FACTORS IMPACTING THE EFFECTIVENESS OF HEALTH CARE WORKER BEHAVIOR CHANGE

A LITERATURE REVIEW

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ACRONYMS

ART	Antiretroviral Therapy
CCP	Johns Hopkins Center for Communications Programs
FSW	Female Sex Workers
HC3	Health Communication Capacity Collaborative
HCW	Health Care Worker
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
PLWHA	People Living With HIV and AIDS
PMTCT	Prevention of Mother-to-Child HIV Transmission
SBCC	Social and Behavior Change Communication
TB	Tuberculosis
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Social and behavior change communication (SBCC), which uses communication to positively influence the social dimensions of health and well-being, is an important strategy for improving health services at the provider level. With much of the responsibility for providing health care services falling on a cadre of professional health care workers (HCWs), particularly those in lower-level facilities, SBCC strategies targeting this workforce can be an important tool for improving quality of care. To maximize the impact of SBCC activities among HCWs, program designers and implementers must first develop an awareness of factors that improve or impede HCW performance at the facility level. The purpose of this literature review is to identify the facilitators and barriers to HCW service provision in three areas: knowledge and competency barriers in which HCWs lack the skills and knowledge to provide services; structural and contextual barriers in which systemic and environmental factors affect HCWs ability to provide services; and attitudinal barriers in which attitudes and societal beliefs influence health workers' willingness to provide services. The research confirms that HCWs experience significant barriers in all three areas, ranging from lack of training and poor management to inadequate equipment to stigma towards certain populations. The findings in this paper can be used to capitalize upon facilitators and anticipate and respond to potential barriers when using SBCC programs to improve the quality of care provided by HCWs.

INTRODUCTION

The Health Communication Capacity Collaborative (HC3) is a five-year global project funded by the United States Agency for International Development (USAID) designed to strengthen the capacity of middle- and low-income countries to develop and implement state-of-the-art health communication programs. HC3 is led by the Johns Hopkins Center for Communication Programs (CCP) and addresses important health issues such as child survival, family planning, Ebola, HIV/AIDS and Malaria.

As part of its effort to improve health in low resource settings, the HC3 project works to identify strategies to improve the effectiveness of SBCC programs within the context of low- and middle-income countries. Since service providers are critical to improving health in the communities they serve, implementing SBCC programs to influence provider performance is of great importance. In particular, HCWs at lower-level facilities are the frontline providers of essential health services and are often the first resource accessed by people seeking care. HC3 focuses on how to utilize SBCC programs in order to strengthen HCW service provision by developing strategies that identify and respond to changing provider behavior within these contexts.

High quality health care is necessary for people to have a productive and fulfilling life, yet in many low- and middle-income countries health services remain greatly inadequate. The responsibility for providing these services falls largely upon professional HCWs. The term "health care worker" can apply to a wide range of health workers at various levels of the health care system. For the purposes of this paper, a HCW is defined as a worker who has received formal training with a nursing or medical curricula and is a paid employee at a public, private or non-governmental organization health facility. This paper primarily focuses on HCWs based in lower-level or primary care facilities, however, some studies cited in this paper include findings from higher-level facilities within the broader category of the health care system. These papers still present information that is representative of and relevant to the HCW experience.

HCWs are the foundation of the health care system, and they present an important opportunity to use SBCC programs to improve the quality of care across a broad spectrum of health services. Many HCWs work within strained health care systems with inadequate resources, workforces and political support. While SBCC programs may have limited influence on health systems as a whole, they do have the potential to mitigate the effects of these challenges through promoting positive behavior change among individual providers. SBCC programs can improve the effectiveness and quality of services through positively influencing the social determinants that influence the HCWs' work, such as knowledge, attitudes, norms and cultural practices. By identifying and addressing these issues, HCWs can become more competent and conscientious in addressing the needs of their communities.

Within the formal health care system, various factors exist that can either improve or inhibit HCWs' ability to provide quality care to beneficiaries. Understanding these factors and how HCWs may be influenced by SBCC allows programs to anticipate and respond to barriers through program objectives and design.

HC3 conducted a literature review to identify barriers and facilitators to service provision commonly experienced by HCW programs. Specifically, this paper presents barriers within three categories:

- **Knowledge and Competency Barriers**–HCWs do not know how to perform assigned tasks.
- **Structural and Contextual Barriers**–HCWs are not able to perform assigned tasks.
- **Attitudinal Barriers**–HCWs are not willing to perform assigned tasks.

The purpose of this paper is to serve as a tool to aid SBCC programs in recognizing factors that may potentially influence HCWs, thereby assisting program designers, managers and other stakeholders to better tailor their SBCC programs to meet these challenges. This paper also presents recommendations based on the findings from the literature to guide stakeholders in conceptualizing and designing SBCC programs that can create substantial and sustainable change. While this literature review does seek to identify both facilitators and barriers, the body of available evidence provides more information on challenges faced by HCWs than on factors that increase effectiveness. This paper reflects the findings of the literature and therefore has greater emphasis on barriers to, rather than

facilitators of, effectiveness. Program designers should also keep in mind that these findings and recommendations are based on a broad analysis of HCWs in multiple countries, and that local contexts should be evaulated and incorporated in the design of specific programs.

METHODOLOGY

The literature search included peer-reviewed journals on the topic of health care workers (with a particular focus on HCWs' abilities, performance and attitudes), limited to resources published in the last 10 years, which focused on middle- and lower-income countries. The database search strategy included relevant terms from the controlled vocabularies of the databases consulted (PubMed, SocINDEX and ERIC)—"health care workers", "health care providers," "facility based care," "health care workforce," "primary health care," "clinic worker" and "medical personnel," supplemented with country terms, thesaurus terms and limits from each database as appropriate.

KEY FINDINGS

Knowledge and Competency Barriers

Health care workers provide crucial and potentially life-saving services, yet many lack the knowledge and skills necessary to effectively perform the responsibilities they are assigned. Despite substantial efforts and investment, knowledge gaps among HCWs continue to plague the health care sector in many low- and middle-income countries. For example, Dachew & Bifftu found that midwives in Ethiopia had significant knowledge gaps regarding exclusive breastfeeding and duration of breastfeeding (2014). A survey of facility-based HCWs in Ethiopia found significant knowledge gaps, with one third of HCWs having relatively poor knowledge and over half demonstrating unsatisfactory practice on tuberculosis (TB) infection control (Gizaw, Alemu, & Kibret, 2015). A similar study of TB knowledge and practices among health workers in Nigeria and South Africa found similar knowledge deficits (Ibrahim,e et al., 2014; Malangu & Mngomezulu, 2015).

Insufficient pre-service training leads to poor service quality

Health care workers are often introduced into the workforce lacking the knowledge and skills necessary to perform their assigned responsibilities. These knowledge and skills gaps are frequently a result of inadequate training prior to entering the workforce. Pre-service training creates the essential foundation for providing quality health services, and training insufficiencies can have a widespread impact on a worker's capacity to address the needs of the community. An evaluation of barriers to the provision of obstetric care in Ethiopia found that, of the 111 providers surveyed, none had received all components of the basic training on obstetric care, and only 12 percent of providers had received training on any one component of the comprehensive obstetric care training regimen (Austin, et al., 2015). In Pakistan, where certain trainings were found to be contingent upon gender, male physicians were significantly less likely to be trained in Family Planning (Qureshi, 2010). Pressure to replenish a depleted or strained health care workforce can lead to lower-quality training of HCWs. For example, in a study of facility-based maternal and neonatal care in Malawi, Bakker et al. found that a shortage of HCWs due to migration and HIV-related mortality led to efforts to increase the number of workers through shorter trainings (2011).

Several studies show that providers failed to be adequately trained in the very skills required to perform their assigned tasks (Beltman, et al., 2013; Mwaka, Wabinga, & Mayanja-Kizza, 2013; Esan & Fatusi, 2014). A study in Nigeria found that, of those HCWs whose responsibilities included attending to clients with TB, a majority had only fair to poor knowledge on the concept of direct observation of treatment and the key educational messages to share with the patient during registration for treatment. Thirty percent of these workers had never received training on TB. In Ethiopia, while 89 percent of providers thought that a cervical cancer screening program should be started in their community, 52 percent reported they had inadequate training to screen for the disease (Kress, Sharling, Owen-Smith, Desalegn, Blumberg, & Goedken, 2015). Knowledge gaps extend beyond clinical skills. A study of health facilities in Tanzania found that 81 percent of health workers had never been trained on using their facilities' Health Management Information Systems and 65 percent could not even properly define it (Nyamtema, 2010). Providing newly trained health workers with the knowledge and skills necessary to administer needed services is fundamental in improving the quality of care.

Insufficient in-service training opportunities compromises care

While pre-service training is critically important in establishing a competent health care workforce, regular refresher and in-service education opportunities are necessary to ensure that HCWs have retained and are adhering to earlier training, and are updated on health care advancements. A study in Tanzania found that simply providing reference materials to HCWs did not improve the likelihood of correct dosing of malarial drugs, underscoring the importance of refresher trainings and on-the-job training to cement behavior change (Masanja, et al. 2013).

When carried out properly, in-service training can lead to significant and lasting knowledge gains (Sunguya, Poudel, Mlunde, Urassa, Yasuoka, & Jimba, 2013). An intervention in Uganda to improve obstetric and newborn care coupled a six day refresher training with ongoing supervision and mentoring, learning visits, reviews and dissemination

activities, which led to knowledge score increases (from 32 percent to 80 percent) a year following the conclusion of the training (Namazzi, et al. 2015). Isolated trainings without any assessment or follow-up are unlikely to create significant or lasting change in HCWs' practices (Adams, Olotu, Talkbot, Cronin, Christopher, & Mkomwa, 2014).

Simply providing trainings does not necessarily lead to improved knowledge. Improperly designed trainings and interventions may not only fail to improve knowledge but also occasionally lead to misinformation. For example, efforts to train health workers on new clinical prevention of mother-to-child HIV transmission (PMTCT) guidelines in Tanzania used workshops to train only one person from each site who was then responsible for training their colleagues. These colleague trainings were generally brief and were found to lead to incorrect information being communicated (Shayo, Vaga, Moland, Kamuzora, & Blystad, 2014). A study in Iran comparing the knowledge, attitudes and practices of pharmacists and public health educators regarding oral contraceptive usage found that while pharmacists had a more comprehensive initial training than public health educators, they had a lower level of knowledge in many areas of oral contraceptive usage, side-effects, signs of problems and contraindications than public health educators. The authors speculated that this was perhaps a result of continuing education that was broader in scope in comparison to public health educators who receive more targeted refresher trainings (Sattari, Mokhtari, Jabari, & Mashayekhi, 2013).

