

# IMPROVEMENT STRATEGIES MODEL: AVAILABILITY OF EFFECTIVE PRIMARY HEALTH CARE SERVICES: SAFETY

## CORE PRINCIPLES OF AVAILABILITY OF EFFECTIVE PRIMARY HEALTH CARE SERVICES

The subdomain Availability of Effective PHC Services includes the presence of competent, motivated health workers at a health facility or in a community when patients seek care. Effective PHC also requires that providers and their patients build participatory relationships and a foundation of trust and respect. Health worker motivation is critical as it is associated with technical and experiential quality as well as effectiveness. Finally, effective PHC also requires safe practices routinely followed in the delivery of care.

### PROVIDER AVAILABILITY

Availability is defined as the presence of a trained provider at a facility or in the community when expected and providing the services as defined by his or her job description. Availability is important because, while there are often shortages in human resources, deployed providers are frequently inappropriately absent or, when present, are not actively delivering health care because they are engaged in other duties.

### PROVIDER COMPETENCE

Provider competence entails having and demonstrating the “knowledge, skills, abilities, and traits” to successfully and effectively delivery high-quality services.(1) Competency can be built during pre-service education as well as in-service education and is not limited to technical knowledge. A competent provider must also have strong empathy and communication skills, and these are considered important components of “experiential quality”, from the patient perspective.

### PROVIDER MOTIVATION

“Motivation in the work context can be defined as an individual’s degree of willingness to exert and maintain an effort towards organizational goals.”(2) Motivation captures intrinsic an extrinsic characteristics that affect the behavior and performance of providers in a health system. Intrinsic motivation is the feeling of accomplishment driven by organizational goals and the impact of one’s work on patients and communities. Alternatively, extrinsic motivation is driven by monetary or non-monetary individual or environmental incentives.(2) Within motivation, the literature has a particular focus on degree of provider autonomy, degree of remunerative motivation, supportive supervision, options for professional development, and level of burnout.

### PATIENT-PROVIDER RESPECT AND TRUST

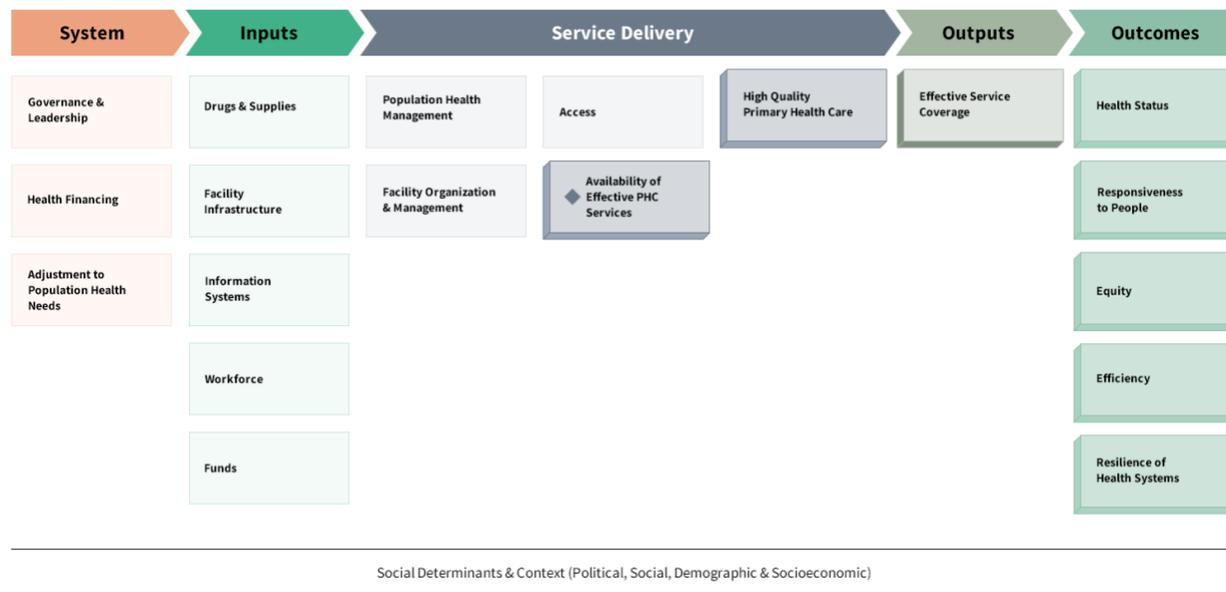
Patient-provider respect and trust refers to a relationship between patients and providers that is mutually respectful and trusting. Respect and trust between providers and patients can improve communication and provider motivation and contribute to the formation of continuous relationships over time.

