

# Panels for Population Health: A Simplified Guide to Empanelment

**BETA PROTOTYPE**

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PHCPI was a partnership dedicated to transforming the global state of primary health care, beginning with better measurement, that concluded at the end of 2022.

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# Executive Summary

The process of assigning patients to a care team or provider, often referred to as empanelment or rostering, is a core component of high-quality primary health care but is not clearly defined at a global level, which has made it challenging for countries to capitalize on the benefits of empaneling their primary care system. This guide is meant to begin the process of building that shared understanding, laying out the core components of empanelment, and guiding the user through key questions to begin building their empanelment system. After reading through this guide and completing the working questions, the user should have a better understanding of what it means to successfully empanel a population, as well as a roadmap for how to define your population and providers and strategically create panels that meet your country's current context, needs, and goals.

Empanelment is a conceptually simple but powerful tool that can help primary health care (PHC) systems achieve the 5Cs of quality primary care: first-contact accessibility, coordination, comprehensiveness, continuity, and people-centeredness. (1,2) Empanelment refers to the intentional, coordinated assignment of individuals to a primary care physician or primary care team. While empaneling an entire population may seem daunting, the underlying concepts and steps are simple. The implementation of these steps, however, is highly contextual and requires a strong understanding of your population, providers, and the health care system.

Empanelment enables successful primary health care systems to be proactive about the health care they deliver. By understanding exactly who a care team is responsible for, the care team can more efficiently address the needs of their population, and identify health conditions before they progress. This active management of the health of a population is known as Population Health Management (PHM). Empanelment enables strategies such as risk stratification (where individuals most in need are directed additional resources and outreach), disease-based registries, and efficient epidemiological tracking, among others.

This guide consists of four working sections:

- 1) Define the population:** This section covers the first step in empanelment: defining the population you'll be empaneling (either full empanelment or selective empanelment). Then, you will gather information on your population, including basic information on their demographic, socio-economic, and medical characteristics and make a plan to ensure that you cover everyone.
- 2) Define the primary care team:** This section helps you define and organize the providers you will work with at the primary care level, including community health workers, nurses, advanced practice providers, and physicians. You will have to decide, for example, whether to empanel to a primary care team or to a single provider.
- 3) Combine strategically to create panels:** This section covers combining the results of the previous two sections (population and primary care team) in purposeful, culturally-acceptable, financially-viable ways for your country. You may choose to create assignments based on geography, health insurance, health conditions, employer, or patient choice, and you will have to consider how you will ensure your panels are kept up to date.
- 4) Implementation:** This section will help you prepare for, and roll out your new empanelment system, including considerations such as educating your population and providers about the model, notifying patients and providers of their panel assignments, and using monitoring and evaluation to ensure the empanelment system works as planned.

# Introduction

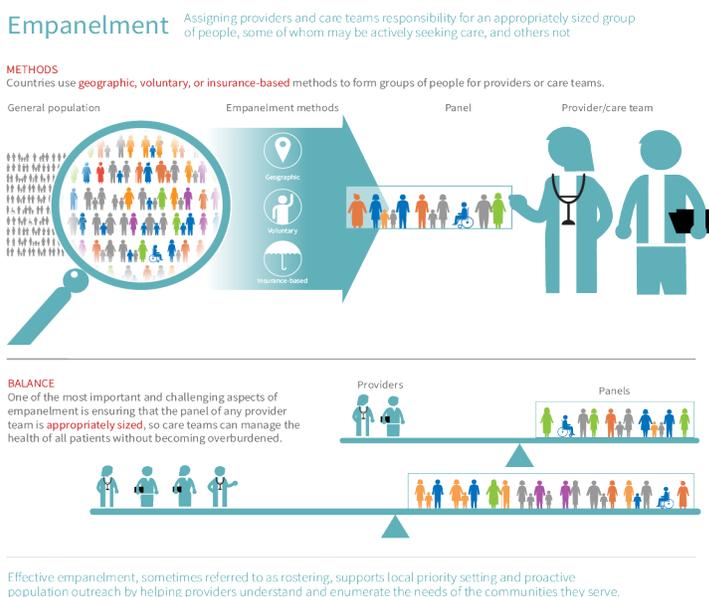
Primary Health Care (PHC) that is accessible, coordinated, continuous, and comprehensive has the power to transform health care systems. (3) PHC is foundational in low- and middle-income country health care systems and is a core component in the pursuit of universal health care (UHC), where it can provide a low-cost, high-reward option for investment in health when resources are limited. (4) Recent research in Costa Rica demonstrates a 13% reduction in mortality after establishing a comprehensive, proactive, preventive PHC system, with the largest gains in mortality centered around the elderly (22% mortality reduction) and among non-communicable diseases (19% reduction in deaths from cardiovascular diseases, 26% reduction in cancer deaths, 22% reduction in chronic respiratory disease deaths, and 18% reduction in diabetes mortality). (5)

Empanelment is a strategy that, when implemented and employed appropriately, can make PHC more accessible, coordinated, continuous, and comprehensive. (1,2) Empanelment is the intentional, coordinated assignment of individuals to a primary care physician or primary care team. The assignment of people to specific providers who assume responsibility for those individuals constitutes the creation of “panels”. In recent years, the PHC field has reaffirmed the importance of empanelment, including an endorsement of empanelment as a core component of PHC in the Astana Declaration and a formal recommendation from the National Academies of Science, Engineering, and Medicine that the US health care system adopts empanelment. Several countries, including Costa Rica, Turkey, and Estonia, have demonstrated successful adoption of empanelment, and some evidence demonstrates that empanelment is a major contributor to improvements in mortality. (4)

## Box 1: Definition of 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 proactively deliver coordinated primary health care towards achieving universal health coverage. (2)

**Figure 1: Basic Arrangement of an Empanelment Structure**



Empanelment is a strategy that underlies many functions of successful, high-quality PHC systems. After empanelling a population, PHC providers can identify and take responsibility for their panel of patients, shifting PHC from a reactive system to a proactive system. The active assumption of responsibility by the health system for the health outcomes of a specified group of people is the basis of a strategy known as Population Health Management (Box 2). In reactive health care systems, only patients who present to a facility receive care, limiting the proportion of the population that benefits from the health care system. By contrast, in a proactive, empaneled health care system that uses Population Health Management, primary care maximizes the health outcomes of its entire patient population and enables targeted outreach to the most vulnerable members of that population.

### **Box 2: Examples of Population Health Management in Empaneled Populations**

- Risk stratification of patients, so that higher-risk patients can receive additional care coordination or attend more frequent clinic visits.
- Identification of empaneled patients who are meeting (or not meeting) disease-based targets (such as HbA1c or blood pressure).
- Direct outreach to empaneled patients whose preventive medicine screenings are overdue.
- Direct outreach to patients with specific chronic conditions to ensure treatment adherence and education.
- Targeted outreach based on demographics, such as family planning or cervical cancer screening for women of reproductive age.
- Provide services for health literacy and self-care within the community.
- See more examples of population health management in [PHCPI's Improvement Strategy](#)

While empaneling an entire population may seem daunting, empanelment is a simple concept: assign your population to PHC providers and have those providers take responsibility for their panel of patients. As with many “simple” concepts, however, the operationalization of empanelment can be complex and extensive. This document will walk you through the different conceptual components and key questions necessary to design and implement empanelment in your context.

## **How To Use This Guide**

This implementation guide is meant to be a conceptually simple “how-to” guide for empaneling a population. Anyone seeking to support or guide empanelment will find this guide a useful starting place for planning, including but not limited to country-level Ministries of Health, health-system planners, international providers of technical assistance from multilateral institutions, and program-planning professionals. To accommodate many different styles of empanelment and country contexts, we have taken a “workbook” approach. Each subsection contains brief background information coupled with working questions to help you think through the details of empanelment in your own context. For instance, the subsection “Identify Your Population” discusses what information you need to know about your population, where you might find that information, and how to create unique identifiers to organize that information. It contains questions that will help guide you through the identification process in a way that is most relevant to your country's context.

The guide is written to be relevant to multiple contexts. As a result, some sections may be more or less appropriate for your specific context. Factors such as resource availability, the organization of the PHC system, or the health care workforce will all impact which aspects of empanelment will be the most challenging or require the most work to implement. However, we believe that all of the subsections presented in the tool are critical to a high-functioning empanelment system and should be thoughtfully considered during planning and implementation. Your country may already be doing empanelment as a

small pilot project, working towards establishing empanelment for the whole country, or including empanelment in a broader PHC reform. In all of these contexts, this guide will introduce you to concepts and ask you questions that can help you identify strengths and weaknesses in your current system and establish a plan for improvement. You may choose to answer these questions as you go or read the entirety of the guide first before you begin to answer to give you a better understanding of empanelment as a whole.