Further challenges to in-service training include lack of time to conduct trainings due to high workloads (Bakker et al., 2011) and high worker turnover (Austin, et al., 2015; Kalua, Gichangi, Barassa, Eliah, Lewallen, & Courtright, 2014). Kalua et al. found that a two-year intervention to improve the practical skills of health workers resulted in only very modest improvements. The authors attributed this primarily to the fact that the turnover rate was 75 percent over the course of the two year program, thereby limiting the impact of the training (2014).

Links between improved knowledge and improved practice

While improving knowledge through pre-service and in-service training is often the objective of quality-improvement efforts, research reveals that the impact of training-based interventions on actual practice is mixed. Some interventions demonstrate a definite improvement in attitudes and practices following training and education. For example, a literature review conducted by Sunguya, et al. examining in-service nutrition training found that doctors who had received in-service nutrition training were more likely to report improved post-intervention practices in managing child under-nutrition than their counterparts. In Pakistan, family planning training for physicians led to an increase in the amount of time physicians dedicated to family planning care (Qureshi et al., 2010). Similar results linking increased knowledge to better practice and attitudes were found among TB nurses in Lesotho (Malungu & Adebanjo, 2015), health care providers treating Ebola virus (Otu, Ebenso, Okuzu, & Osifo-Dawodu 2016) and adherence to universal precautions among primary health care providers in Pakistan (Yousafzal, Janua, Siddiqui, & Rozi, 2015). Others studies did not find significant association between increases in knowledge through training and improvements in practices (Rockers & Barnighausen, 2013; Masanja, et al. 2013).

While not all research draws conclusions on why increases in knowledge lead to improved practices, some articles attribute success to certain program characteristics. Among the primary HCWs in Pakistan, Yousafzal et al. speculated that better knowledge was associated with improved practices because providers with greater knowledge had both higher perceived benefits from practicing universal precautions, as well as a higher perceived susceptibility to blood-born pathogens in the workplace, both of which motivated better practice. A study among HCWs in Iran similarly found that risk perception was the best predictor of preventative behavioral intention and thus should be an important component of educational programs (ali Morowatishaifabad, Sakhvidi, Gholianvval, Boroujeni, & Alavijeh, 2015).

Other articles attributed performance improvements following training to the trainings' role within a more comprehensive program design (Irimu, et al., 2014, Masanja, et al., 2013). An intervention in Zambia to improve the quality of PMTCT services improved performance scores from 58 percent to 73 percent through using not only provider training but also following up the training with supportive supervision, detailed performance standards and repeated assessments of service quality (Kim, et al., 2013).

A similar intervention among HCWs in Tanzania resulted in many significant improvements in quality of newborn care, including skin-to-skin contact, delayed cord clamping and breastfeeding (Makene et al., 2014). The program included training for health care providers, provision of essential equipment, supportive supervision in facilities, integration of national standards within facilities and improvements to health information systems. Future efforts to further improve quality include provider refresher trainings, guided on-the-job practice and SMS text reminders.

Training programs that failed to bring about behavior change also attributed poor outcomes to the lack of supportive activities. For example, a study of HCWs in Ethiopia found that neither training nor possession of reference materials led to improved odds of correct anti-malarial drug dosing. The authors speculated that the poor performance was in part due to the time and experience needed for trainees to become competent in new topics, as well as the need for frequent supervision from management teams, refresher trainings and on-the-job training to complement formal training–none of which were included in the program (Masanja, et al., 2013).

Training methods influence knowledge gains

The teaching method used for the training can influence a program's success in improving knowledge and changing behaviors and practices. In a literature review identifying effective training approaches for health worker continuing education, Bluestone et al. found that using multiple techniques that allow for iteration and enable learners to both process and apply learning resulted in better performance outcomes (Bluestone, Johnson, Fullerton, Carr, Alderman & Bon Temp, 2013). The study specifically cited case-based learning, case simulations, practice, feedback and using repetitive interventions as having better learning outcomes, with passive learning such as lectures and reading having little or no impact. The importance of experiential learning is supported by a TB knowledge and practices assessment among HCWs in Ethiopia. This assessment found that, while education level was significantly associated with good knowledge, it was not associated with better practice, whereas experience in a TB clinic was associated with better practice (Gizaw, Alemu, & Kibret, 2015).

Several articles found that an overly complicated curriculum could contribute to poorer topic mastery and implementation. This difficulty could result from either the difficult nature of the topic or from the manner in which the information is presented. For instance, in Tanzania the uptake of an Health Management Information Systems training was low in part because of the system's lengthy and laborious nature (Nyamtema, 2010), whereas in Sri Lanka the adoption rate of the WHO Safe Childbirth Checklist was only 46 percent despite training for nurses and midwives, not because the topic of the checklist was difficult but because the user friendliness of the checklist itself was a barrier to its greater usage (Patabendige & Senanayake, 2015). Gaps in knowledge regarding PMTCT infant feeding was in part due to both frequent changes to the guidelines – which confused practitioners – and the guidelines' use of English academic jargon (Shayo, et al., 2014).

Training in non-clinical skills

Most knowledge-based interventions focused on improving clinical knowledge and skills. However several studies identified opportunities for improving non-technical skills to improve HCWs' ability to efficiently provide quality care. In many smaller facilities, lower-level health workers such as nurses and midwives take on managerial responsibilities – as well as clinical responsibilities – without receiving the corresponding training. Providing management capacity building for HCWs can promote facility efficiency. For example, a program to expand HIV clinical services in Uganda provided both clinical management and monitoring capacity building to nurses. Upon being interviewed, nurses reported that while their responsibilities increased due to the expansion, their workload had not increased because the training equipped them with the knowledge and skills necessary to adapt to the changes. Several studies also identified communication skills training as a facilitator for improved patient services (Irimu et al., 2014; Sunguya et al., 2013; Shayo et al. 2014; Mushi et al., 2008; Sattari et al, 2013).

Recommendations

- Curriculums for training HCWs should include practical clinical skills focused on the needs of the local context.
- Health care facilities and programs should prioritize continuous training that is responsive to local facility knowledge and skills gaps.
- Basic trainings should be supplemented with additional supportive activities and components in order to create a more comprehensive and lasting educational experience.
- Training programs should utilize teaching methods that promote active learning in order to change provider behavior.
- Trainings should move beyond teaching technical skills and include "soft" skills such as time management and communication.

Structural and Contextual Barriers

Even when provided with adequate knowledge and training, HCWs can still experience substantial challenges to providing quality care due to the limitations of the contexts in which they work. Structural and institutional weakness can create considerable barriers to HCWs, which they are largely powerless to address. In addition, characteristics of the communities in which they work, such as healthcare-seeking behavior and cultural beliefs, can also give rise to significant barriers that limit HCWs' effectiveness. While more systemic barriers can prove difficult to address through SBCC programs, certain structural and contextual barriers, such as community attitudes and relationships within the health system, present opportunities in which SBCC can have a significant positive impact.

Workforce insufficiencies influence effectiveness

A major challenge to improving health care is a depleted workforce in which there are insufficient HCWs to provide consistently high quality services. The limitations of a strained workforce on health care are commonly felt in low- and middle-income countries, where trained professionals frequently emigrate to more affluent countries in pursuit of higher paying positions (Beltman et al., 2013; Bello, Hassan, Aforanmi, Tagurum, Chirdan, & Zoakah, 2013). Internal factors also contribute to inadequate and poorly distributed human resources within the country, such as difficulties in retaining trained HCWs in rural areas and workers leaving the public sector to accept often better-paying positions within the private or non-governmental organization sector (Luboga, Hagopian, Ndiku, Bancroft & McQuide, 2010).

Lack of professional health care workers, particularly in high-need facilities such as public and rural clinics, can lead to a huge strain on existing workers and ultimately to poor health outcomes for clients. A study of human resources requirements in South Africa found that all six districts analyzed had a drastic shortage of doctors, with only 7 percent of the required number of doctors and 60 percent of the required nurses. These shortages and poor distribution of staff lead to a diminished quality of services, with lower-level staff forced to perform the tasks of high-level staff with poorer results (Daviaud & Chopra, 2008). These shortages can have serious implications for patients' health, as found by Beltman et al. in a study that determined that lack of human resources was a major contributor to the high incidence of facility-based hemorrhages in Malawi (2013).

Low numbers of professional health care workers and high turnover within the sector pose a challenge to retaining a workforce sufficiently robust to meet local demand. A study of HCWs in Ethiopia found that 40 percent had been in their current facility for less than a year, which not only impacted the facility's capacity to provide quality obstetric care, but also impeded quality improvement efforts (Austin et al., 2015). The impact of generalized shortages in the workforce are compounded by shortages of specialists. In Uganda, lack of gynecologists and pathologists was a major barrier to implementing cervical screening programs (Mwaka, Wabinga, & Mayanja-Kizza, 2013). An assessment of Ebola virus prevention and control needs in Sierra Leone found that none of the districts examined had a dedicated infection control focal person or supervisor (Pathmanathan, et al., 2014).

Depleted workforces lead to a higher demand on existing workers, with the subsequent high workloads impacting the quality of care. In a survey of medical staff in Rwanda, 72 percent reported that they felt they regularly worked supplementary hours and felt constantly tired because of the workload (Kalk, Paul, & Grabosch, 2010). Similarly, Luboga et al. found that only 36 percent of physicians interviewed in Uganda felt that their workload was manageable and complained of unfilled positions and lack of specialists (2010). These shortages can also impact the patient's health care experience. For example, when interviewed, health care staff in South Africa observed that high workloads due to low staff numbers led to limited time with clients and a barrier to establishing relationships with clients. In this same study, when patients were interviewed, 37 percent felt that they did not have sufficient time to ask providers questions, and 30 percent felt that they were not provided with all of the information that they wanted (Alli, Maharaj, & Vawda, 2013). One study found that reorganizing work schedules helped to reduce the impact of staff shortages (Kim, et al., 2013).