### SAFETY

“Patient safety is the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum.”(3) (3)

## WHAT COULD YOUR COUNTRY ACHIEVE BY FOCUSING ON AVAILABILITY OF EFFECTIVE PHC SERVICES?

Improvements in Availability of Effective PHC Services can lead to improvements in the following areas:



## AVAILABILITY OF EFFECTIVE PHC SERVICES: WHAT ARE THE FIRST STEPS?

### STEP 1: ENSURE AN ADEQUATE SUPPLY OF HEALTH WORKERS

An adequate supply of human resources for health on a national and subnational level is a foundation for implementing interventions intended to improve availability of effective PHC services. Training, recruiting, and deploying an appropriately sized and adequately trained workforce is discussed in greater detail in the Workforce module (forthcoming). However, an adequate supply of competent providers is only a first step towards achieving high-quality, available, and effective services.(4)

### STEP 2: ENSURE THAT TRAINED AND COMPETENT PHC PROVIDERS ARE AVAILABLE TO PATIENTS

The presence of an appropriate number of providers is of limited benefit if providers are absent from their planned shifts or if service delivery is structured in such a way that patients are unable to access a skilled provider at convenient times. Patients can only receive high-quality care from competent providers if those providers are present in facilities or communities and trained in the relevant care. If provider absenteeism is driven by facility-level factors such as inadequate supervision, poor remuneration, a sense of ineffectiveness due to poor training or inadequate supplies, or a lack of professional development, improving provider motivation may concurrently address provider availability.

Even with the availability of large numbers of health workers, inadequately trained and skilled providers will likely not contribute to improving either individual or population-level health outcomes. Frontline primary care service delivery is a highly complex task, requiring the ability to diagnose and manage a wide range of possible illnesses in undifferentiated patients presenting at the first contact point with the

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health system. Additionally, providers health workers require appropriate and comprehensive training in prevention and promotion to engage with individuals and communities to promote health and wellbeing and address risk factors. Competency at these tasks requires substantial experience and training that often goes beyond typical academic degree-based educational programs, requiring post-graduate experience and supervision. It is this comprehensive set of skills effectively applied in community settings that are likely to be responsible, at least in part, for overall improvements in morbidity and mortality.

### **STEP 3: ENSURE RESPECT AND SAFE PRACTICES THROUGHOUT**

There are some overlaps between provider competence and patient-provider respect and trust. Experiential quality of care - measured from the patient perspective - may influence patient choice and utilization of primary care facilities. Competence and safety have similar overlaps - a system staffed with a workforce without the necessary clinical competency will most certainly perform poorly on safety. Safety includes not only provider knowledge in safe diagnostic, prescribing, and procedural practices, but also accessibility to the necessary supplies and equipment for a provider to perform his or her job.

## SAFETY

This area is defined as safe practices being routinely followed in the delivery of care as well as in facilities more broadly. Safety requires certain inputs but also depends upon provider training in safe practices and a facility culture that promotes learning and safety.

### WHAT SHOULD I KNOW BEFORE BEGINNING IMPLEMENTATION?

Safety in primary health care is a broad topic, particularly because what comprises primary health care differs substantially between contexts, and data on primary care safety in low- and middle-income countries are scarce.(5) Here we have grouped safety into five categories that address safety related to competencies, infrastructure, and facility structure and culture:

- ▶ Medicine and supplies safety
- ▶ Diagnosis
- ▶ Procedural safety
- ▶ Transitions
- ▶ Safety systems

Some overarching resources that address multiple categories include:

- ▶ [WHO Safer Primary Care](#)
- ▶ [10 Facts on Patient Safety](#)
- ▶ [WHO Global patient safety: Perspectives from LMIC](#)

### MEDICINES AND SUPPLIES SAFETY

A qualitative study of primary care doctors and nurses found that most providers associated safety with medicines and supplies.(6) While medicine and supplies safety is only one component of ambulatory care safety, it is perhaps the most pervasive in the primary care literature.

There are a number of considerations related to medicine safety, including:

**Medication reconciliation** - Do providers know what medications patients are taking? During medication reconciliation, providers can compare the medications that a patient is actually taking to the medications they are supposed to be taking and make adjustments as necessary.(7) This is particularly relevant if patients are being prescribed medications outside of primary care settings. Coordination of care between primary care providers and specialists can help improve medication reconciliation. A number of resources on medication reconciliation can be found on the [Institute for Healthcare Improvement](#) website.