# Methodology

Ariadne Labs was a key technical partner in the creation of The Primary Health Care Performance Initiative's (PHCPI) Progression Model - a tool to measure the capacity of a primary care system. One of the components within the progression model is empanelment, in which countries receive a single score for the capacity and performance of empanelment at a national level. While this is a helpful starting point, we found that there was little formal guidance for how countries can build upon this score to improve, develop or strengthen their empanelment system.

To build this guide, we conducted an in-depth literature review around empanelment, panel maintenance, and various facilitators and barriers to empaneling a population both in the US and globally. We used our findings from the literature review to create a conceptual mapping of the empanelment process and pertinent considerations that must be made. In doing so, we also concluded that while there are helpful implementation guides for United States-based empanelment, there is a lack of globally-relevant literature on what it means to empanel and how to build a strong empanelment system.

Much of the content within this guide builds on key concepts presented in Bearden's 2019 *Empanelment: A Foundational Component of Primary Health Care* as well as The Joint Learning Network's (JLN) unpublished Empanelment Assessment Tool. Over two dozen case studies on countries' experience with primary care commissioned by the World Bank Group (WBG) to support the China Health Study were also reviewed at length. We are grateful to all involved in the development of the above work as these resources were key in the genesis of this guide.

## Define the Population

The first step to designing and implementing an empanelment system is defining the population you intend to empanel. Our recommendation is to empanel everyone within your population, also known as “full empanelment”. However, there may be instances where this is not feasible given your context and resources. In this case, a small pilot program of empanelment in a specific geographic region or population may be trialed before empaneling the entire population, also known as “selective empanelment”. Defining the population will be more or less complex depending on the comprehensiveness of existing health information systems.

## Identify Individuals

Once you identify how much of your population you are seeking to empanel, you must identify and enumerate, or number, all of the individuals within that population. Identifying everyone in your population is an important first step for establishing empanelment in your primary health care system. Unless your country has a strong existing health information system, this process will likely involve identifying, collecting, and organizing data from across different data sources (Box 3) or even creating new data repositories. See more information about health management information systems (HMIS) and data collection systems below.

### Box 3: Potential Data Sources (6)

Civil Registries and Vital Statistics	Name, residence, basic social and economic data
Census	Name, residence, family relationships, social and economic data
Health Insurance or Other Financial Protection Scheme	Name, residence, health care utilization data
Health Facility Registries	Name, patients seen, medical conditions
Condition-Based Registries	Name, disease, possibly disease severity
Social Security Systems	Name, residence, socio-economic information, possibly linked to health insurance information
Electronic Medical Record	Name, medical conditions, recent preventive screenings, and other clinical data. Some EMRs may also contain socio-economic data.

### Working Questions: Identify Individuals (Part I)

1. *What population will you seek to empanel? Will you empanel everyone in your country (full empanelment)? Or, will you choose to empanel a subset of your population (selective empanelment)? If so, what subset of the population – by geographic sub-area, by diagnosis, etc.?*

2. *Can you identify all of the members of the population you intend to empanel? What data sources will you use? Are these data sources readily available?*

## Define the Population > Identify Individuals

Identifying and recording everyone's name is only the first step. To empanel a population successfully and to further use that empanelment system to support population health, you need to know more about your population:

- **Identity:** you need to know basic identifying information about each person, such as sex/gender, age/birthdate, etc.
- **Residence:** especially for geographic empanelment schemes, you will need to know where each person is physically located. Later sections of this tool will consider sub-populations that may not have a permanent residence or whose residence changes one or more times.
- **Basic clinical information:** to use your empanelment scheme to support active population health management, you may want to know specific information about your population's health, such as which conditions each person has been diagnosed with.
- **Basic Social and Economic Information.** To support patient health, you will also need to know how each person lives. For example, what level of education have they attained, what socio-economic level have they attained, and are they employed?

In some cases, the information you need for empanelment may not have been collected or organized in an accessible way. You might need to get creative to collect information from disparate sources.

### Box 4: Costa Rica Gets Creative

In 1993, Costa Rica set out to empanel their population but quickly discovered they did not have complete data on the residence of their population. The Ministry of Health approached The University of Costa Rica's geography department for help. Together, the Ministry of Health and the geography department were able to map all the residences and geography of Costa Rica by hand, as this was prior to the development of robust GIS systems. This work involved not only the development of maps of the whole country but also direct, on-the-ground, work by MOH individuals and local municipalities to locate each

Costa Rican home. The Ministry of Health then linked this residence data to each individual's unique identifier, their Social Security Administration number, in order to support empanelment.

### Working Questions: Identify Individuals (Part II)

1. *Do you have a unique alphanumeric identifier for each member of the population that can be linked to an individual's basic identifying information such as name, date of birth, and place of residence?*

2. *Do you have basic clinical information on all members of your population? Can this information be linked to the individual? Are there existing EMRs with this data?*

3. *Do you have basic social and economic data on all members of your population? Where could you access this information? Can this information be linked to the individual? Are there existing EMRs with this data?*

## Define the population > Database and HMIS considerations

### Database and HMIS Considerations

After identifying all of the individuals within your population, you will need to generate a system (hereinafter referred to as a population database) for recording and sharing information about these individuals with providers and administrators and making changes over time (i.e. adding to or removing individuals from the panel). We suggest considering what types of information systems already exist and determining if any of these can be adapted for empanelment.

While technology can sometimes make empanelment easier, do not be deterred if electronic databases are not available. It is possible to create complete and useful population databases on paper. Some countries have had success using simple data software such as excel, while others have found success using proprietary systems, or DHIS2.

If it is available in your context, technology can be a very useful tool for identifying and recording your population. Digital population databases, health management information systems (HMIS), electronic medical records (EMRs), and geographic information systems (GIS) can help you identify and describe the population. Even when all the necessary information to identify your population is available digitally, information will likely be located within different systems or databases. For instance, your census database may contain names, residences and basic social and economic information, but health-related information may be located in an EMR. To organize all your information, you may consider creating or improving interfaces between the different systems. We would suggest considering the integration of your population database and your EMR so that information may update automatically (you may need to link to more than one EMR). More information on developing high-functioning health management information systems can be found in the [PHCPI Improvement Strategy on Information & Technology](#).

### Working Questions: Database and HMIS (Part I)

1. *What technology will help you access the necessary information on all the members of your population (e.g. HMIS)? Will it be paper-based or electronic? Is it available online? Is the internet required to access it?*

2. *Will your population information be supported or augmented by the census or other official government data sources? By non-governmental data sources?*

3. *How will your data system interface with other sources of population information, such as the census? Will your data system interface with one or more EMRs? Is the non-medical information about your population members separate from or already incorporated into the EMR?*

## Define the population > Database and HMIS considerations

In your population database, each person will require a unique identifier: a piece of information (or a combination of several pieces of information) that “belongs” to a single person. This can be an alpha-numeric or numeric code. Some examples are social security numbers (in the United States) or national ID numbers. Some countries or populations may be able to use name, date of birth, and sex to identify individuals, but in many contexts where names are commonly repeated, this combination of information may not be unique enough.

Keeping information about your empaneled population up to date will require designated individuals and strategies and potentially additional data sources. In addition to moving between and within regions or cities, your population will constantly be changing in other ways, such as births and deaths. Some countries choose to link their empanelment data to their official census data to ensure that they capture all individuals; other countries prefer to keep their medical and governmental data sources separate. In addition to national databases such as the census, some empanelment systems automatically link into municipal databases and update new births and deaths, while other empanelment systems need to manually review these municipal databases and input relevant births and deaths. Still, many systems do not have any link to other databases and rely on parents bringing in newborns and family notifications of deaths at the clinic level.

Finally, it is important to note that in order to protect your population’s data, you must build privacy and access standards that comply with your country’s laws and regulations for any digital source of information, especially those that exist online. (2) The aggregation of large databases, linking databases to each other, or linking to an electronic medical record can increase vulnerability to malicious hacking events. In addition to complying with local laws around data privacy, you should pay careful attention to protecting patient information that has been aggregated for empanelment purposes from these kinds of attacks.