Weak internal systems

In addition to human resource shortages within a health facility, HCWs' ability to provide quality services can also be influenced by other

systemic and organizational characteristics of the health care system in which they work. The internal structure and relationships within a health facility workforce can potentially facilitate or hinder positive changes to patient care. One such factor identified by the research is the importance of internal communication and integration within a health facility (Irimu, et al, 2014; Bello, et al., 2013). Shayo et al. found that failures to accurately communicate PMTCT breastfeeding standards to mothers were in part due to lack of a clear administrative structure that would facilitate a smooth flow of communication and information (2014). In a study in Kenya that compared facilities where the HIV and reproductive health services had been recently integrated to facilities where they were not integrated, Mutemwa et al. found that those with better integration had better communication among staff, enhanced personal skills and better experiential learning and professional stimulation (2013). More importantly, the study also found that integrated facilities had increased client satisfaction, an increase in client repeat visits, an increase in service uptake and in clients' willingness to take an HIV test, showing that strengthening integration and communication within a facility can lead to improved health outcomes. Additional studies found corresponding evidence showing that interventions that focused on improving integration could, in turn, improve quality of care (Drobac et al., 2013; English, Nzinga, Mbindyo, Ayieko, Iriu, Mbaatu, 2011).

A key component to strengthening internal systems is promoting supervisory practices that are consistent, relevant and positive. Several studies linked inconsistent or infrequent supervision to poor performance (Nyantema, 2010; Masanja et al., 2013; Eson & Fatusi, 2014). A study of HCWs in obstetric health facilities in Malawi, Mozambique, and Tanzania found that for mid-level workers supervision is frequently absent, and when it is present it is solely corrective (McAuliffe, et al., 2013). Perhaps even more importantly, the study found that inappropriate or absent workplace supervision is a strong predictor of HCWs' intentions to leave their position, and that negative supervision was almost as de-motivating as no supervision. Thus, interventions can improve health services and health worker retention not only through ensuring the existence of supervision but targeting supervisors directly to improve their supervisory methods.

Supportive supervision can provide positive reinforcement of skills and knowledge and improve HCW morale, both of which can improve clients' health care experience. However, supportive supervision is often missing in many health care facilities which continue to practice more traditional supervision. In a systematic review of primary health care supervision in developing countries, Bosch-Capblanch and Garner found that the central role of supervision was checking records, administrative checking and examining facility activities, whereas problem solving was rarely mentioned and less than 15 percent mentioned feedback as part of the supervision process (2008). The lack of supportive supervision can lessen worker productivity and impede a worker's ability to perform at their highest potential. An assessment of the impact of supervision on primary HCWs' productivity in Ghana found that, while supervisory visits were frequent, only a minority of primary HCWs felt supported by their supervisors. Additionally, the study found that only the HCWs that reported feeling supported by their supervisors displayed improved productivity (Frimpong, Helleringer, Awwonor-Williams, Yeji, Phillips, 2011).

Research demonstrates that supportive supervision can lead to improvements in health care performance. An evaluation of a supportive supervision program in Nigeria among malaria case workers found that the program led to not only significantly improved knowledge scores in the control group, but also led to an increase of case workers following the guidelines from 33 percent during the first visit to 71 percent following the third visit (Bello, et al., 2013). Similarly, a supportive supervision intervention in lower-level facilities in Uganda used supervision that included assessment of skills, support for problem solving, review of health records, and development and review of work plans (Namazzi, et al. 2015). It also used quarterly mentoring by district and national management which was integrated within a more comprehensive health care program. The program resulted in significant improvements in facility deliveries and birth outcomes, as well as a reported improvement among health workers' confidence and skills in various activities. A second study of obstetric workers in Ethiopia reinforces the finding that the method of supervision can have an important impact on worker morale. Austin et al. found that only 50 percent of workers were satisfied with the supervision they received at their facility, explaining that routine

supervision visits focused on record-keeping, attendance and fault-finding (2015). The research proposes improvements to supervision including the involvement of a wider range of colleagues in evaluation, continuous supervision occurring in a variety of contexts rather than only periodic visits by external supervisors, provision of on-site technical support and training and joint problem solving, as well as regular follow-up.

Lack of protocols and standards

Health care workers in low- and middle-income countries often work within health systems that lack the proper protocols and standards to ensure quality and efficiency of care. Because the effectiveness of HCWs is largely dependent on the systems in which they work, the lack of clear and standardized operations can be a barrier to improved performance. Several articles found that health facilities lacked even basic operating procedures, leaving health workers without any formalized resource for guiding patient care. An assessment of health facilities in Sierra Leone during the recent Ebola virus disease outbreak found that no district had an infection prevention and control standard operating procedure at any level for proper screening and isolation of patients suspected to have the Ebola virus, and screening procedures at all facilities were inadequate (Pathmanathan, et al., 2014). An assessment of neonatal care facilities in Kenya found that, of the eight domains considered, hospitals scored poorest in Systems of Care, and that patient management guidelines were missing in all sites (Opondo, et al., 2009).

Lack of formalized systems and protocols extends to referral systems, which was commonly cited in the literature as a barrier to HCW effectiveness (Austin et al., 2015; Beltman et al., 2013; Echoka et al., 2013). Austin et al. found that a lack of communication between health centers and referral hospitals was a major barrier to the provision of emergency obstetric care in Ethiopia (2014). Mothers were often referred without contacting the hospital first, which led to mothers arriving at the hospital only to find it already full and unable to accept them. Mothers would sometimes travel to three or four hospitals without finding a place to give birth.

Several studies confirmed the importance of formalized feedback systems and performance auditing on improving quality of care (van der Akker et al., 2011; Bosch-Capblanch & Garner, 2008; Cundill et al., 2005; Okello & Gilson, 2015). A study in Kenya described an approach in which HCWs formed improvement teams that met regularly to examine performance gaps in service delivery, identify root causes of the gaps, and then develop and implement change ideas to address these gaps (Mwaniki, Vaid, Chome, Amolo, Tawfik, & Coaches, 2014). As a result of these teams, the number of pregnant mothers starting antenatal care within the first trimester increased from 8 percent to 24 percent and the number of women delivering in facilities increased from 33 percent to 52 percent. While some research advocates for more rigorous monitoring and evaluation frameworks (Irimu, et al., 2014), in other research HCWs complained of the burden of excessive paperwork associated with monitoring and reporting (Fox, Witter, Wylde, Mafuta, & Lievens, 2013; Mutemwa, et al., 2013).

The political environment influences performance

The political environment can have a significant impact on health services, from allocating funding for certain programs to determining pharmaceutical policy. Increasingly, low- and middle-income countries are decentralizing management responsibility to local governing bodies (Rockers & Barninghausen, 2013) which has been found at times to lead to increased political indifference (Luboga, et al., 2010). This political indifference can be a significant barrier to implementing necessary changes to improving health services. Esan and Fatusi identified lack of political will, particularly at the local government level, as the major underlying factor to most of the problems causing the performance gap in maternal and newborn health services in Nigeria. Specifically, they attributed barriers to the lack of laboratory services, infrastructure weaknesses, equipment shortages and insufficient funding to the negative political environment, as well as low interest in funding human capacity building activities and supplying relevant job aids and tools. Similarly, a survey of HCWs in Nigeria found that 24 percent felt that the reason an HIV/AIDS related home-based care program was not implemented was because of the lack of political will (Amoran, gunsola, Salako, & Alausa, 2012).

Sometimes it is not a lack of political will but rather the creation or perpetuation of misguided policies that create a barrier for health care service improvements. The implementation or scale-up

of beneficial health programs can be difficult in situations where politics plays a greater role in decision-making than evidence and science (Yamey, 2012). In a study to determine considerations for the introduction of a new contraceptive method, key informants considered national and international bureaucracy a major impediment to the method's initiation (McKenna, et al., 2014). Health care professionals in Uganda perceived health policy changes, such as the lack of specialized cancer treatment services and lack of vaccination for human papilloma virus, as a significant barrier to cervical screening and early help-seeking for symptomatic cervical cancer (Mwaka, et al., 2013). Conversely, Spreng et al. found that government stewardship is associated with quality of clinics and hospitals, and that government engagement with providers may be especially influential, showing that political will can be a facilitator to quality health care through thoughtful collaboration and aligned goals (2014).

Limited supplies and equipment impact services

Efforts towards promoting behavior change among health care workers will have only limited impact if workers lack the supplies and equipment necessary to provide quality health services. Research consistently shows HCWs consider the lack of the supplies and resources a significant barrier to their work (Beltman, et al., 2013; Namazzi, et al, 2015; Qureshi, 2010; Yousafzal, et al., 2015; Bello et al,. 2013; Okello & Gilson, 2015). An assessment of the availability of resources for the provision of basic neonatal care in Kenya found that important structural components for providing newborn care were often unavailable, including lack of supplies such as cleaning materials, oxygen supply and delivery systems, lab tests, drugs and consumables (Opondo, et al., 2009). A study in Pakistan found similar results, with the lack of functional equipment, medicines and supplies being perceived by HCWs as a major underlying factor for low coverage and quality (Majrooh, Hasnain, Akram, Siddqui, & Memon, 2014). In some cases, supply shortages are perceived as the most significant factor in preventing quality of care. For example, lack of equipment and supplies was a reported barrier to cervical cancer screening by 53 percent of HCWs surveyed, higher than any other perceived barrier (Kress, et al., 2015). Lack of supplies and equipment can increase a HCW's likelihood of leaving their current position. A literature review exploring retention factors in rural areas identified the availability of equipment as a determining factor in HCWs' decision to stay or leave a remote area (Lehmann, Dieleman, & Martineau, 2008). This finding was supported by a study of HCW retention in Kenya, which found that 43 percent of workers interviewed reported not having the necessary equipment, which increased their likeliness to leave their current position (Ojakaa, Olango, & Jarvis, 2014). Lack of proper equipment can also influence the health seeking behaviors of patients. Magadzire et al., found that efforts to promote down-referral, or transferring patients to the clinics nearest their home, were largely not successful because patients would rather travel further to a better-equipped and better-staffed hospital than go to their local clinic (2014).