Additionally, the United States Agency for Healthcare Research and Quality has a set of documented [innovations and tools](#) to improve medication reconciliation.

**Polypharmacy** - Are patients taking too many medications? This may be particularly relevant for elderly patients or patients with chronic conditions and may be a concern for microbial resistance. Assessments of polypharmacy can take place during medication reconciliation, discussed above.

**Adherence** - Are patients taking the medicines that they are prescribed and at the correct frequency? Primary care providers play an important role in medication adherence. Medication adherence is an individual decision that is informed by multiple factors including lifestyle considerations, side effects,

poor provider communication, and lack of involvement in medical decision-making.(8) Particularly when primary care providers and patients have longitudinal, trusting relationships, providers can work with patients to understand and solve challenges related to adherence. Discussions about adherence can also be conducted by community-based providers during home visits or community-based care.(9)

**Falsified medicines** - Are medications what they are supposed to be? Falsified medicines are a safety concern worldwide, particularly in countries where there are no robust quality surveillance systems to ensure that medications meet regulations.(10) This challenge is made even more acute by the often laborious and costly methods used to evaluate medication falsification.

The WHO has developed a set of resources on [Medication Without Harm](#) that address many of these medication-related concerns. A number of resources are also available from [Universities Allied for Essential Medicines](#). Additionally, the resource [Medicines in Health Systems](#) provides a robust overview of the role of medications in achieving Universal Health Coverage.

Supplies safety refers to the presence and appropriate use of supplies. These include but are not limited to: the presence of all necessary equipment for ambulatory care, safe use of supplies to ensure safe blood donation, and safe use of supplies to promote infection control. Resources related to these elements of safety include:

The WHO has compiled a number of tools related to blood safety and infection control, including:

- ▶ [Blood donor selection](#)
- ▶ [Screening donated blood for infections](#)
- ▶ [Towards 100% voluntary blood donation](#)
- ▶ [Ventilation for infection control](#)

## DIAGNOSIS

Graber et al (2002) proposed a three-part framework for considering diagnostic errors that includes: 1) errors of uncertainty, 2) errors caused by system factors, and 3) errors of thinking and reasoning.(7,11) While these categories have significant overlap and should not be considered exhaustive, they provide a useful framework for considering the types of interventions that can be used to address each.

Errors of uncertainty are ones that may be particularly challenging to diagnose due to patient refusal of testing, limitations in medical knowledge, or unusual disease presentation.(7) These errors may be challenging to systematically address, but as the errors arise, providers should be sure to discuss and debrief them (promoting a culture of learning from mistakes is discussed within Safety Systems, below).

System factor errors are related to problems within the health facility or larger health system. For instance, system errors may occur due to poor communication between staff, delays due to provider absenteeism, or lack of availability of diagnostic equipment. Like errors of uncertainty, these errors should be debriefed with the relevant stakeholders, and tools such as process flow mapping or root cause analysis may be particularly relevant for identifying the drivers of these errors.

Errors of thinking and reasoning has significant overlaps with competence. Diagnostic errors related to thinking and reasoning may be of particular concern during redistribution of roles and responsibilities or task shifting if providers are not given appropriate training. Strategies for addressing competence are discussed in the provider competence module, but a few options include: strengthening pre-service and in-service education, enhanced supervision, and the use of decision-making tools.(7,11)

## PROCEDURAL SAFETY

While major surgeries are likely not occurring in primary care settings, smaller procedures are common. Like diagnosis, procedural safety has significant overlaps with provider competence. Overall enhanced pre-service and in-service education can contribute to safer procedures.

The WHO Safe Surgery [Checklist](#) and [Implementation Guide](#) have been used extensively in low, middle, and high-income settings to prevent harm during surgeries. The WHO also has global guidelines on the [prevention of surgical site infection](#). Similarly, the WHO [Safe Childbirth Checklist](#) is a valuable resource to ensure adherence with safe childbirth practices.

## TRANSITIONS

Ensuring strong communication and appropriate transfer of knowledge during any kind of transition in ambulatory care can help reduce errors and improve safety. Transitions may include handoffs between different cadres of providers within a care team, handoffs between shifts, or transitions between facilities or to higher levels of care.