### *Working Questions: Database and HMIS (Part II)*

1. *Do you have a unique identifier for all the members of your population? If not, can you create one?*

2. *How will you keep your information about the population up to date?*

3. *How will you ensure the security of population databases and panel databases from the increasing threat of cyber-attacks? What data privacy and access concerns are relevant to your local context?*

**Define the Population > Comprehensive Identification**

**Comprehensive Identification**

While much of your population may be identifiable from digital databases, certain subgroups within your population may be more difficult to identify, locate, and keep track of over time. It is important to define how you will know when you have identified all members of your population (beyond those identified in the data sources above as no one data source will be all-encompassing). We encourage you to identify innovative ways to ensure that you have covered all individuals in your target population. For example, you may compare facility utilization records to official sources and see that you have 15,000 individuals using the facility, but only 10,000 people are officially identified in that area. In this case, you would then need to identify strategies for identifying the remaining 5,000 individuals. Creative ways to find these hard-to-identify individuals can include tax records, school enrollment rosters, municipal organizations, or civil society organizations. In this section, we will discuss two special populations that are at risk of exclusion: vulnerable populations and highly-mobile or migratory populations.

At-risk populations are often socially, economically, and/or medically vulnerable. While they may be challenging to empanel due to a lack of historical engagement with formal governmental organizations or medical institutions, these groups may benefit most from successful empanelment. These vulnerable populations may require additional strategies to identify and characterize them, including individual- or community-level outreach. Done well, such strategies offer an opportunity for the health care system to build trust with often overlooked communities and increase equity.

**Box 5: Vulnerable and Hard-to-Identify Populations**

Refugees, recent immigrants, people without documentation	People entering the country can be challenging to empanel, especially if their arrival is unexpected or sudden. Additionally, immigrants lacking documentation may be less likely to engage the health care system and may require additional efforts to empanel, including an increased need for interpreters and culturally-concordant outreach and care. In addition to ongoing local and international conflicts, climate change is likely to drive refugee increases in the coming years. Read more <a href="#">here</a> .
Informal economy workers (including sex workers)	Any employment-based system (e.g. tax-based, social security, employment-based health insurance) may not successfully record people with informal jobs. To identify and empanel this population, you will need targeted strategies. Additionally, sex workers exist at the intersection of informal-economy populations and marginalized populations facing discrimination. For instance, sex workers require extra medical attention and care, but they may be overlooked if there is a cultural or legal prejudice against their occupation.
Marginalized people (religious minorities, ethnic minorities, LGBTQ+)	Marginalized populations frequently have well-earned distrust in the health care system, so empaneling such populations will require careful, honest, and diligent outreach on the part of the system. Unfortunately, some providers may not be willing to reach out to or treat marginalized populations or to provide specific care such as gender-affirming care. Additionally, marginalized populations may not have presented to the health care system in the past, limiting their available health data.

Mobile populations also present challenges for empanelment. Even within easy-to-identify populations, many individuals will not necessarily have a consistent residence. Whether it is a one-time move to a new city or a student traveling to and from university every semester, people within your population will be constantly moving within and between cities, towns, and regions. You will need to develop strategies to address population movement across short-distance moves, long-distance moves, and short-term relocations (e.g. students) for dual-location residents. In this section, we address population mobility as a barrier to individual identification and

**Define the Population > Comprehensive Identification**

keeping population databases up-to-date. In the subsequent section on panel formation, we discuss considerations for keeping panel assignments up-to-date.

**Box 6: Highly Mobile Populations**

Urban areas and apartment-dwellers	Traditionally, rural areas were thought of as more challenging to reach; recently, high-density urban populations have emerged as a major challenge. First, it can be difficult to know how many people live in a high-density urban area. Second, people often rent apartments, relocate frequently, and change or hold more than one job. Third, patients may live within easy reach of more than one clinic and may therefore present for care somewhere other than where they're empaneled. Finally, apartment and condo complexes can be difficult for CHWs to access successfully in order to provide health services to their community.
Unhoused, Housing-Insecure Populations	This population rarely appears in records or databases and can be difficult to identify at all. They may not report where they are staying, due to legal concerns. Additionally, this population is frequently highly mobile, making it difficult to keep their empanelment up to date.
Students, young people	Young people frequently move—both short-term and long-term—to follow educational and work opportunities. While they may be easy to identify, it may be difficult to keep their empanelment up to date.
Migrant Populations	This population includes any groups that change geographic location frequently for any reason, including nomadic populations. For instance, there may be specific ethnic groups that are nomadic and therefore more difficult to identify and empanel. Similarly, some employment groups such as migrant farm workers and truck drivers might spend time in different areas of the country frequently. Your empanelment system must take into account geographic access for these groups.

*Working Questions: Comprehensive Identification (Part I)*

1. *What individuals might be missed by your initial identification strategy? How will you know if you have identified everyone you want to empanel?*

2. *How will you identify vulnerable populations such as refugees/immigrants, informal economy workers, and marginalized people?*

3. *How will you address migratory populations such as urban apartment dwellers, unhoused individuals, students, and nomadic populations?*

## Define the primary care team

The second step in designing and implementing an empanelment system is to define and identify the providers who will be responsible for the panels of patients you will create. Throughout this section, the word “provider” is used as generically as possible; a provider may be a physician, a nurse, an advanced practice practitioner, a community health worker, or another allied health care professional. It is up to you to determine which cadres of providers are appropriate to empanel to in your context.

This section includes such topics as defining a package of primary care services and accessibility of primary care providers. The examples and details given may or may not be adaptable to your context, and they are not meant to exclude other ways of health system organization. This section of the guide is not meant to require you to redesign your entire health care system, but rather to identify the constraints and opportunities around which your empanelment system must be built.

## Define PHC Service Package

Defining the package of services included in primary care will help you identify providers who can administer those services successfully and better determine where potential gaps in provider training exist. (7) Filling these gaps is helpful, but does not necessarily need to be completed prior to empanelment. The PHC service package can help you think about what cadre of providers are best suited to deliver empaneled care based on their existing training and what combination of expertise is needed within a single care team to deliver comprehensive primary health care. Box 7 provides a list of services often included in PHC, but many countries

have a nationally-defined PHC service package which may provide guidelines.

Another important decision is whether providers will have variability in services or whether they will mandatorily deliver the same primary care package of services across all populations. We recommend identifying a basic package of services to provide to everyone, but you may allow providers to add additional services to the basic package based on their empaneled population. For instance, if serving a primarily elderly population, primary care providers may choose to add geriatric services to the standard primary care package. More on defining a PHC service package can be found in [PHCPI’s Improvement Strategy on Organisation of Services](#).

### *Working Questions: Define PHC Service Package (Part I)*

1. *What package of services will your PHC system deliver? Will you allow variability in PHC services?*

2. *Are there additional services that should be added to the basic package to meet the needs of the empaneled population (e.g. geriatric services)?*

**Define the Primary Care Team > Define PHC Service Package**

**Box 7: Scope of Primary Care Services (6)**

Acute non-emergency care/Urgent Care	Care for non-communicable diseases (e.g. diabetes, hypertension)
Child Growth Monitoring and Well Child Checks	Immunizations
Obstetric/Maternal Care (e.g. prenatal, post-natal, and lactation services)	Gynecologic care including family planning services (e.g. LARC insertion)
Minor Procedures (e.g. splinting, suturing, I&D, joint injections)	Hearing and Vision Screening
Mental and behavioral health care (e.g. psychiatry)	Substance Use Disorder Treatment
Patient Health Education	Laboratory and Other Diagnostic Services (e.g. X-ray or ultrasound)
Ophthalmology/optometry care	Dental Care
Pharmacy	Podiatry
Nutrition	Care Management/Care coordination
Gender Affirming Care	Palliative Care/Geriatrics

Defining primary care will also require defining the relationship between primary care and the rest of the health care system. For instance, you will need to determine if and how to include public and private sector providers in your empanelment system. Including private-sector providers may require you to manage multiple payment systems and insurance schemes.

Similarly, primary care may serve as “gatekeepers” for higher levels of care. For example, if a patient needs specialty care, they would first need to see a primary care provider for a referral to higher-level care. This strategy ensures that only patients with real need seek care beyond primary care and can be a strategy for cost containment. However, referrals can also slow down the administration of care and be perceived as overly restrictive. Historically, empanelment has been conflated with gatekeeping, as the two strategies were often implemented together, but these are truly distinct activities and do not need to be linked. In some contexts, patients may have a strong negative reaction to gatekeeping.

*Working Questions: Define PHC Service Package (Part II)*

- 1. Will your empanelment system include public-sector and private-sector primary care providers?*

- 2. Will primary care providers act as gatekeepers to higher levels of care (i.e. specialists)? If so, how will they do so?*

## Define the Primary Care Team > Define Providers

### Define Providers

This section includes identifying all providers available to deliver the package of primary care services, as well as determining the type(s) of providers to whom you will empanel patients.