Drug stock-outs also limit health care workers' ability to effectively address the health needs of the communities in which they serve (Opondo, et al., 2009). Nurses in Uganda reported stock-outs of non-HIV drugs to treat malaria and infections as a significant challenge (Nankumbi et al., 2011). Similarly, Farmer et al. found that stock-outs of various methods of contraception in health facilities had a major impact on the quality of health services that women received (2015). Stock-outs were also shown to have a significant influence on community members' confidence in local clinics, and could have a negative impact on care-seeking behaviors (Magadzire et al., 2014). While most drug supply chain failures are a result of system-level factors, there is evidence that SBCC programs are useful in addressing drug stock-outs in certain circumstances. An evaluation of a Tanzanian SBCC program to change the overprescription of antimalarial drugs found that at least half of the facilities experienced a stock out of antimalarial drugs during the trial, with a median length of 41 days (Cundill et al., 2015). The prescriber-level intervention led to a significant reduction in overprescription by encouraging adherence to rapid diagnostic test results, although the patient-oriented intervention did not lead to further gains.

Sometimes facility deficiencies are more basic. Research found that many health care facilities, particularly those in more remote areas, lacked the most essential infrastructural elements (Qureshi et al., 2010; Mwaka et al., 2013; Kalk, Paul, & Grabosch, 2010; Ojaaka, Olango, & Jarvis, 2014). An evaluation of facilities providing TB care in South Africa found that the physical structures lacked several TB infection control measures, such as opening windows and fans to provide air circulation, leading to increased

susceptibility to TB transmission (Malangu & Mngomezulu, 2015). In Sierra Leone, health care facilities often lacked running water and incinerators (Pathmanathan et al., 2014). In Ethiopia, phone lines were commonly not available to call hospitals to make emergency obstetric referrals (Austin et al., 2015). Deficiencies in the physical facilities can also influence community members' likelihood for utilizing facility health care. For example, a survey of community members and health workers in Tanzania found that the unavailability of beds at hospitals were a prime reason for not delivering at hospitals (Dhingra et al., 2014). Namazzi et al. found that redesigning and reorganizing existing space helped to make better use of the existing infrastructure and alleviate patient bottlenecks, presenting a possible approach in some circumstances (2015).

The influence of community contexts

Some barriers faced by health care workers are not a result of the health care system itself but rather arise from characteristics of the communities in which they work. Well-designed programs must be thoughtfully adapted to the local context, which includes being locally responsive, strengthening institutions and addressing access, quality and cost issues (Irimu et al., 2014; Drobac et al., 2013). Oftentimes this may require time, expertise and resources beyond using simple one-size-fits-all programs (Irimu et al. 2014; Chandler et al., 2014).

Geographical challenges can greatly limit a community's ability to access health facilities, and thus are a significant barrier to health workers' provision of health services. In many locations, the long distances to the facility, poor road conditions, and the lack of transportation are a major hurdle to receiving care (Beltman et al., 2013; Austin et al., 2015; Mwaka et al. 2013; Echoka et al., 2013; Farmer et al., 2015; Magadzire et al., 2014). In several articles, both patients and HCWs interviewed observed that, even if the patient is able to travel to the facility, the inconvenience of health care visits was a deterrent. In particular, long wait times upon arrival combined with the possible cost of lost work often prohibited patients from going to health centers (Farmer et al., 2015; Beattie et al., 2012; Alli et al., 2013). In a study of female sex workers in Zimbabwe, clients reported waiting up to eight hours to be seen (Mtetwa, Busza, Chidiya, Mungofa, & Cowan, 2013). Mutemwa et al., found that greater integration within a health facility led to the elimination of multiple queues per visit for the client and a decrease in the number of clients who leave before being seen (2013).

Cost of service was also perceived as a major barrier to community members seeking health care, even in health care systems in which certain services were subsidized. For example, in South Africa, drug treatment for HIV and TB are free, but the cost of transportation for the frequent visits necessary to receive treatment make it cost prohibitive (Magadzire et al., 2014). To allevate these costs, providers came up with ad hoc solutions such as giving stable patients several months of drugs at a time or scheduling appointments on the same days as paydays, when patients already plan to travel to town. In a similar finding, researchers in Zimbabwe examining barriers to HIV treatment for sex workers found that, while the initial consulting fee and CD4 test were free, other charges and services beyond that were cost prohibitive (Mtetwa et al., 2013). Providers also saw expense to the patient as a barrier to cervical cancer screening (Kress, et al., 2015) and family planning (Farmer, et al., 2015).

The conflict between standard health care practices in facilities and traditional medicine can pose a challenge to HCWs. In some countries, this tension is quite pervasive and can pose a significant barrier for HCWs. For example, in interviews with members of the health care community in Equatorial Guinea, over half of the respondents reported conflicts between the community and health care facility regarding differences between traditional and modern medicine (Reuter, Geysimonyan, Molia, & Reuter, 2014). In an example of the complexity of these interations, patients in Tanzania frequently attributed common symptoms to malaria and pressured health care staff to prescribe antimalarial drugs (Chandler et al., 2014). When providers denied these drugs because of negative diagnostic tests, patients described being dissatisfied and distrusting of science, causing tension between providers and patients. Researchers found that in this case providers were often pressured by clients into discounting the diagnostic tests and prescribing them antimalarial drugs, leading not only to high levels of overprescription but also reinforcing local skepticism of modern medicine. Failure of patients to adhere to prescribed modern treatments was also cited as a cause of poor treatment. Health care providers in India reported that negligence, or failure to take medication on the correct schedule by those

developing symptoms, was the most common factor leading to delayed or ineffective treatments for malaria (Das& Sundari Ravindran, 2010). They also complained of patients seeking alternative treatment from less-qualified providers who provide ineffective treatments.

One area in which the conflict between community-held beliefs and modern medicine are particularly pronounced is a woman's decision to deliver her baby at home or in a facility. A study of factors that influence the decision-making process about the location of delivery found that the lack of supportive attendance of family members at the facility during the delivery was a barrier for facility-based deliveries among women (Bohren, Hunter, Munthe-Kaas, Souza, Vogel & Gulmezoglu, 2014). In Ghana, nurses reportedly denied women the opportunity to follow traditional customs, such as providing the placenta for burial after birth, which was an important deterrent for many women and led to a negative desire to deliver at a facility in the future (Moyer, Adongo, Borigo, Hodgson, & Engmann 2014). Health care workers reported that family members, especially the mother-in-law, often played a critical role in determining where a mother would give birth. Family members often pressured women into delivering at home rather than searching out a facility in order to comply with local custom (Shiferaw, Spigt, Godefrooij, Melkamu, & Tekie, 2013; Bohren, et al., 2014). Ganle et al. found that women in Ghana reportedly faced difficulty in accessing or using maternal health services because they lack the independence to make health care decisions (2015). The study found that in 49.2 percent of the cases studied, the final decision-maker was the husband, and in only 2.7 percent of cases was the woman herself the final decision-maker. In a survey of women in Ethiopia, 42 percent said that they did not deliver in a facility because it was not necessary, 36 percent because it was not customary and only 2 percent because they did not trust the quality of care (Shiferaw, et al., 2013). These community practices can result in serious health consequences. In Malawi, the high incidence of facility-based hemorrhages was due in part to traditional birth attendants waiting too long to refer patients to the facility and understating the risk of consequences to their clients to discourage facility-based deliveries (Beltman et al., 2013).

Negative experiences during delivery can reinforce negative perceptions of facility-based care within a community. Moyer et al.'s study in Ghana found that respondents reported that nurses and midwives in facilities shouted and insulted them, and at times hit, slapped or beat them to get them to push and caused community-wide fear of delivering in delivery centers (2014). Unfamiliar and undesirable birth practices, including birthing positions and intrusive vaginal exams, and the lack of privacy in a facility were also identified as barriers to facility-based birth (Bohren et al., 2014). However, other research found that women reportedly preferred facility-based delivery because it was perceived as safer, cleaner and more comfortable because care providers were better trained (Moyer et al, 2014; Bohren et al., 2014). Family planning and reproductive health was also identified as an area of health that is significantly influenced by community-held beliefs. In many regions it is largely perceived as an issue that only affects women, and women often lack the emotional support from men to receive needed care (Farmer et al., 2015; Mwaka et al., 2013). In a study of community perceptions of reproductive health and family planning, Farmer et al. found that gender roles and social networks exert pressure on family planning use (2015). This pressure could be exerted by spouses, partners, other family planning users and religious and local leaders, and was also influenced by the social and cultural logic promoting large family size for prestige and protection. Hesitancy or refusal by women to receive family planning services from male providers was also a barrier to health-seeking behaviors (Qureshi, et al. 2010; Alli et al., 2013) These barriers can also extend into other areas of female reproductive health. For example, researchers identified discomfort with exposure of women's genitals and perceived pain during pelvic examinations as barriers to cervical cancer screening (Mwaka et al. 2013).

Another fear, the fear of stigmatization within the community, can increase reluctance to seek health care at a health facility. A study in South Africa found that antiretroviral therapy (ART) patients travel to facilities further away, even if drugs are available locally, so that community members won't see them taking ART drugs (Magadzire et al., 2014). Beattie et al., found that fear of the impact of a positive HIV result on an individual's mental health was a major barrier to seeking care, as well as fear of serious discrimination from families, neighbors, landlords, schools and work following inadvertent disclosure of sex work (Beattie et al., 2012).

Recommendations

- Programs targeting HCWs should recognize and work within the limits of existing workloads.
- Programs should work with facility leadership to teach and encourage inter-departmental collaboration and supportive supervision practices.
- Programs to improve the quality of health care should take care to ensure that proper protocols and systems are in place to facilitate improvements.
- Health care facilities should be consistently equipped with the supplies, equipment and medications necessary for HCWs to reach quality of care objectives.
- Programs should consider including community engagement from the early stages and throughout the program in order to identify and address barriers to seeking and receiving health care.
- Programs should seek to both understand and influence the norms and practices of the local community in order to improve the effectiveness of health care services.

Attitudinal Barriers

The attitudes, beliefs, values and norms of health care workers play an important role in the patient's health care experience and can have a subsequent impact on the effectiveness of their treatment and their future health care seeking behaviors. In addition to having an impact on their interaction with their patient, HCWs' attitudes and beliefs can also influence their motivation to make changes to their own practices and behaviors, as well as how they perform their jobs and their desire to continue as a member of the health care workforce altogether. Thus, targeting HCW attitudes through SBCC programs can both improve quality of care and have a long-term impact on the strength of the health care workforce as a whole.