The Joint Commission has developed an [infographic](#) on the eight elements necessary for high-quality handoffs. One of these elements includes standardized communication tools, such as [I-PASS](#). I-PASS is a mnemonic for the important components of informational transfer in a handoff, which include: illness severity, patient summary, action list, situation awareness and contingency plans, and synthesis by receiver. (12) Implementation of I-PASS included a two-hour workshop, a role-playing session, a computer module, a faculty development program, direct observation tools for evaluation and feedback, and process-change campaign materials. A prospective intervention study of I-PASS in the United States found a 23% reduction in medical-error rate before and after the intervention.

## SAFETY SYSTEMS

Ambulatory care facilities should be designed and managed with systems in place to identify, react to, and learn from safety incidents. In order to do so, facilities must foster a culture of safety, report on errors and near misses, learn from their mistakes, and track progress towards safety-related goals.

Facilities will be better suited to adapt to safe practices if they are able to quickly and easily learn from mistakes or errors within the facility. This is often referred to as a “learning organization”. One study in the United States found that care teams with strong leadership often reported more errors in practice. The authors further investigated these counterintuitive findings and determined that well-led teams foster an environment in which reporting and learning from mistakes is welcomed and encouraged. This prompted the authors to identify qualities of teams and leaders that facilitate organization learning. (13) These are:

- ▶ A safe learning environment where voices are valued - even in instances where it may seem inherent, facility leaders should be sure to communicate that all voices are welcomed and valued and all providers - regardless of cadre - are invited and encouraged to share concerns
- ▶ A compelling vision for what needs to be improved - including clear systems for recording and sharing visions between stakeholders, including providers and community members
- ▶ Team based learning infrastructure where small groups can contribute lessons and expertise - for instance, if a facility experiences an adverse event, there should be systems in place where providers can come together and discuss implications, lessons, and improvement strategies.

A conceptual model for learning organizations has identified three “building blocks” for such organizations. These include: 1) a supportive learning environment; 2) concrete learning processes and

practices; and 3) leadership behavior that provides reinforcement. The researchers found that these three elements were dictated by different mechanisms, and high performance in one does not predict high performance in others.(14) A corresponding “[Learning Organization Survey](#)” intended to assess an organization’s learning capability maps competencies across these three dimensions. The survey is intended to be used at the organizational unit level. This may correspond to a facility department or a whole facility depending on the size and number of facilities. It characterizes a supportive learning environment as one that prioritizes psychological safety, appreciation of differences, openness to new ideas, and time for reflection. Concrete learning processes and practices include experimentation, information collection and analysis, education and training, and information transfer to other networks. Finally, the model emphasizes the importance of having leaders who prioritize dialogue around problem identification and adaptation.(14)

## WHAT HAS BEEN DONE ELSEWHERE TO IMPROVE SAFETY?

### ASSESSING DRUG SAFETY - KENYA

Despite the importance of quality standards for drugs, many low and middle-income countries struggle with creating and enforcing mechanisms to ensure drug safety. There are two important considerations when assessing drug quality: 1) do the drugs meet quality standards? and 2) Are the drugs appropriately administered based on symptoms or diagnoses? A central challenge in drug safety is identifying the most effective ways to measure these two questions. A World Bank study in Kenya used standardized patients to explore what methods are most effective. This study was part of the Kenya Patient Safety Impact Evaluation (KePSIE), an ongoing study exploring if increased inspections will contribute to better patient safety. (15,16)

Standardized patients are often used to evaluate safety. Individuals are trained to go to a facility and present a standardized set of symptoms. They then record the providers' diagnosis and collect any prescribed medications. This approach enabled the researchers to investigate if patients were prescribed appropriate drugs and then could test the prescribed drugs to assess compliance with quality standards. (15) Using this methodology, the researchers found that of sixty selected samples, 17% did not meet specifications, and five of these had been inappropriately prescribed. The study concluded that the standardized patient approach appears to be an effective way to measure drug safety. The [KePSIE study](#) is ongoing, and the results will contribute to knowledge on how governance and surveillance can improve patient safety.