As with defining your population, defining your list of available providers may require accessing and organizing data from across multiple data sources, some of which may not be governmental. Consider using resources such as a provider census conducted by the Ministry of Health, employment records from hospitals or clinics, or provider licensing records.

A fundamental decision for any empanelment system is who “counts” as a primary care provider to whom individuals can be empaneled. Countries will differ in what cadre of providers is qualified to deliver the package of services that comprises primary care. Providers’ training and credentials should match the services they will be expected to deliver, and some cadres of providers may benefit from further training before being tasked with providing the full service of packages. (8) For example, some countries may have family physicians trained with competencies in providing frontline comprehensive PHC. PHC services might also be delivered by advanced practice providers (medical officers, nurse practitioners or physician assistants), nurses, highly trained community health workers (CHWs) or others - or ideally a mix of such providers working as a coordinated team. You should also be explicit about whether the PHC system will recognize traditional medicine practitioners as primary care providers.

#### Box 8: Potential Primary Care Team Members (6)

- Physicians
- Advanced practice practitioners
- Nurses
- Community Health Workers
- Medical Assistants
- Data Collectors/Population Health Workers
- Pharmacists
- Mental Health Workers
- Social Workers
- Midwives
- Paramedics
- Nutrition Health Officer/Nurse
- Traditional Medical Providers

#### Working Questions: Define Providers (Part I)

1. *How will you identify everyone who can provide primary care? What data will you use to identify them? What types of providers will “count” as primary care providers?*

2. *What types of medical professionals will make up the care team? Will the team composition vary from place to place or will it be constant? Will you incorporate traditional medical practitioners into your primary care model?*

## Define the Primary Care Team > Define Providers

Once you have identified all the providers who can provide primary care, you must decide how to organize those providers in your empanelment system. Specifically, you must decide whether to empanel your patients to a primary care team, a primary care provider, or a primary care facility. We recognize the importance of and advocate for team-based care, as teams can provide more effective, holistic care than any one provider alone. (9) Please note, panel type may affect the organization of the empanelment structure (see Panel section below).

Experience across the globe, for example in Costa Rica and [Estonia](#) has shown that empaneling to a primary care team with well-defined roles and responsibilities can lead to immense success in managing population health. Empaneling to an individual provider well-supported by a staff working as a team can also be effective. However, empaneling to an individual provider without identifying a supporting team can leave that provider without the resources necessary to take full responsibility for proactively managing the health of their panel. There are additional challenges inherent to empaneling to a facility rather than to a team or well-supported individual provider, such as patient confusion when primary care is co-located with other services and decreased continuity of care. Empaneling to a facility may significantly compromise provider-patient continuity, a critical aspect of primary care, which may have an impact on health outcomes. (10)

	Considerations
Empaneling to a Team	<ul style="list-style-type: none"> <li>• Determine the types of providers that will comprise the team based on your package of primary care services.</li> <li>• Determine whether team composition will be consistent across panels or will vary with patient population demands. For example, every team may require a doctor and a community health worker but may have a variable number of RNs based on the medical complexity of the panel).</li> <li>• Determine how team members will divide responsibilities for delivering primary care services to their patient panel.</li> <li>• Determine whether your providers are comfortable working in teams or will need additional training. <a href="#">Learn more about optimizing teams in the Organisation of Services Improvement Strategy.</a></li> </ul>
Empaneling to a Single Provider	<ul style="list-style-type: none"> <li>• Determine the types of providers that patients will be empaneled to based on your package of primary care services.</li> <li>• Determine the support necessary for that provider to successfully manage their panel of patients. For example, if you are empaneling to a medical doctor, determine how many nurses, CHWs, or other staff they need for support. If you are empaneling to nurses, ensure that they are connected to community health workers and physicians.</li> </ul>
Empaneling to a Facility	<ul style="list-style-type: none"> <li>• It is possible to empanel to a physical location such as a clinic instead of to a team or providers.</li> <li>• Determine how you will ensure continuity of care among patients who may see multiple providers at the facility.</li> <li>• Determine how to identify primary care services separately from other kinds of care delivered at the</li> </ul>

### Box 9: Organizing Your Empanelment System

**Define the Primary Care Team > Define Providers**

	facility. <ul style="list-style-type: none"> <li>Consider making a plan to sub-divide the facility to empanel to a provider or team in the near future.</li> </ul>
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**Box 10: Definition of a team & strategies for successful teams (6)**

Team: a group of individuals who work collaboratively together and share responsibility for providing quality patient care that individual team members could not achieve on their own	
Team identity	Regular meeting times
Mutual accountability structures	Clearly defined roles and responsibilities
Shared goals	

Additional considerations arise for specific populations including children and women. Children may be empaneled to general practitioners, or to pediatricians. Consider whether pediatricians are considered secondary care in your context and whether it is socially acceptable for general practitioners to treat children.

Women may also sometimes be empaneled to midwives, obstetricians/gynecologists. Consider whether obstetricians/midwives are considered primary care providers or if they are specialists. In some contexts, women may switch providers entirely during their childbearing years, or they may gain additional team members when pregnant. Also, consider whether in your context there is a strong preference for women to be treated only by female providers or if they are open to providers of all genders.

*Working Questions: Define Providers (Part II)*

1. *Will you empanel your patients to a team, to an individual provider, or to a facility? If you are empaneling to a team, do your providers have experience working in teams or will they need additional training?*

2. *How will you empanel children; will they require empanelment to a pediatrician?*

3. *How will you empanel women; will they require empanelment to an obstetrician or gynecologist? Will women accept providers of all genders or is there a cultural preference for female providers?*

## Accessibility of Providers

For an empanelment system to be successful, providers must be accessible to their empaneled patients. You will first need to make sure you have sufficient numbers of providers of each type. Given the basic package of primary care services you defined earlier, determine how many of each type of provider you will need. For instance, if you included mental health care in your primary care package, but you only have a handful of mental health care providers available, you will need a plan to train more. The exact number of providers necessary to support an empaneled population will be addressed in the next section (see section “How Many People Per Panel?”), but identifying large deficits in provider numbers now will allow you to begin rectifying those deficits sooner.

In addition to having enough providers overall, you must also make sure those providers are distributed equitably across the population. If a large majority of your physicians are located in urban areas, you may need to consider adding other provider types in rural areas (such as nurses or community health workers) to provide coverage or training additional providers. Similarly, if there are social or cultural barriers between the population and the available providers, you will need to plan to minimize or overcome those barriers for empanelment to work. For example, in some contexts women may only accept care provided by other women, and so you would need to ensure that there are enough female providers to accommodate this. You may also consider language-concordance between patients and providers.

### *Working Questions: Accessibility of Providers (Part I)*

1. *Do you have enough providers of each type to provide the basic package of primary care services you defined?*

2. *Are providers distributed equitably across your geography and population and accessible to your entire population?*

3. *Are your providers financially, linguistically, and culturally accessible to your entire patient population?*

## Provider Responsibilities and Training

The responsibilities and training of the care team responsible for a panel must match the new needs required for empanelment. These can be broadly thought about as both the responsibilities and training related to the changes in service delivery necessary for empanelment as well as the responsibilities and training needed to deliver the specific health services that the panel will receive. For the former, providers and staff must be oriented to and prepared for the implementation of empanelment. Providers and staff should be oriented to the mechanisms and usages of empanelment. Specifically, you should provide at least some training on population health management and how empanelment facilitates it. There may be some non-technical trainings (e.g. teamwork and communication skills) that can help your teams build the necessary skills for empanelment.

Secondly, as discussed in “describe PHC services” above, when planning your new empanelment system, you may identify new services that will be considered part of the PHC “package”. If these services were not previously delivered by the care team, it is important to create opportunities for the care team to take the necessary trainings (e.g. IUD insertion for family planning services) to build their skills and ensure that their panel has access to high-quality, comprehensive care. Initially, these trainings will need to be incorporated into in-service training but eventually should be included in core competencies for pre-service training.

### *Working Questions: Provider Responsibilities and Training (Part I)*

1. Have you prepared your provider team and staff for empanelment?

2. Are your providers familiar with the concept and strategies of population health management? Will they need additional training in it?

3. Are your providers qualified to provide the primary care services you've defined? Do they need additional technical or non-technical training? Are there specific credentialing processes they must undergo?

## Strategically Create Panels

After defining the population you intend to empanel and the providers or care teams that will deliver services, you can begin to think about how you will strategically assign people to providers or care teams. This process includes the selection of an approach or strategy for assignment and then distribution and assignment of these individuals to a provider or care team that can meet their needs and effectively deliver high-quality care. This process is highly contextual and an approach that works well in one setting may not work in another. When creating panels, you should consider the optimal size for each panel by balancing the medical and social complexity of the individuals within the population to the training, expertise, and size of the care teams. Throughout the process of creating panels, you should regularly consider cultural acceptability of the panel assignment strategy to ensure both patient and provider buy-in.