Perceived negative attitudes of HCWs can be a major deterrent for those seeking care (Beltman et al., 2013; Majrooh et al., 2014; Ibrahim et al., 2014; Moyer et al., 2012). For example, community members in the Democratic Republic of Congo reported that friendliness of health personnel was the most important determinant of their choice of health facility (72 percent) while quality of care and proximity were only 69 percent and 61 percent, respectively (Fox Witter, Wylde, Mafuta & Lievens, 2013). Similarly, several studies found that judgmental and rude treatment by HCWs was a major deterrent to delivering in a health care facility or seeking antenatal care (Moyer et al., 2012; Dhingra et al. 2014; Mason, et al., 2015).

Cultural norms, beliefs and values

Despite their mandate to provide health services to all community members, attitudes influenced by societal norms and beliefs among HCWs can constrain health care to certain populations. These attitudes can impact the quality of care both within certain populations and in the provision of certain health services. For example, Moyer et al. found that HCWs' attitudes regarding socioeconomic status was reflected in their discrimination among women seeking antenatal care in Ghana (2014). This study found that all types of community respondents suggested that the poorest women and the women with the least education were the most likely to experience discrimination and neglect when they visited health facilities. In India, researchers similarly found that HCWs' relationships were framed not only through their official directives but through a prevailing culture of paternalism that assumes patients – especially if less educated, younger or female – have limited awareness or agency in health-related decision making (Kielmann, Datye, Pradhan, & Rangan, 2014). However, evidence shows that programs can successfully address the power imbalance that may exist between patients and providers. A study in Namibia found that a program that used a patient empowerment training curriculum successfully improved communication between patients and providers, with patients reportedly asking more questions and enjoying their interactions with clinicians more in the intervention group Maclachlan et al, 2016).

Several studies observed the impact of social norms on providers' willingness to provide contraception methods to clients. In Uganda, a study found that only a quarter of providers were comfortable giving contraceptives to sexually active young people, with 14 percent of providers stating that, as parents, it was impossible to give contraceptives to young people because it was morally unacceptable (Nalwadda, Mirembe, Tumwesigye, Byamugisha, & Faxelid, 2011). The researchers suggest that providers' restrictions and behavior might reflect their own personal attitudes and values, rather than evidence-based knowledge and national policies and guidelines. A study in Senegal found similar results, and additionally found that male providers were more likely to report applying a minimum age restriction to injectable contraception (54 percent vs. 39 percent) and were more likely to restrict access to at least one of the three methods of contraception studied (58 percent vs. 45 percent) (Sidze, Lardouz, Speizer, Faye, Mutua, & Badji, 2014). This study also found that in the public sector nurses were more likely than other providers to have a minimum age restriction. Calhoun et al. found that in India, not only did doctors set restrictions on minimum age for eligibility for contraception, 80 percent also reported setting a maximum age, thereby denying contraception to women who still might have a need for family planning (2013). This same study also observed that a significant number of doctors restricted contraception based on marital status, parity and education level. In an example of the influence of social norms on providers, most providers felt that the social and community norms that put pressure on newlywed couples to prove their fertility by having a child immediately after marriage were too strong to suggest an alternative.

The researchers suggest that these findings may be a product of providers adhering to cultural practices that are guided by strong patriarchal norms, leading to gender inequality and disempowered women. A study in Pakistan reported similar results, and found that clinical training was not associated with providers' attitudes and beliefs regarding appropriate candidates for intrauterine devices (IUDs), suggesting that technical interventions may fall short of changing provider attitudes and perceptions towards those procedures (Agha, Fareed, & Keating, 2011).

Health care workers have been found to demonstrate stigma towards individuals seeking certain types of treatments or services. For example, research showed that health care providers' attitudes towards the treatment of mental health diseases can be influenced by widely-held cultural beliefs. In a study in India, Almanzar et al. found that, when interviewed, only 32 percent of clinicians disagreed with the position that clinical depression is a sign of weakness and only 47 percent disagreed that sufferers only had themselves to blame. The researchers attributed these beliefs to the cultural stigmatization of mental illness within the region. A similar study in China found that 36 percent of HCWs showed a negative attitude towards mental illness in the interview, and cited that some HCWs feared discrimination because of their position working with mental health patients (Ma et al., 2015). Discriminatory attitudes were found to extend to TB patients as well. A study in Zambia found that TB patients described experiencing stigma from nurses when attempting to receive treatment at the clinic (Cremers et al., 2015). Kalibala et al. found that HCWs' attitudes towards HIV/AIDS were reflected in their willingness to self-test. Despite their high risk for HIV infection, HCWs were reluctant to seek HIV testing and did not access HIV treatment or prevention services (2014). This study went on to claim that HCWs had anxieties about testing for HIV fearing others would know their status, fearing a lack of privacy, and experiencing stigma from colleagues who many assume that they are HIV positive. Research also showed that societal beliefs influenced HCWs' attitudes towards patients seeking Emergency Contraception pills (Dixit, Khan, & Bhatnagar, 2015) and their attitudes towards abortion (Goggin et al., 2015).

Often these populations already face stigmatization, and the perpetuation of this discrimination within the health sector can discourage help-seeking behavior and reduce the impact of health services (Ma et al., 2015). Sex workers, in particular, are often subjected to stigma while seeking health services. Focus groups with HIV-positive female sex workers in Zimbabwe found that reports of active discrimination from hospital staff dominated sex workers' narratives, with most stating that they felt they would not access services at the hospital again (Mtetwa et al., 2013). The focus groups also revealed that hospital staff would make public announcements in the waiting room that all sex workers present should queue at the back or stand in a separate line, which led many sex workers to avoid treatment for fear of humiliation. Female sex workers (FSW) seeking antenatal care in Tanzania reported having similar experiences of humiliation and being refused treatment (Beckham, Shembilu, Brahmbhatt, Winch, Beyrer, & Kerrigan, 2015). A study to identify barriers to HIV service utilization among transgenders, FSWs and men who have sex with men in India similarly found that discriminatory attitudes of health care facilities staff act as major demotivators to these groups accessing HIV services (Beattie et al., 2012). According to these focus groups, there was little understanding among service providers about sexuality and sex work. FSWs specifically mentioned that health providers assumed that they were HIV positive because they were sex workers, as well as refused them treatment and prescribed medication without conducting a medical examination. Transgenders and men who have sex with men reported facing derogatory comments, discrimination and homophobia by health care providers when seeking services. Similar reports arose out of interviews with sex workers in Nepal, who claimed that doctors raised fees when they perceived that they were sex workers (Ghimire, Smith & van Teijlinger, 2011). They also reported incidents of public shaming and some FSWs reported experiencing sexual harassment. A literature review describing service-delivery models for FSWs found that inadequate sensitization training for HCWs and the dual stigma from HIV and sex work further hindered FSW access to HIV treatment and care (Dhana et al., 2014).

Sex workers were the group most commonly mentioned by research as experiencing stigma while seeking health care. However, other stigmatized groups were also identified. Fartimi, Nwozichi, and Ojediran found that in Nigeria, many patients have been maltreated by health care providers or denied access to care because of providers' negative attitude

to people living with HIV and AIDS (PLWHA) (2015). For example, the study found that 73 percent of nurses felt that PLWHA should be managed in a separate ward. A study in South Africa found that women who used alcohol or other drugs experienced pervasive discrimination when seeking health care (Myers, Carney, & Wechsberg, 2016). In all focus group discussions, participants reported that providers were rude, did not respect their rights to confidential care, and gave examples of being denied health treatment because of their alcohol and drug use. Researchers suggested that these providers may reflect the greater societal stigma in which the use of alcohol or drugs is permissible among men but not socially unacceptable among women. In Tanzania, researchers reported that HCWs discriminated against unmarried women who sought antenatal care, with some clinics posting an announcement that women who did not come with their husbands would not receive services (Beckham et al., 2015). Discrimination by HCWs was also reported towards people of low socio-economic status (Moyer et al., 2014) and young people (Alli et al., 2013).

Motivation

With the high potential impact of health care worker attitudes on patient outcomes, research has attempted to identify factors that improve HCW motivation and satisfaction towards their jobs in general, which in turn improve attitude. One such factor is the potential for additional professional development and learning (Lutwama et al., 2013; Luboga et al., 2010, Kotzee & Couper, 2006). Nurses in Malawi found professional development and learning to be the main motivation to participate in obstetric auditing sessions used to reduce maternal and neonatal mortality (Bakker et al., 2011). Nurses in Uganda likewise claimed that they liked their job because of the opportunity to learn and improve their skills (Nankumbi et al., 2011). A second study in Uganda found that only 26 percent of physicians felt that their employer provided opportunities for professional growth, which was thought to be linked to low job satisfaction (37 percent) and likelihood of leaving the health sector or the country (46 percent) (Luboga, et al., 2010).

In addition to professional development opportunities, research also showed that increased respect and autonomy could improve attitudes. In a study of nurses in Uganda, Nankumbi et al. found that giving nurses more autonomy in their work empowered them and was shown to improve work attitudes and behaviors (2011). The nurses reported being happy that they were always included in health facility management meetings and that their opinion was respected. Okello and Gilson found that trust relationships with colleagues, supervisors and patients influenced motivation and performance, and that factors linked to trust included respect, recognition, appreciation and professional autonomy (2015). Okello and Gilson also found that appreciation between doctors and nurses was ranked as the second strongest motivator after remuneration. Not only does professional autonomy improve attitudes, but can also give HCWs the power to initiate care improvements. For example, a study of frontline health workers in South Africa found that when empowered providers were able to enact creative responses in addressing patient needs and mitigating health system shortfalls (Magadzire, et al., 2014). The study concluded that having flexibility allows providers to make critical, responsible and responsive decisions in practice and demonstrate clinical empathy.

