with an empaneled population has been seen empirically as well. The FHS teams in Brazil include a physician, nurse assistant, and four to six community health workers each, and Costa Rica's EBASIS teams are comprised of a doctor, a nurse, a technical assistant, a medical clerk, and a pharmacist.(12,13) Not only are these teams able to see patients more efficiently through defined roles, but they can also contribute to comprehensive care by tapping into different expertise of team members to identify who can provide care appropriate to patients' need.

Learn more in the [Team-Based Care Organization](#) Improvement Strategies module.

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