### Define approach to panel assignment

Assigning people to providers is the critical operational step in establishing an empanelment system. You should select a strategy that makes sense given your country and health system context, address how patients will be sorted into different panels given the type of empanelment used, and make informed decisions about how to account for patient choice, and movement.

If empanelment has been attempted in your country or region in the past, it will be important to collect information on and learn from this experience to inform your implementation. Even small pilot projects or local empanelment initiatives can provide valuable insights or be used as a foundation upon which to build. You may also choose to learn from countries outside of your region or country if they have similar relevant characteristics, such as the structure of their health care system or the burden of disease. When exploring and learning

from other experiences, consider asking implementers some of the questions presented within “working questions” in this document.

#### Box 11: Historical Empanelment Lessons Affect Current Implementation

In the US in the late 20th century, many insurance companies invested in Health Maintenance Organizations with empanelment, capitation payment, and strict gatekeeping. American culture tends to be individualistic and strongly value patient choice. As a result, many patients were outraged with the concept of gatekeeping, perceiving it as limiting their autonomy to choose their own care. This historical experience with panels and gatekeeping has left many Americans with skepticism of empanelment overall.

Before Costa Rica’s 1995 empanelment initiative, the country had a history of successful, well-accepted empanelment pilots in both rural and urban contexts in the 1970s and 1980s. Costa Ricans were accustomed to the concept of empanelment already, which made this process easier for them to accept.

#### Working Questions: Define Approach to Panel Assignment (Part I)

1. What, if any, past experience has there been with empanelment in your country or region? Are there local empanelment pilots that can be built upon or pitfalls to be avoided?

2. Have any countries with similar characteristics to your own had experiences with empanelment? Can you learn from these programs to build a successful empanelment model?

## Strategically Create Panels > Define approach to panel assignment

There are numerous ways that a population can be separated into panels (Box 12). Strategies will differ considerably across settings and depend on myriad factors including resources, health system design, and characteristics of the population. It is even possible that multiple strategies are used within a country to address heterogeneous needs and/or populations; however we caution on this strategy as it can increase confusion regarding patient assignment and may complicate empanelment. The most important consideration in selecting a strategy is that it is culturally-acceptable to both patient and provider and that it creates a clear system for identifying patients and ensuring an appropriately-sized panel (see section “define number of people per panel”). Below, we review types of commonly used empanelment strategies.

### *Working Questions: Define Approach to Panel Assignment (Part II)*

1. What type of empanelment (geographic, insurance, employment, disease, previous utilization, previous costs, or voluntary) will you use to assign patients to providers?

2. What drawbacks or challenges to overcome can you anticipate with your chosen model?

**Strategically Create Panels > Define approach to panel assignment**

**Box 12: Types of empanelment**

Types of Empanelment	Why it is used	Important considerations
Geographic	Geographic empanelment is one of the most common empanelment methodologies and has been used successfully in many countries. It may be most straightforward in sparsely populated rural regions where there are very few health facilities, but can certainly be used in both urban and rural contexts.	Population movement, which continues to increase, makes geographic empanelment challenging.
Insurance	Insurance-based empanelment may be used in contexts where providers are only able to receive compensation for seeing patients with a specific kind of health insurance.	Patients may frequently change insurance providers, which can make insurance-based empanelment challenging. If patients are assigned to a provider based on insurance claim data, there is little input from the provider or patient and may not reflect the patient’s desired primary care provider.
Disease/condition	Disease-based empanelment may be useful in settings with a high burden of a given disease that has a specific treatment pathway that may not be available in all health facilities.	While common, disease-based empanelment may limit patients with additional comorbidities from accessing treatment for all of their medical conditions. Additionally, disease-based programs bring with them an increased risk of health care system fragmentation, especially in primary health care. Re-integrating multiple vertical, disease-based programs into a single comprehensive primary care system is likely to be challenging.
Employment	Some large employers may offer health care provision for their employees that is outside of traditional or more publicly accessible health care systems.	This strategy may work well when workers are physically separated from health care or they are specific health care needs based on their profession. However, it may present challenges for the families of employees if they are not also able to access these clinics. This may also miss individuals who are not currently working or who are working in the informal sector.
Previous facility or PCP utilization	Where data are available on previous facility and/or PCP utilization, this information can be used to create panels.	When using this strategy, it’s important to consider previous accessibility of facilities or PCPs. Patients may have not utilized services because they were financially or geographically inaccessible and utilization may change after empanelment. Note that patients may not be distributed evenly or appropriately among primary care providers.
Previous health care costs accrued	Data on health care costs accrued can be used as a proxy for a patient’s health or complexity of their health needs	Previous health care utilization may not reflect appropriate use of primary health care by all members of the population (e.g. seeking health care at a hospital). Patients may expect or want access to a different provider than they’ve seen in the past.
Voluntary	Voluntary empanelment prioritizes patient autonomy by allowing them to choose their provider or care team.	This strategy may miss individuals who do not seek care, move often, or face other barriers to accessing care or information. Additionally, there will need to be strategies in place to manage the size of panels if too many or too few patients select a given provider or care team.

## Strategically Create Panels > Define approach to panel assignment

Additional considerations for defining your approach to panel assignment include gender, patient choice, provider preference, patient movement, accountability, equity between and within panels, and urban areas.

### Gender

In some systems, women of reproductive age may transfer to a different provider, such as a midwife or an OBGYN for specialized obstetric care. Additionally, in some contexts, women may have a strong preference to be seen by a female provider. Context-specific religious or cultural preferences should be considered during planning.

### Patient Choice

In empanelment systems other than voluntary empanelment, you will need to develop clear direction on the amount of choice that patients have in their panel assignment. You should determine if you will allow patients to contest panel assignment and if you will allow voluntary switching of panels based on patient preference. If changes to panels are allowed, you should develop a clear and consistent system for tracking such changes.

### Provider Preference

After you have empaneled your population, providers may request that certain patients be removed from their panels (e.g. patients who don't present for care or respond to outreach efforts). You will need to determine if providers are allowed to request such removals, who the patient would then be assigned to, and develop a clear and consistent system for tracking such changes if allowed. Consider including in this tracking system steps to determine why patients are out of contact and how to bring them back into contact with their provider.

## *Working Questions: Define Approach to Panel Assignment (Part III)*

1. How will your empanelment model account for women of reproductive age? How will you address patient preference for gender-concordant care?

2. How will you address patient choice in your empanelment system? Can patients switch providers? If so, how often?

3. How will you address provider preference in your empanelment system? Are providers allowed to initiate a removal of a patient from their panel?

### Patient Movement

Patients who move, migrate, or temporarily relocate (e.g. university students) may require reassignment and notification to both their previous and new providers, particularly in geographic empanelment.

## Strategically Create Panels > Define approach to panel assignment

You should develop clear procedures for updating panels after moves, informing providers, and transferring records (ideally automatically).

### Accountability

Even after empanelment, some patients may still seek care from providers or facilities to whom they are not empaneled, requiring you to decide whether those patients will receive care there and what (if any) consequences will be. You may also need a system for patients to demonstrate their empanelment. For instance, with electronic medical records, a patient may provide identification and their unique identifier within the system, or, in paper based systems, they may carry a card with their empanelment assignment.

### Equity

Patients should all have geographic, financial, and timely access to their assigned providers and be able to access the predefined package of primary care services. Panels should be thoughtfully balanced based on patient's health and social complexity and providers' training and skills. Additional discussion of the topic can be found below.

### Urban Areas

Urban care holds particular challenges as compared to rural care. Patients often have geographical proximity to multiple clinics and may choose to present to different clinics for care, rather than their assigned clinics. City dwellers often rent apartments and move frequently. Apartment complexes can be challenging for health outreach workers to gain access to.

### *Working Questions: Define Approach to Panel Assignment (Part IV)*

4. How will you address patient mobility in your model? How will you address panel assignment for highly mobile populations or if a patient moves a short or long distance?

5. What mechanisms will you have for initiating a change in panel and how will you keep track of such changes? How will you ensure that records are transferred between panels smoothly? How will you inform patients and providers of the switch?

6. What is your plan for ensuring that patients seek care from their empaneled provider? How will patients demonstrate their empanelment? Will there be consequences for seeking care with the wrong provider?