### SAFETY SYSTEMS WITH QUALITY IMPROVEMENT - RWANDA

Implementing robust and sustainable quality improvement practices in facilities can help identify opportunities for strengthening systems and improving patient safety. There are a number of different methods and tools for quality improvement, some of which are discussed in Facility Organization and Management. The Mentoring and Enhanced Supervision for Healthcare and Quality Improvement (MESH-QI) is one such program that was first implemented in rural health centers in Rwanda as a collaboration between Partners in Health and the Rwandan Ministry of Health. (17) In 2013, MESH-QI was adapted for use in district hospitals where QI efforts were required by the Rwanda Health Sector Strategic Plan but did not engage all staff. QI trainings focused on General introductions to QI concepts, problem Identification and QI tools, QI methodology, and intervention design and implementation. During quarterly meetings, teams were able to discuss the progress they had made and discuss challenges they faced to encourage motivation and sustainability. While such QI programs are not specific to patient safety, they create frameworks for continuously identifying challenges or warning signs for patient safety and actively designing, implementing, and monitoring interventions. The MESH-QI Implementation guide is available [online](#).

### MORBIDITY AND MORTALITY CONFERENCES - NEPAL

A QI method also relevant to patient safety is morbidity and mortality conferences (M&M). Ideally, M&Ms should encourage system-level improvement and create space for staff discussion of safety improvement. M&Ms were implemented in a remote district hospital in Nepal that previously had no systematic method for quality improvement. (18) M&Ms occurred weekly during staff meetings to ensure wide participation, and discussion focused on: clinical operations, supply chains, equipment, personnel, outreach, societal, and structural. Following the M&Ms, the hospital administrator and executive director were responsible for implementation of interventions proposed. Some examples of interventions pursued as a result of M&Ms reviewing complicated deliveries included a task shifting workshop on emergency, point-of-care

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investigations to improve efficiency during high patient flow and a training in partograph use during labor. Despite these successful interventions, there were a few challenges that surfaced from the evaluation. These included difficulties implementing M&Ms on the planned weekly basis and lack of contribution from junior staff. Even considering these barriers, M&Ms may be an effective QI method in limited resource settings and can identify intervention points to improve patient safety.

## WHAT QUESTIONS SHOULD BE CONSIDERED TO BEGIN IMPROVEMENTS?

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

### **WHAT REGULATORY SYSTEMS ARE IN PLACE TO ENSURE THAT MEDICINES ARE NOT FALSIFIED?**

Falsified medicines are a safety concern worldwide, particularly in countries where there are no robust quality surveillance systems to ensure that medications meet regulations.(10) In order to address falsification, it is important to understand existing regulatory structures to ensure medicines safety and assess how well these processes are being used.

### **HOW DO PROVIDERS MONITOR PATIENTS' ADHERENCE TO MEDICINES?**

Medicine adherence is an important component of medicine safety. Primary care providers should be responsible for monitoring adherence to medicines during facility or home visits and working together with patients to address any barriers patients may be facing in medicine adherence.

### **WHAT SUPERVISION/MONITORING AND IN-SERVICE TRAINING DO PROVIDERS RECEIVE REGARDING PRESCRIBING PRACTICES AND DIAGNOSIS? ARE THERE ANY GUIDELINES OR DECISION-MAKING TOOLS THAT ARE COMMONLY USED BY PROVIDERS FOR PRESCRIBING AND DIAGNOSIS?**

Safety in prescribing practices and diagnosis is closely related to provider competence. Providers should receive regular supervision/monitoring and in-service training to ensure that their skills are updated.