Increased remuneration consistently arose as a factor influencing HCW satisfaction and retention (Lutwama et al., 2013; Ojakaa, Olango, & Jarvis, 2014; Luboga et al., 2010). In a survey of doctors in rural hospitals, half of respondents claimed that improving financial compensation was the most important factor influencing their likelihood of staying in their current position (Kotzee & Couper, 2006). Low salaries can result in providers taking action to supplement their income. For example, in Pakistan low salaries frequently lead to dual practice in which providers participate in both the private and public sector to generate more income (Qureshi et al., 2010). Dual practice poses a problem by leading to inappropriate use of facilities, staff, health technology and other resources available in the public sector, and diverting patients from public practice to their private practices. "Pay for Performance" programs have been put forth as a possible solution to addressing salary shortcomings. However, findings regarding their impact on worker morale and quality of care are mixed (Fox et al., 2013; Kalk, Paul, & Grabosch, 2010; Bonfrer, Van de Poel, & Van Doorslaer, 2014). While increasing salary may not be a viable option in many health care systems, other forms of compensation may also help improve worker satisfaction and retention, such as improved hospital accommodations, opportunities to utilize

annual leave and improved working conditions (Kotzee & Couper, 2006). Lehmann, Dieleman, and Marineau found a correlation between quality of living conditions and a willingness of doctors to move or stay in a particular area (2008). The study refers to an example in Ghana, where doctors cited the lack of staff accommodations, followed by lack of schools and teachers for their children as main reasons for refusing rural posts. HCWs similarly placed the wellbeing of their families above salaries, with 87 percent rating family health care as the most important compensation factor, followed by salary (83 percent) and terminal benefits (79 percent) (Ojakaa, Olango, & Jarvis, 2014). Similar findings regarding HCW satisfaction and retention in Uganda found that only 35 percent of physicians felt that they had good schooling for their children (Luboga et al., 2010). Thus, health care systems can seek out alternative benefits that may improve HCWs' willingness to stay in their current positions as well as improve their job satisfaction.

An additional non-monetary approach to improve health worker attitude is alleviating worker fatigue due to high workloads. Several studies identified fatigue as a factor contributing to low HCW morale. A study in Uganda found that only 35 percent of physicians felt their workload were manageable (Luboga et al., 2010). In Sierra Leone, a study found that one facility in the study reported that staff had not had a day off in two months (Pathmanathan et al., 2014). Measures to improve workload and avoid HCW fatigue can in turn promote more positive attitudes and improved quality of care.

Even when HCWs are satisfied with their positions, they may not feel motivated to change their behavior within these roles. An essential component of successful SBCC programs is identifying and utilizing methods to motivate individuals to make these behavioral changes. HCWs can experience reticence towards changes in their normal responsibilities. For example, a study of the institutionalization of the WHO Safe Childbirth Checklist in facilities in Sri Lanka found that the adoption rate of the checklist was only 46 percent, with one of the major barriers being HCWs' lack of motivation and poor enthusiasm towards new additions to their routine (Patabendige & Senanayake, 2015). However, studies have shown that certain program strategies can effectively motivate providers towards change. A study of the adoption of new clinical practice guidelines found that facilitators to adoption and utilization of the guidelines included its relevance to routine work (Irimu et al., 2014). English et al. identified additional factors that increase motivation for change. This study of the introduction of new best-practice guidelines in Kenya found that the uptake of new practices was affected by how cognitively simple the task became (through simplicity or repetition), degree of effort to perform the task, the directness of control over the full execution of the task, positive experiences of better outcomes and whether the task was considered a personal or core responsibility (English et al., 2011). Identifying a champion of change within a health facility has also been shown to improve workers' willingness to incorporate and embrace behavioral changes. A program to build capacity for mother and newborn care at lower-level health facilities in Uganda found that identifying and developing local champions, who were involved in mentorship teams, learning visits, trainings, reviews and dissemination activities, helped to improve health outcomes (Namazzi et al., 2015). Other studies found similar benefits from identifying local change champions (Irimu et al., 2014).

Recommendations

- In order to improve HCW motivation and attitude, programs should capitalize upon opportunities to improve worker satisfaction.
- Programs should promote changes that are both relevant to and easily incorporated into HCWs' current work in order to improve health worker attitudes towards and openness to change.
- Programs should identify existing cultural norms, beliefs and values that may influence provider behavior, and assess the potential to target these beliefs through SBCC approaches.
- Training should regularly include components that help HCWs to confront and overcome existing stigmas towards certain populations, as well as training on how to provide services to these populations in a way that is sensitive to their specific needs.
- Additionally, training for HCWs could include topics such as stress management, which may help alleviate tensions expressed towards patients seeking health services.

CONCLUSION

Health care workers face a variety of challenges in performing their responsibilities, which can compromise the quality and effectiveness of the health services received by clients. These barriers can arise out of not knowing how to complete the responsibility, being unable to complete the responsibility due to contextual or structural barriers or lacking the desire to complete the task. Neglecting to understand the barriers facing HCWs in specific contexts can lead to ineffective programming that fails to meet service delivery objectives. While identifying and understanding barriers can assist in the design and implementation of SBCC programs, additional research is needed to evaluate the actual impact of SBCC programs in overcoming these barriers. Some knowledge and attitudinal barriers may be easily addressed through communication strategies, however more serious systemic barriers may prove more challenging to resolve.

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van den Akker, T., van Rhenen, J., Mwagomba, B., Lommerse, K., Vinkhumbo, S., & van Roosmalen, J. (2011). Reduction of severe acute maternal morbidity and maternal mortality in Thyolo District, Malawi: the impact of obstetric audit. *PloS one*, 6(6), e20776.

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Appendix

Reference	Location	Research Design	Program Design	Findings	Barriers
Adams, L. V., Olotu, R., Talbot, E. A., Cronin, B. J., Christopher, R., & Mkomwa, Z. (2014). Ending neglect: providing effective childhood tuberculosis training for health care workers in Tanzania. *Public health action*, 4(4), 233.	Tanzania	Convenience sample of 117 HCWs from 12 facilities.	Assess the strengths and weakness of the National Program for Family Planning, which uses community health workers to promote family planning.	To change health care worker practice, isolated training without any follow-up or assessment is unlikely to have a significant impact in TB training.	Knowledge and Competency
Agha, S., Fareed, A., & Keating, J. (2011). Clinical training alone is not sufficient for reducing barriers to IUD provision among private providers in Pakistan. *Reprod Health*, 8, 40.	Pakistan	A survey of 566 providers in 54 districts.	Examine barriers to IUD recommendation and provision among private providers.	Physicians were less likely to consider nulliparous women (11%), women ages 19 and younger (34%) as appropriate candidates for IUD. Clinical training was not associated in a consistent positive fashion with provider attitudes and beliefs regarding appropriate candidates for the IUD, which suggests that technical interventions that focus on increasing the capacity of providers to conduct procedures may fall short of changing provider attitudes and perceptions towards those procedures.	Attitude
ali Morowatishaifabad, M., Sakhvidi, M. J. Z., Gholianavval, M., Boroujeni, D. M., & Alavijeh, M. M. (2015). Predictors of Hepatitis B Preventive Behavioral Intentions in Healthcare Workers. *Safety and health at work*, 6(2), 139-142.	Iran	Questionnaire-based cross-sectional study of 150 healthcare workers.	Investigate possible predictors of preventive behavioral intentions for hepatitis B among health care workers.	Risk perception was the best predictor of preventive behavioral intention, and thus focus on risk perception should be an important component of educational programs. Printed resources were the most important source of cues to action, although this was contrary to previous studies suggesting that doctor recommendation was the most common cue. Printed rseources more suitable to enhance cues to action than other educational materials.	Knowledge and Competency
Alli, F., Maharaj, P., & Vawda, M. Y. (2013). Interpersonal relations between health care workers and young clients: barriers to accessing sexual and reproductive health care. *Journal of community health*, 38(1), 150-155.	South Africa	200 client exit interviews and four in-depth interviews conducted with university students and university health care staff.	Explore to what extent interpersonal relations form a barrier to young people's access to and satisfaction of health services.	Providers felt that negative attitudes of staff were a barrier for young people using reproductive health services. They were impatient and rude with clients, and judgmental about young people utilizing these services. Staff were provided initial training on youth-friendly health services provision, with additional yearly refresher courses. Young clients do not always speak openly to providers due to the age and gender of provider - female clients more likely to discuss repro. health issues with female providers than male. Age differences make discussing such matters feel disrespectful, as providers seen as a parent figure. Some clients said that they felt judged and disrespected because the staff was rude and unfriendly. Only 63% felt like they had sufficient time to ask providers questions and 65% were afforded the opportunity to ask questions. Many students reported not feeling comfortable enough to open up to providers or ask for information because they were unfriendly and intimidating. 30% felt that they were not provided with all the information they wanted. Common constraints included shortage of human resources, lack of infrastructure, and high case loads. This leads to longer waiting times and loss of clients. Long queues and excessive waiting times were a complaint of clients. Many leave without being seen.	Knowledge and Competency Structural and Contextual Attitudinal

Almanzar, S., Shah, N., Vithalani, S., Shah, S., Squires, J., Appasani, R., & Katz, C. L. (2014). Knowledge of and attitudes toward clinical depression among health providers in Gujarat, India. *Annals of global health*, 80(2), 89-95.	India	Cross-sectional survey of 89 resident physicians .	Explore the knowledge and attitudes towards the diagnosis and treatment of clinical depression in nonpsychiatric health care providers.	Only 32% disagreed with the position that clinical depression is a sign of weakness, and only 47% disagreed that sufferers only had themselves to blame. This could be due in part to cultural stigmatization of people with mental illness. Stigma could be perpetuated by health service providers, so it is critical to address this issue in professional training and clinical practice. It can also be due in part to mental health illiteracy, poverty (lack of personal and financial resources can lead to maladaptive behavior), and culture and treatment seeking behavior (seeking help from outsiders is considered shameful). Study found considerable stigma and misinformation about depression among HCW, which can significantly contribute to the under recognition and under-treatment of persons with clinical depression, despite its high prevalence.	Attitudinal
Amoran, O. E., Ogunsola, E. O., Salako, A. O., & Alausa, O. O. (2012). HIV/aids related home based care practices among primary health care workers in Ogun state, Nigeria. *BMC health services research*, 12(1), 112.	Nigeria	Interviews with 350 health care workers.	Determine the perception and practice of health care workers on HIV/AIDS related home based care in the health facilities in Ogun state, Nigeria.	Reasons for non implementation of home-based care are inadequate number of healthcare workers (45%), lack of political will (24%) lack of implementation by facility managers (14%) and inadequate funds (17%).	Structural and Contextual
Austin, A., Gulema, H., Belizan, M., Colaci, D. S., Kendall, T., Tebeka, M., ... & Langer, A. (2015). Barriers to providing quality emergency obstetric care in Addis Ababa, Ethiopia: Healthcare providers' perspectives on training, referrals and supervision, a mixed methods study. *BMC pregnancy and childbirth*, 15(1), 1.	Ethiopia	Mixed methods including qualitative analyses through 29 semi-structured interviews with providers and a quantitative survey from 111 providers.	Assess barriers to the provision of emergency obstetric care from the perspective of healthcare providers.	Lack of communication between health centers and the referral hospital before and after referrals hindered the efficiency of the referral system, as well as transportation challenges. This sometimes led to the hospital being full when referrals arrived, and having to be referred to a second hospital. Women sometimes have to travel to three or four hospitals without finding a place to give birth. Lack of training in Basic Emergency Obstetric and Newborn Care, and Comprehensive Emergency obstetric and Newborn Care compromises health facilities' ability to provide the needed services at the appropriate facility level. Training opportunities were not standardized. Providers noted that there was inadequate attention given to trainings. There are no refresher courses available. Most trainings depended on external funding. Short duration of service and staff rotation reduced the benefit of in-service training. Provider satisfaction and supervisory models have important consequences for retention of healthcare workers and affects quality of care. Routine supervision tended to be traditional rather than supportive. Supervisor visits focused on record-keeping, attendance, and fault finding. Those who had reported receiving supportive supervision said that it improved their quality of care.	Knowledge and Competency Structural and Contextual