7. How will you ensure that patients have equitable access to their assigned providers?

8. How do you plan to address challenges unique to the urban environment?

## Strategically Create Panels > Decide on number of people per panel

### Decide on number of people per panel

The appropriate size for a panel will depend on both provider and patient characteristics as well as the package of services the care team plans to deliver. (11) There is no one way to determine the appropriate size for a panel nor an ideal patient to provider ratio. An appropriately sized panel is one for which the provider(s) or care team are able to meet the health needs of their panel and patients are satisfied with their care. (6) In some instances, an ideally-sized panel may not be possible based on the number of available providers; however, determining the optimal panel size and working toward it over time can be a goal. It is important to note that a larger panel may affect the package of services that a panel can deliver, and, like ideal panel size, a full range of services may be something that a care team can work up to over time as the workforce develops and more care teams are added. It might be helpful to start by exploring successful primary health care that already exists in your country and noting how many patients these providers or teams see. Below, we enumerate considerations to reflect on from both a provider perspective and a population (or patient) perspective.

**Box 13: Provider considerations for panel size**

<b>Provider considerations</b>	<b>How it affects panel size</b>
Team-based care versus individual providers	Typically a larger care team will be capable of caring for a larger patient panel, particularly if there are multiple advanced practitioners on the team. However, it is important to ensure that roles are well defined and the team has experience working together. If providers are newly organized into care teams, it may take some time for them to figure out the optimal way to work together and care for patients. In that case, they may need to start with a smaller patient panel while they build capacity and further define roles. When forming care teams and allocating responsibilities, it can be helpful to consider what each team member has the capacity to do. For example, pharmacists may be able to provide hypertension management or nurses can provide urgent care visits, spreading responsibilities and alleviating pressure from medical doctors.
Capacity and training	Particularly in a panel with specific health needs or a panel that's organized by disease or condition, providers with significant training and experience will likely be able to manage a larger panel.
Population health management	If the care team will be delivering proactive population health management, they will need a smaller patient panel than a care team that is only delivering reactive care as they will need dedicated, protected time away from seeing patients to "run" their panel and identify individuals who need additional care or attention.

**Strategically Create Panels > Decide on number of people per panel**

**Box 14: Population considerations for panel size**

Population considerations	How it affects panel size
Epidemiological profile	The health needs of the panel will affect the number of patients a care team is able to see. A care team responsible for a population with a high burden of disease will likely need to devote more time to each individual than a care team with a relatively healthy population. Additionally, high incidence of noncommunicable chronic disease (as opposed to acute, curable communicable disease) will also necessitate more time devoted to each patient. Take into account the prevalence of mental health conditions in the population, also.
Population flux	If the panel is based in a geographic area where there is frequent movement or migration, it may be beneficial to make panels slightly smaller than full capacity so they can absorb new patients as needed or in the case of unforeseen circumstances, as they did in <a href="#">Turkey</a> .
Frequency of primary prevention	Frequency of visits for primary prevention should also be taken into account. For example, country-level or local guidelines may suggest an annual preventive exam. If you are not currently completing those visits, introducing an empanelment system in which you plan on proactive outreach to ensure that these visits occur will require additional time from providers.

Population demographic distribution	Consider the demographic distribution of the population alongside disease burden, as above. In general small children, the elderly, and pregnant women will need to be seen most frequently in the clinic.
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*Working Questions: Define number of people per panel Part I)*

1. How will you determine the appropriate size panel? What processes or reasoning will you use to assign the number of patients that each provider or team is responsible for? Is the ideal “right size” that you determine feasible given the number of providers and/or care teams?

2. What are the provider characteristics in your setting that will affect panel size? Do your providers work in teams or individually? How will you account for and protect time for your providers/care teams to dedicate to population health management activities?

3. What are the patient characteristics in your setting that will affect panel size? What is the burden of disease in the population you are empaneling?

4. How will you account for unforeseen situations such as natural disasters or refugees when determining optimal panel size?

**Strategically Create Panels > Decide on number of people per panel**

## Risk adjustment

Risk adjustment is a strategy that can help create equity between panels by taking into account the complexity of the population when assigning people to providers. A population with a greater burden of disease, medical complexity, and/or social vulnerability will require more care from their provider or care team. Therefore, evaluating these different risks while forming panels, and adjusting for them in a deliberate and standardized manner can help ensure that providers or care teams are not overburdened and that panels are sized appropriately and/or providers are remunerated fairly.

The two types of complexity that planners typically account for when assessing risk are medical and social complexity. Medical complexity refers to the medical conditions present at the population and individual level. Individuals with conditions that require more complex care pathways will need more time and resources from their providers. Social complexity refers to any set of social determinants of health that may make individuals more susceptible to poor health or require more proactive care. In addition to social determinants such as socioeconomic status or employment, specific types of people such as refugees or incarcerated people are also generally considered more vulnerable.

Once you collect a sufficient amount of data to understand the medical and social complexity of the population, a weighting or other risk algorithm can be applied to stratify the population. (12) The goal of risk adjustment is to quantify the increased care needs of individuals with greater medical and/or social complexity. One methodology to risk adjust a population of patients is to “weight” each patient based on medical/social complexity (as identified above); you could alternatively “weight” a whole group of patients based on their average characteristics.

### Box 15: Proxies for medical and social complexity

Proxies for medical complexity	Proxies for social complexity
<ul style="list-style-type: none"> <li>● Age, gender</li> <li>● Chronic infectious diseases (TB, HIV)</li> <li>● Total number of chronic illnesses</li> <li>● Mental illness</li> <li>● Substance use, including tobacco use</li> <li>● Recent hospitalizations and number of ED visits</li> <li>● Regional epidemiologic profile</li> </ul>	<ul style="list-style-type: none"> <li>● Income</li> <li>● Employment</li> <li>● Food insecurity</li> <li>● Incarceration</li> <li>● Housing insecurity</li> <li>● Average neighborhood income</li> <li>● Number of children in the home</li> <li>● Education level attained, literacy</li> <li>● Extreme rural isolation, or urban overcrowding</li> </ul>

### Working Questions: Risk Adjustment (Part I)

1. Will you account for medical and/or social complexity by risk adjusting your panel?

## Strategically Create Panels > Risk Adjustment

You will first need to consider what necessitates added “weight” for a patient or for a group of patients. For example a patient over the age of 65 with more than one chronic condition may have a weight of 2, “counting” as 2 patients rather than one for empanelment purposes because you expect this individual to need to be seen frequently. Similarly, patients who are currently unhoused may have a weight of 1.5, “counting” as 1.5 patients rather than one for empanelment purposes as there is anticipated extra time spent outreaching to this patient and staying in contact with them.

Next, you must decide how to equitably spread the “weight” of all your patients across various panels. For instance, you might reduce the overall number of patients in a panel with many patients of high complexity. Care teams who see more complex patients could receive more remuneration in the form of increased pay, higher titles, more vacation days, or other benefits. Alternatively, care teams who see more complex patients may be given additional resources at a clinic level to better help manage their patient population. For example, a panel with a high level of medical complexity may benefit from an additional nurse on staff to field patient concerns as they arise; a panel with a high level of social complexity may benefit from an additional social worker on staff.

### *Working Questions: Risk Adjustment*

2. Will you account for medical and/or social complexity by risk adjusting your panel?

3. How will you incorporate medical complexity? What proxies for medical complexity will you use? How will you determine the relative “weights” of different medical complexities?

4. How will you incorporate social complexity? What proxies for social complexity will you use? How will you determine the relative “weights” of different social complexities?

5. Once you have weighted the different types of complexity, how will you account for populations with increased complexity? Will you try to ensure that each panel has an equal amount of medical/social complexity? Will you decrease the expected panel size for panels with a high degree of complexity? Will you provide additional resources to highly complex panels (either in the form of remuneration or increased support staff)?

## Implementation of the empanelment model

The sections above have provided information and questions to help you identify the type of empanelment system that would best align with your health system and population needs. The following section details some considerations for the process of preparing for and rolling out the newly developed empanelment system. The way in which changes to a health system are introduced and implemented have a significant impact on their success. Contextual factors such as provider payment systems, governance, and strategies for providing patient education and generating buy-in must be considered. We also suggest planning implementation in such a way that it can be easily evaluated over time and subsequently modified based on data and feedback.

### Prepare

This section discusses some of the very important steps to consider and plan for prior to the roll out of your empanelment system. We will review the optimization of health care financing for empanelment, developing buy-in from important stakeholders, patient and provider education about the empanelment model, and intentional decisions about the timing of implementation of the empanelment model. The individuals or group(s) making decisions about empanelment design and implementation will differ between contexts and depend on the structure of your health care system but will typically be national or sub-national health authorities. These decision-makers should have significant insight into the structure of the health care system and resource allocation, but they will need to partner with local health authorities to understand the nuances of their patients and providers.