### **ARE THERE ANY GUIDELINES OR SYSTEMS FOR COMMUNICATION BETWEEN PROVIDERS DURING TRANSITIONS OF CARE?**

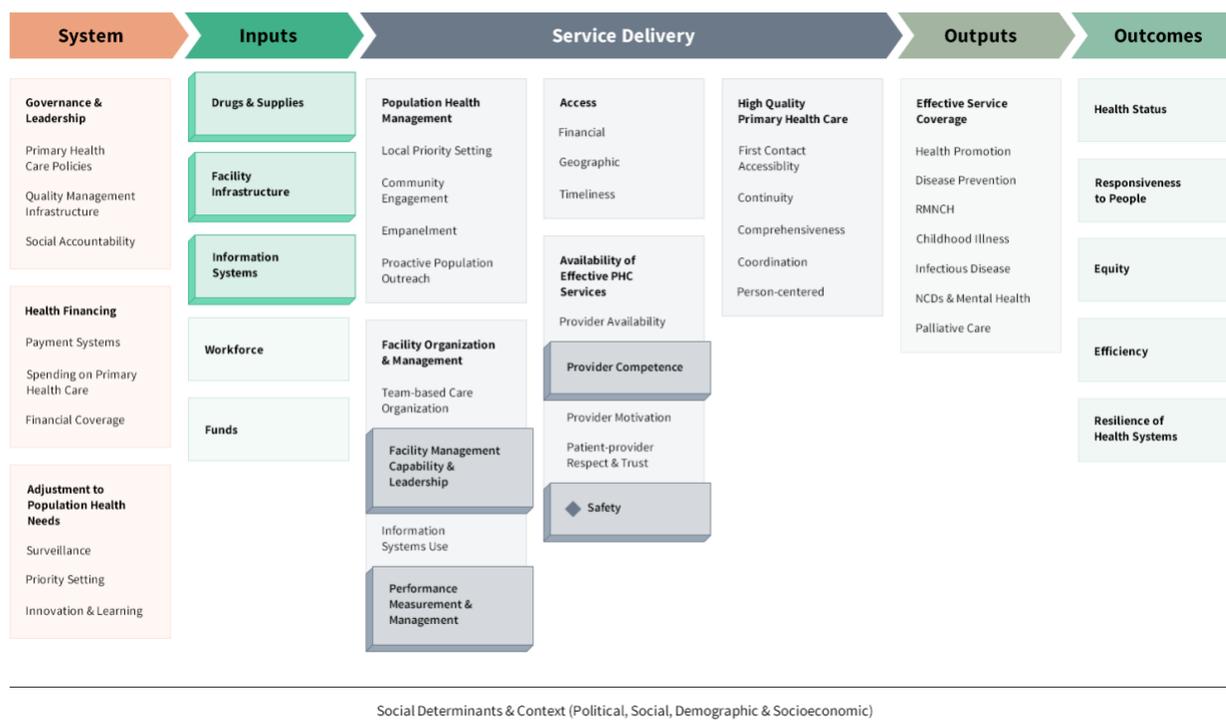
It is important to ensure that information is effectively communicated between providers during patient hand-offs or between shifts. Standardized communication guidelines or systems can help providers ensure that they are addressing transferring all of the critical knowledge during these transitions.

### **WHAT PROCESSES ARE IN PLACE TO LEARN FROM MEDICAL ERRORS OR NEAR MISSES, AND HOW WELL ARE THEY IMPLEMENTED IN FACILITIES?**

Facility leaders should ensure that they are promoting a culture that is committed to learning from mistakes. All staff should feel comfortable reporting safety incidents and there should be processes in place to collectively identify root causes of errors and improve systems to prevent them in the future.

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

In order for interventions aimed at improving Safety to be most successful, the following elements of the PHCPI Conceptual Framework should be in place or pursued simultaneously:



### DRUGS & SUPPLIES

A reliable supply of safe drugs and supplies is necessary for providers to deliver safe care. In particular, falsified medicines are a concern in many LMIC, and strong regulatory systems for medicines can prevent significant harm.

### FACILITY INFRASTRUCTURE

In order to implement safety deliver care, providers must have access to certain safety precautions such as: safe final disposal of sharps, safe final disposal of infectious waste, sharps box/container in exam room, waste bin with lid and liner in exam room, surface disinfectant, single-use standard disposable or auto-disposable syringes, soap and running water or alcohol-based hand sanitizer, and latex gloves.(19)

### INFORMATION SYSTEMS

Robust information systems can help improve communication between providers during care transitions. These systems do not need to be electronic, but should be standardized and capable of recording necessary information and promoting informational continuity.

## PROVIDER COMPETENCE

The health workforce should receive pre-service and in-service training on safety. In particular, non-licensed or informal providers who practice outside of their scope may not be providing safe services. Additionally, providers should be champions of and advocates for provider and patient safety and actively work to identify areas for improvement. Investing in provider competence and training can help improve diagnosis and procedural safety. Additionally, provider communication and dynamics within a care team can contribute to better transitions and prevent harm that can occur through inadequate transfer of information.

## FACILITY MANAGEMENT CAPABILITY AND LEADERSHIP

Facility managers can help foster a learning environment in which providers feel comfortable voicing concerns and advocating for patient safety. (20) All providers - regardless of tenure or cadre - should have opportunities to express concerns without fear of punishment or retaliation.

## PERFORMANCE MEASUREMENT AND MANAGEMENT

Within facilities there should be systems in place to identify safety incidents, respond appropriately, and institute measures to prevent these incidents from re-occurring. The [Institute of Healthcare Improvement resources](#) focus on creating a culture of safety including creating safety briefings, reports, and adverse events teams.

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