Bakker, W., van den Akker, T., Mwagomba, B., Khukulu, R., van Elteren, M., & van Roosmalen, J. (2011). Health workers' perceptions of obstetric critical incident audit in Thyolo District, Malawi. *Tropical Medicine & International Health*, 16(10), 1243-1250.	Malawi	Semi-structured interviews with 25 district health workers, focus group discussion, and observation of audit sessions in health facilities.	Assess perceptions held by health workers about obstetric critical internal audit as an effort to reduce facility-based maternal and neonatal mortality and morbidity.	Low nurse participation in obstetric audit learning and feedback sessions was mentioned in over half of interviews. Lack of time was considered the main reason, also poor communication of meeting times to nurses. Interviewees felt motivated to attend by professional development and learning. Shortage of health care workers due to migration and HIV-related mortality, so scaled up staff training has led to workers with shorter and more affordable training.	Knowledge and Competency Structural and Contextual
Beattie, T. S., Bhattacharjee, P., Suresh, M., Isac, S., Ramesh, B. M., & Moses, S. (2012). Personal, interpersonal and structural challenges to accessing HIV testing, treatment and care services among female sex workers, men who have sex with men and transgenders in Karnataka state, South India. *Journal of epidemiology and community health*, jech-2011.	India	Focus group discussions carried out among female sex workers, men who have sex with men and transgenders, and program peer educations.	Understand the barriers to and identify potential solutions for improving HIV service utilization	Fear of the impact of a positive HIV result on an individual mental health was a major barrier to both FSW and MSM-T. Lack of knowledge about the existence of HIV services was another barrier. The main personal motivator was understanding the benefits of knowing one's status, including improving the quality and longevity of their lives by taking care of their health and using ART. The main interpersonal barrier was fear of serious discrimination from families, neighbors, landlords, schools and others following inadvertent disclosure of sex work. Discriminatory attitudes of staff working at government healthcare facilities, especially towards those who are sex workers, sexual minorities or HIV positive were the major demotivators to FSW and MSM-T accessing HIV services. Service providers made derogatory comments, and there was little understanding among service providers about sex work and sexuality; assumptions that participants were HIV positive because they sell sex; refusal by service providers to treat patients, including sending patients to the back of the queue or to different hospitals, prescribing medication without conducting a medical examination and prescribing ineffective treatments. Experiences were improved when clinical staff had been sensitized towards FSWs and MSM-T. ART services were reported to be overstretches and under-resourced, with monthly ART quotas and ART drug rationing by staff, shortages of CD4 testing facilities and long waiting times lasting several days.	Structural and Contextual Attitudinal
Beckham, S. W., Shembilu, C. R., Brahmbhatt, H., Winch, P. J., Beyrer, C., & Kerrigan, D. L. (2015). Female sex workers' experiences with intended pregnancy and antenatal care services in southern Tanzania. *Studies in family planning*, 46(1), 55-71.	Tanzania	Thirty in-depth interviews and three focus groups.	Explore FSWs experiences with intended pregnancy and access to antenatal care and HIV testing.	FSW purposefully dressed "with respect" when attending clinics because they feared that HCW would automatically assume sex workers were HIV-positive and refer them directly to care and treatment centers rather than provide them with ANC. Sex workers at the ANC clinic were separated out from others. Women also reported being refused services during pregnancy, including HIV testing, if they did not bring their husbands to the ANC clinic, which caused some FSW to not seek treatment until they were in labor. There was discrimination against unmarried women seeking ANC. Some clinics had an announcement posted that women who did not come with their husbands would not receive services.	Attitudinal

Bello, D. A., Hassan, Z. I., Afolaranmi, T. O., Tagurum, Y. O., Chirdan, O. O., & Zoakah, A. I. (2013). Supportive supervision: an effective intervention in achieving high quality malaria case management at primary health care level in Jos, Nigeria. *Annals of African medicine*, 12(4), 243.	Nigeria	Facility-based intervention with pre and post-intervention phases conducted among intervention and control group	Local supervisors in PHC centers were recruited and trained on supportive supervision of malaria case management and provided supervisory visits to local PHC centers.	Challenges to human resources in primary health care settings includes poor communication with the rest of healthcare system, poor training, understaffing, lack of basic supplies, poor health worker performance, and poor practices. Supportive supervision resulted in significantly higher knowledge scores of malaria than control group using traditional supervision. The percentage of healthcare workers following guidelines increased from 32.73% during first supervisory visit to 70.91% following guidelines by the third supervisory visit. There was significant improvement of malaria knowledge over the course of the intervention.	Structural and Contextual
Beltman, J. J., Van den Akker, T., Bwirire, D., Korevaar, A., Chidakwani, R., Van Lonkhuijzen, L., & Van Roosmalen, J. (2013). Local health workers' perceptions of substandard care in the management of obstetric hemorrhage in rural Malawi. *BMC pregnancy and childbirth*, 13(1), 39.	Malawi	Three focus group discussions among 29 health workers, including nurse-midwives medical assistants and clinical officers.	Research seeks to identify the factors leading to the high incidence of facility-based obstetric hemorrhage in a district in Malawi.	Barriers to improving obstetric care: 1) lack of materials, 2) lack of human resources, 3) inadequate clinical skills among available personnel, 4) inadequate and lack of timely referrals (self-referrals, referrals from TBAs, and from peripheral clinics) Clinics often lacked basic supplies such as IV and medications. There were not enough people present to deal with complicated situations such as hemorrhages. Most health workers had not received any training since starting careers (workers' perception included policy makers would rather spend funds on HIV/AIDS rather than maternal death). Local beliefs and practices lead to late referrals to health centers. Heavy workload can lead to attitude problems among health workers that can discourage use of the health facilities.	Knowledge and Contextual Structural and Contextual
Bluestone, J., Johnson, P., Fullerton, J., Carr, C., Alderman, J., & BonTempo, J. (2013). Effective in-service training design and delivery: evidence from an integrative literature review. *Hum Resour Health*, 11(1), 51.	Various	Literature Review	Identify effective training approaches for health worker continuing professional education	Using multiple techniques that allow for integration and enable learners to both process and apply learning, including case-based learning, case simulations, practice and feedback. Passive learning such as lectures or reading have little or no impact. Repetitive interventions rather than a simple intervention had better learning outcomes.	Knowledge and Competency
Bohren, M. A., Hunter, E. C., Munthe-Kaas, H. M., Souza, J. P., Vogel, J. P., & Gulmezoglu, A. M. (2014). Facilitators and barriers to facility-based delivery in low-and middle-income countries: a qualitative evidence synthesis. *Reprod Health*, 11(1), 71.	Various	Literature review	Create a useful framework to understand how various factors influence the decision-making process and the location of delivery at a facility or elsewhere.	Barriers to facility birth included unfamiliar and undesirable birth practices including birthing positions and intrusive vaginal exams, lack of privacy in a facility, and lack of supportive attendance during facility delivery from family members.	Structural and Contextual
Bonfrer I, Van de Poel E, Van Doorslaer E. (2014) The effects of performance incentives on the utilization and quality of maternal and child care in Burundi. *Social Science & Medicine*, 123:96-104.	Burundi	Demographic and Health Survey data.	Estimate the effects of PBF on the utilization and quality of maternal and child care.	PBF did not affect the likelihood of mother receiving more than one ANC visit or of an ANC visit to occur in the first trimester, but it did lead to a significant rise in the likelihood of BP measurement and anti-tetanus vaccination as part of the ANC. Institutional deliveries were found to increase significantly among the non-poor but not among the poor, leading to concerns about lower effectiveness of PBF where it is needed most. It is likely that other costs may still constrain poor women more to deliver in a facility.	Attitudinal