### Optimizing Health Care Financing for Empanelment

The payment system that underlies the health care system should be considered carefully to evaluate how it will impact empanelment. Payment systems may either support or detract from an empanelment system. In some cases, you may even decide to restructure your payment system around the new panels. For example, in Turkey, providers are remunerated based on a capitation model, where they are paid for each person that is empaneled to them. Providers who have more patients on their panel are paid commensurately more. Other countries have used a combination system, where providers get a salary that comes with a panel expectation, but aren't explicitly paid for each person. You may also choose to have a bonus once a provider demonstrates a "complete" or "full" panel or providers might receive an additional payment based on the complexity of their panel, as discussed in the Risk Adjustment section above. Additionally, providers may receive bonuses or even financial penalties if certain quality metrics for their panel are or are not met.

You should also consider how you will remunerate or incentivize providers to conduct important preventive Population Health Management work with their panel. As we discuss in the introduction, empanelment enables providers to deliver care proactively, reviewing their panels to determine who is high risk, who need additional preventive care, and who should be targeted for additional outreach. These types of population health management activities take time, and providers in a fee-for-service system where they are paid only for the patients they see in clinic may have limited incentives to spend additional time outside of clinic visits reviewing their panels. It may be easier to create a financing system that supports providers to allocate time and resources to proactive care in health systems which use capitation payments.

Finally, it is important to consider the out of pocket costs for the patients. If patients must bear costs associated with preventive visits

## Implementation of the Empanelment Model > Prepare

or prohibitive costs for medications, patients may be less likely to engage with the primary health care system. Even after a patient is assigned to a panel and is made aware of how and when to access care, cost can be a significant barrier.

### Development of buy-in from stakeholders

Prior to the roll out of the new empanelment model, it is important to develop buy-in from large stakeholders that will be impacted by the new model. Some important stakeholders to consider include community level leaders such as elected officials, prominent community members, and religious organizations. Additionally, consider reaching out to medical or nursing professional organizations/licensing boards, as their support of the new model will be very helpful and they may be able to provide assistance in educating providers about empanelment and its uses and benefits.

Empanelment that leads to proactive Population Health Management requires a cultural shift from reactive to proactive care. In order to facilitate this change, primary care teams must have strong and engaged leadership who can communicate the benefits of empanelment to providers and the public. We also recommend reaching out to primary health care leaders at the national, regional, and local level to ensure that they can be champions of the new empanelment system.

### *Working Questions: Prepare (Part I)*

1. How will you align provider payment systems to promote your model of empaneled primary health care? How are providers paid, and will this change with the implementation of the empanelment model? How, if at all, will your empanelment system interface with insurers? How do patients bear costs?

2. How will you ensure that you have buy-in prior to implementation of the model from national and community leaders as well as other influential people or organizations? What strategies will you employ to build this buy-in?

### Education for the public and for providers

## Implementation of the Empanelment Model > Prepare

After developing buy-in from large actors, you will need to educate the public and providers about the new system. For empanelment to work, everyone involved must be willing to participate in and embrace the model, which means you will need to promote empanelment. Empanelment represents a change in how primary care providers deliver care to patients. In order to facilitate this change, primary care teams must be led by strong and engaged managers and leaders who can communicate the goals and benefits of empanelment to providers and guide teams through new systems or processes. In some cases, incentives might be necessary to encourage providers to participate in empanelment. These may be financial, social, or professional. Providers will need to be oriented or trained on the benefits and mechanics of empanelment, including a shift from reactive to proactive primary care, the processes of empanelment (e.g. panel maintenance and patient registries), and the “package” of primary care services. (2)

For patients, empanelment changes how they seek care and how their care is managed, and they will need to be prepared for the change before empanelment is implemented. It may be beneficial to do a baseline survey to assess the population’s opinion of empanelment before you begin so that you know how to best target your education/publicity materials. Education, promotion, and other communications or outreach should come from both a central authority (i.e. the Ministry of Health) and from patients’ local providers/care teams and should include the effects and benefits of empanelment to the patients, including key messages such as, the impending primary care system’s shift from reactive to proactive primary care and what to expect from providers under empanelment (e.g. more proactive outreach with population health management strategies), how to seek care when empaneled (e.g. who to go to, where to go, how to make appointments, etc), among other considerations.

Local teams, facilities, or even regional offices should reach out to patients directly and individually, through mail, phone call, or home

visit and also promote empanelment more generally through popular channels (e.g. TV, radio, social media). Community-based health workers can help with patient education and may be a powerful tool to utilize if they are trusted within the community. It is also important to consider the baseline trust patients have in the primary care system and the health care system overall. For successful empanelment, patients trust both the provider(s) they are assigned to and the health care system more broadly. If patients’ trust in your health care system is low, you should seek to understand the reasons behind it and work to improve it before or during the implementation of empanelment, as this will likely affect their willingness to engage with the empanelment system.

### *Working Questions: Prepare (Part II)*

3. How will you educate patients about the concept of empanelment? How will you promote the model with the public generally (at both the central level and the local level)? Do you have a plan for ongoing, direct communication with patients about their panels?

4. How will you educate providers about the new empanelment model? Will you use incentives to entice providers to participate in empanelment? How will you train providers on the benefits and mechanics of empanelment?

### Timing

## Implementation of the Empanelment Model > Prepare

Finally, consider the timing of how you will roll out your new empanelment system. You will need to decide whether to begin with all panels at the same time or to start with a subset of the total panels and add to them over time until you cover the entire population. One powerful approach is to roll out the intervention in a stepwise fashion across the population to enable a quantitative assessment of the impact of empanelment on the population. If you are interested in pursuing a quantitative analysis of your empanelment strategy, consider randomly assigning the order in which you implement panels, as this will make for a more compelling study.

### *Working Questions: Prepare (Part III)*

5. How will you time the roll out of the empanelment intervention? Will you do all areas at once, or will you stagger them (if so, how will the roll out be ordered)?

## Implementation of the Empanelment Model > Roll out

### Roll out

The roll out of your empanelment system is very important for long-term success and sustainability in your context. One of the first considerations when rolling out the new empanelment system is what degree of central technical assistance will be necessary. Successfully implementing empanelment will require both initial and ongoing technical assistance as well as continuous evaluation of empanelment success. Patients, facilities, and regional and national systems will require ongoing support to both put the empanelment system in place and to make use of it. If there are successful examples of empanelment in your country already (e.g. facilities or care delivery programs that have already implemented empanelment), you should draw upon these programs' expertise to support implementation across other facilities. (6)

#### Box 16: Potential Areas for Technical Assistance

Providing education about empanelment to patients and communities  
Obtaining and using data to facilitate using panel assignments  
Developing skills to engage in ongoing panel management  
Providing information systems

One strategy for improving implementation success is to work with the implementation team to brainstorm potential problems that might arise during implementation or early use of the empanelment system and proactively identify solutions for those problems. For instance, you might ask yourself what would happen if patients decide not to engage with their assigned providers. They may feel as if their assignment to a provider or care team has taken away their patient choice or autonomy in their care decision-making. You can then create a plan and identify specific strategies for how providers or the health system at-large should address these concerns. It will also be

helpful to think through what mechanisms can proactively be put in place to prevent this issue and mitigate aversion to engaging with the empanelment system.

#### *Working Questions: Roll Out (Part I)*

1. Will you provide technical assistance in implementing empanelment at the local level?

## Implementation of the Empanelment Model > Roll out

Once patients have been assigned to a panel, you must ensure that both the patient and the provider(s)/facility are informed of and accept that assignment. It is necessary that every patient knows who their provider is and that every provider can identify all of their patients. This concept is called bilateral transparency or mutual association. (2) Without bilateral transparency, an empanelment system may fall apart, with patients seeking care from other providers and providers not taking responsibility for their entire patient population. You should also consider if administrators and (in some contexts) government officials such as the Ministry of Health will be able to see panel assignments. It may be helpful for those who are doing health system planning to have real-time access to panels so that they can identify when panels are growing or shrinking and use that information to inform how they allocate health system resources. Identifying an organizing body or authority to oversee panels and manage communication to the patients and providers can help ensure bilateral transparency.

Patient notification can come from the identified central authority organizing body, from a local facility, or directly from the primary health care provider team. The individuals making contact with patients will need contact information, phone or internet connectivity, and sufficient time and expertise to answer patient questions. Notification is also an opportunity to confirm patient choice in empanelment schemes that allow for it. (6)

When notifying providers of their panel, it's important to give them an opportunity to review the individuals in their panel and formally accept responsibility for their care. The provider may even need to formally accept responsibility for their health outcomes (and in some relationships with insurance payers providers, may even accept financial liability for the patients' health care claims cost). To fully take informed responsibility for their panels, providers will need as much information as you are able to provide, including demographics and health information. (6)

### Box 17: Strategies for notifying patients and providers of panel assignments

Notifying patients	Notifying providers
Mobile phone call	Mobile phone call
Email or physical mail	Email or physical mail
Home/community visit	During initial pre-service training or in recertification/ongoing trainings
At facility intake (i.e. during a patient visit)	Direct facility visit by administrative professionals or managers

### Working Questions: Roll Out (Part II)

2. How will you alert patients to their empanelment assignment? Do you have robust and reliable methods to contact patients? Will there be a formal acknowledgement step?

3. How will you alert providers to their patient panel assignment? Have they accepted responsibility for taking care of this patient panel? Will there be a formal acknowledgement step?

4. Do administrators/government officials know or can they access who is empaneled to whom?

**Implementation of the Empanelment Model > Roll out**



## Maintenance of up-to-date panels

Once panels are created, it is important to actively review and update them, using a standardized, predetermined method. (13) Panels change for a variety of reasons including births, deaths, relocations, changing life circumstances that make an individual more or less vulnerable, or new conditions or diseases. Additionally, panels may need to be adjusted because of changes in the provider(s) or care team, such as providers entering or leaving the team or new credentials or trainings among the team. Reviewing panels should occur at least once a year (though ideally more regularly), and it should be completed by someone who has access to all relevant information and is designated as the person responsible for panel maintenance. (2) Updating may occur at the facility level, the subnational level, or the national level. The same data that the team used to assign panels initially (see Define Your Population) should be used during maintenance. If these data are not updated on the same cadence or more frequently than your panel review, you may need to invest in improving these data systems.

You should expect change in your population composition and plan for adaptive learning. You'll need to determine what information or circumstances will require you to open or close panels. For example, if the population expands or contracts rapidly, you will need to make adjustments to panels. It is important to identify ahead of time the maximum and minimum size panel that is tolerated and make a plan for opening new panels or closing and consolidating panels.

Assigning ahead of time an entity responsible for monitoring panel size and adjusting panel numbers as needed is advisable. For any changes to panels, you must have a plan for notifying both patients and providers and, when possible, prioritize preserving continuity between patients and providers.

### *Working Questions: Maintaining Up to Date Panels (Part I)*

1. What mechanisms do you have to keep panels up to date?  
Do you have standardized, ongoing processes for reviewing panel changes, incorporating new population members, and reviewing panel assignments?

2. How often will you update the panels?

3. How will you notify patients and providers of changes?

4. Do you have a planned mechanism to open/close teams as the need arises? How will you know when the need arises?  
How will you identify when one team has too many or too few patients?

### Monitoring & Evaluation of Empanelment Model

Determining whether your empanelment system is successful requires monitoring and evaluating the system at multiple levels, during initial implementation and in an ongoing manner. Evaluations of empanelment should focus on whether the empanelment system is being implemented with fidelity, whether the empanelment system is acceptable to patients and providers, and whether health outcomes are being affected by the empanelment system.

Following initial implementation, you should monitor how successfully your empanelment system has been implemented and if it is functioning as designed. Data should be collected to assess:

- Are patients seeking care at the appropriate location based on their empanelment?
- Are health care and government leaders enforcing the empanelment system?
- Has emergency room utilization changed since implementation? (Less emergency room utilization may signal that more people are using primary care instead of seeking care in emergency rooms)
- Has continuity of care (a major goal of empanelment) in your system improved or worsened since implementing empanelment?
- Do patients respect and providers enforce any associated gatekeeping rules that were implemented?
- Are panels growing or shrinking? Are your systems to manage panel size working to compensate for growth or shrinkage?
- Is every patient accounted for in the system?
- Are your databases and HMIS consistently up to date and is there an identified person responsible for keeping them up to date?

If the empanelment system is not working as you envisioned, you may need to adjust your system based on the information gathered in your monitoring and evaluation efforts.

Next, assess whether patients and providers are satisfied with the empanelment system using predetermined criteria. You should measure patient and provider satisfaction using multiple modalities to capture a wide range of perspectives. Some modalities include exit surveys, an anonymous response line for patient and provider complaints, and targeted focus groups for patients and providers. If satisfaction is low, investigate ways to increase buy-in from both patients and providers, which may include making adjustments to the empanelment system. Some questions you may consider to assess satisfaction include:

- What is the overall satisfaction with empanelment for both patients and providers?
- What is satisfaction with specific elements of the empanelment system that may cause friction for both patients and providers?
- To what degree do patients accept the concept that their health team is accepting responsibility for their health outcomes? This is a mental shift that may take time and must be measured regularly (i.e. Likert scale, exit surveys).
- What is patients' responsiveness to providers' outreach efforts for preventive and community health care?
- To what degree do providers accept the concept that they are responsible for the health outcomes of their panels? This is a shift crucial to drive the health care system from providing reactive to proactive care.
- Do providers feel that they are able to spend sufficient time on preventive care with their patients, based on panel size?

## Implementation of the Empanelment Model > Monitoring and Evaluation of Empanelment Model

Finally, you should assess whether your empanelment system has led to an improvement in health outcomes. Changes in health outcomes will not be apparent in the data immediately. The impact of empanelment and corresponding improvements in access to high-quality primary care will likely have effects years down the line in the prevention of diseases or reductions in mortality. However, it is important to begin collecting data on these outcomes immediately (and ideally prior to implementation) so you can observe changes over time. Some health outcomes you can measure include:

- If the number of emergency department visits decreases
- If the system's continuity of care increases
- The percentage of patients achieving diabetic or hypertensive control (I.e through last documented blood pressure or glycemic index)
- Hospitalizations - duration and frequency
- Immunization coverage rates
- Mortality

### *Working Questions: Monitoring & Evaluation (Part I)*

1. Are you measuring empanelment success? How?

2. Are people going to the provider to which they were assigned? What is actually happening if patients are showing up to a clinic/office to which they are not empaneled? Are facility and government leaders enforcing empanelment structures? Is ER utilization going up (to ensure that patients aren't giving up on primary care and presenting at higher levels of care)?

3. Are there mechanisms in place to ensure/improve continuity?

4. Are panel sizes being monitored frequently? Is the predefined action taken if a panel grows too large or too small?

5. Are databases and panels being kept up to date?

6. How will you assess patient satisfaction with their panel assignment and the system of empanelment generally? If satisfaction is low, how will you improve patient buy-in?

7. To what extent are people accepting of the health system taking on a more active role in health management? Are people responsive to health care workers outreach efforts?

8. How will you assess provider satisfaction with their panel assignment and the system of empanelment generally? If satisfaction is low, how will you improve provider buy-in?

9. Are providers adapting to the thought that they are responsible for the health outcomes of their empaneled population? What challenges are arising for providers? Are providers able to spend sufficient time proactively managing their panel's health needs?

**Implementation of the Empanelment Model > Monitoring and Evaluation of Empanelment Model**

10. What types of changes in health outcomes can you observe after creating the empanelment system?

# Conclusion

Empanelment has the potential to strengthen the quality of and access to primary health care across a population. Through the systematic and intentional assignment of people to primary care teams, health systems can not only ensure that patients have access to a first point of contact with the health system and continuous care delivered by the same providers over time, but also that providers have a defined population for which they are responsible. By identifying the population for which providers are responsible, this enables the subsequent switch to proactive care provision and population health management. Empanelment is thus a foundational element of strong primary health care that is continuous, comprehensive, coordinated, and people-centered.

The descriptions and open-ended questions within each section of this guide can help you identify the necessary steps for building an empanelment system that is specific to the needs of your population and effectively allocate time and resources to build this system. After answering the questions in this guide, you can begin gathering the people, resources, and information necessary to build or strengthen your system. We suggest that you share this document with anyone who will be involved in the development and implementation of empanelment and reviewing your answers to the questions together. Stakeholders from different parts of the system will have new perspectives and insights that will be important to capture to ensure you have a comprehensive understanding of how empanelment might function in your health system.

Empanelment is a dynamic process. After initially implementing empanelment in your health system, we suggest revisiting this document regularly: on a set cadence every few years, as population needs shift, or as other health system structures change. Regardless of where your country is on the path towards full empanelment, this guide should present important information and questions for beginning, continuing, or reorganizing empanelment and achieving a more proactive, equitable primary health care system.

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