Bosch-Capblanch, X., & Garner, P. (2008). Primary health care supervision in developing countries. *Tropical medicine & international health*, 13(3), 369-383.	Global	Systematic review	To compare reports describing supervision in practice and appraise the evidence of the effects of sector performance.	In field reports, the central role of supervision was checking records and administrative checking, and examining facility activities, but "problem solving" was rarely motioned, and less than 15% mentioned feedback as part of supervision. Supervision, audit and feedback generally had moderate to large effects on performance.	Structural and Contextual
Calhoun, L. M., Speizer, I. S., Rimal, R., Sripad, P., Chatterjee, N., Achyut, P., & Nanda, P. (2013). Provider imposed restrictions to clients' access to family planning in urban Uttar Pradesh, India: a mixed methods study. *BMC health services research*, 13(1), 1.	India	Facility audits, household surveys of 4500, and surveys of 1,752 providers.	Investigate provider imposed barriers to provision of family planning.	30% of doctors reported that they restricted eligibility to pills based on age, and 70% restricted access to sterilization and IUCD based on age, and 12% restricted condoms based on age. The average minimum age for pills and condoms was between 19-22, and for sterilization was 26. 80% of doctors restricted clients access to methods based on maximum age, with the average maximum age being 40 years of age. In interviews, some physicians acknowledged that they perceived that many of their female clients lacked decision-making power and thus did not need to be offered information about their FP options. Service providers noted that they tended to provide FP-related advice to clients on the basis of clients' education level, limiting the amount of advice they dispense to well-educated clients who were perceived as already knowledgeable. Most providers felt that the social and community norms that put pressure on newly-wed couples to prove their fertility by having a child immediately after marriage were too strong to suggest an alternative. These findings may be a product of providers adhering to cultural practices that are guided by strong patriarchal norms, leading to gender inequality and disempowered women. Providers may be guiding FP provision for their clients based on clients' family size and composition, such as inappropriately deterring women from using both spacing and limiting methods until they have sons.	Attitudinal
Chandler, C. I., Meta, J., Ponzo, C., Nasuwa, F., Kessy, J., Mbakilwa, H., ... & Reyburn, H. (2014). The development of effective behaviour change interventions to support the use of malaria rapid diagnostic tests by Tanzanian clinicians. *Implement Sci*, 9, 83.	Tanzania	Description of intervention development process, and fieldwork with 19 health workers and 212 community members.	Describe the steps to design a BCC intervention that support the introduction of malaria rapid diagnostic tests at dispensaries.	Community members attributed common symptoms to malaria, and thus pressured healthcare staff to prescribe antimalarial drugs. When denied these drugs, often due to a negative rapid diagnostic test, the patients described being dissatisfied and distrusting science. Health workers reported that the conflict between test outcomes and patients' expectations caused tension. To resolve this, some health care workers employed a narrative that undermined the usefulness of the rapid diagnostic tests. Workers complained that the tests were unreliable, resulting in different results under multiple tests. They also complained of increased workload. The BCC intervention sought to address technical, social, logistical and motivational challenged faced by integrating tool into routine practice. Time, expertise, and resources required for the design of complex interventions, each of which is greater than is implied by the optimistic view that off-the-shelf systematic reviews and behavior change theories can be direction applied to intervention design.	Structural and Contextual

Cremers, A. L., de Laat, M. M., Kapata, N., Gerrets, R., Klipstein-Grobusch, K., & Grobusch, M. P. (2015). Assessing the consequences of stigma for tuberculosis patients in urban Zambia. *PloS one*, 10(3), e0119861.	Zambia	Mixed method study with structured interviews with 300 TB patients, in depth interviews with 30 TB patients and 10 health workers, and 3 focus groups with TB patients and treatment supporters.	Enhance understanding of TB-related stigmatizing perceptions and describe TB patients' experiences.	TB patients described experiencing stigma from nurses when attempting to receive treatment at the clinic. Patients stated that their treatment supporter was unmotivating because he/she was not always present at the clinic, did not visit them at home for support or family sensitization, or did not properly answer their questions. Some did not know that there was a counsellor present at the clinic.	Attitudinal
Cundill, B., Mbakilwa, H., Chandler, C. I., Mtove, G., Mtei, F., Willetts, A., ... & Whitty, C. J. (2015). Prescriber and patient-oriented behavioural interventions to improve use of malaria rapid diagnostic tests in Tanzania: facility-based cluster randomised trial. *BMC medicine*, 13(1), 1.	Tanzania	A three-arm stratified cluster-randomized trial in 36 primary healthcare facilities	Evaluation of a BCC to change the overprescription of antimalarial drugs.	At least have of the facilities reported a stock out of RDTs during the trial and stock outs of antimalarial drugs was also at 50% and a median length of 41 days. This behavioral intervention at the prescriber level led to a significant reduction in over-prescription but a patient-oriented intervention did not lead to further gains. The intervention led to a higher level of adherence to RDT results. Peer group workshops, feedback SMS, and motivational SMS appear to have contributed incremental, significant and sustained improvements to the standard intervention.	Structural and Contextual
Dachew, B. A., & Bifftu, B. B. (2014). Breastfeeding practice and associated factors among female nurses and midwives at North Gondar Zone, Northwest Ethiopia: a cross-sectional institution based study. *International breastfeeding journal*, 9(1), 1.	Ethiopia	Cross-sectional study among 178 nurses and midwives.	Assess the breastfeeding practices and associated factors among female nurses and midwives.	Although the majority of nurses and midwives surveyed had good knowledge concerning breastfeeding, there were still knowledge gaps in the areas of exclusive breastfeeding and duration of breastfeeding. 21% of respondents did not know that exclusive BF should be continued for 6 months, and 33% did not realize that BF should be carried out for 24 months or longer. Only have discussed breastfeeding with patients during the antenatal period.	
Das, A., & Ravindran, T. S. (2010). Factors affecting treatment-seeking for febrile illness in a malaria endemic block in Boudh district, Orissa, India: policy implications for malaria control. *Malar J*, 9(377), 10-1186.	India	Cross sectional survey of 300 respondents who had fever within the previous two weeks, and 23 health care providers.	L Assess the treatment seeking behaviors of febrile illness in a malaria endemic district. .	Negligence (not taking medication on correct schedule) by those developing symptoms was perceived by providers as most common factor leading to delayed and/or ineffective treatment. Patients would ignore or not recognize symptoms and delay treatment. Noncompliance also seen as cause of poor treatment. Patients seek treatment from less qualified providers who provide ineffective treatments. Lack of access to a drug distribution center also a challenge.	Structural and Contextual

Daviaud, E., & Chopra, M. (2008). How much is not enough? Human resources requirements for primary health care: a case study from South Africa. *Bulletin of the World Health Organization*, 86(1), 46-51.	South Africa	Model comparing required staffing to actual staffing of primary health facilities.	To quantify staff requirements in primary health care facilities in South Africa through an adaptation of WHCHO workload of staff needs tool.	All six districts analyzed had a drastic shortage of doctors, with either two few doctors visiting the clinics, or insufficient doctors to cover the open hours of the clinic. Overall the number of doctors was only 7% of the required number, and nurses was 60% and nurse assistants were 83%. Administrative staff was 30%. Certain staff positions were spread unevenly with excesses in some clinics and no staff in others, showing poor deployment between facilities in the same subdistrict. Many facilities lacked supportive staff, causing the ratio of nurses to patients to be a misleading indicator of workload because it disguises the absence of support staff such as counselors. This leads to problems in both quality (lower staff performing tasks of higher staff) and efficiency (higher staff performing tasks of lower staff). Increase in the hours that rural clinics are open is leading to a significant increase in staff requirements.	Structural and Contextual
Dhana, A., Luchters, S., Moore, L., Lafort, Y., Roy, A., Scorgie, F., & Chersich, M. (2014). Systematic review of facility-based sexual and reproductive health services for female sex workers in Africa. *Globalization and health*, 10(1), 1.	Various	Literature Review	Describe intervention packages, service-delivery models and extent of government involvement in services for female sex workers.	Inadequate sensitization training, discriminatory laws, and the dual stigma from HIV and sex work likely further hindered FWSs access to HIV treatment and care. Several studies identified stigma and discrimination towards female sex workers, with insufficient sensitization training for health workers. Programs operated alongside government services rather than with them.	Attitudinal
Dhingra, U., Gittelsohn, J., Moh'd Suleiman, A., Moh'd Suleiman, S., Dutta, A., Ali, S. M., ... & Sazawal, S. (2014). Delivery, immediate newborn and cord care practices in Pemba Tanzania: a qualitative study of community, hospital staff and community level care providers for knowledge, attitudes, belief systems and practices. *BMC pregnancy and childbirth*, 14(1), 1.	Tanzania	80 in-depth interviews and 11 group discussions with mothers and family members and health care workers	Explore the attitudes, beliefs and practices of community and health workers related to delivery and newborn care.	Rude treatment by health care workers and unavailability of beds at hospitals were cited as the prime reason for not delivering at hospitals for women. Patients claim that doctors use abusive language to their patients.	Attitudinal
Dixit, A., Khan, M. E., & Bhatnagar, I. (2015). Mainstreaming of emergency contraception pill in India: Challenges and opportunities. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, 40(1), 49.	India	In-depth interviews with key informants, literature review, and consultations.	Explore providers' knowledge on attitudes towards, and access to emergency contraception.	Gynecologists believed that women who use Emergency Contraception pills have premarital sex, have multiple sexual partners, have STIs, have risky sexual behavior, and could substitute ECP for other family planning methods.	Attitudinal

Drobac, P. C., Basinga, P., Condo, J., Farmer, P. E., Finnegan, K. E., Hamon, J. K., ... & Murangwa, Y. (2013). Comprehensive and integrated district health systems strengthening: the Rwanda Population Health Implementation and Training (PHIT) Partnership. *BMC Health Services Research*, 13(2), 1.	Rwanda	Case Study	Describe a comprehensive and integrated systems strengthening intervention.	Intervention assessed 11 key domains essential to the delivery of effective services, met with leadership and staff to identify gaps and allocate financial and technical resources accordingly. It also enhanced the supervision and training of health center nurses while addressing system-level gaps in quality. Health system strengthening interventions should be comprehensive. Narrowly focused HSS interventions may limit value by neglecting other gaps in the health system. They should be integrated, taking into consideration that changes in one building block of the health system are likely to affecting other areas. They should also be locally responsive, and strengthen institutions. They should address access, quality, and cost issues. The intervention has already observed noticeable increases in facility capacity and quality of care.	Structural and Contextual
Echoka, E., Kombe, Y., Dubourg, D., Makokha, A., Evjen-Olsen, B., Mwangi, M., ... & Mutisya, R. (2013). Existence and functionality of emergency obstetric care services at district level in Kenya: theoretical coverage versus reality. *BMC health services research*, 13(1), 113.	Kenya	Facility-based cross-sectional study of 40 health facilities offering delivery services.	Access the existence and functionality of EmOC services at the district level.	Lack of adequate referral services, good roads, public transportation, communication and emergency transportation inhibit women in rural areas from having access to emergency obstetric services. Rural clinics were located too far from comprehensive EmOC facilities, leading to below recommended numbers of C-section performed.	Structural and Contextual
English, M., Nzinga, J., Mbindyo, P., Ayieko, P., Irimu, G., & Mbaabu, L. (2011). Explaining the effects of a multifaceted intervention to improve inpatient care in rural Kenyan hospitals--interpretation based on retrospective examination of data from participant observation, quantitative and qualitative studies. *Implementation Science*, 6(1), 124.	Kenya	Cluster randomized trial of rural hospitals, using effect measure indicator, participant observations, interviews and group discussions, and field notes.	Determine how intervention effects of an intervention to introduce an intervention to improve care through best-practice guidelines were achieved.	The effectiveness of intervention to promote positive changes was modified by behaviors of people at different organizational levels, characteristics of the actual tasks required of health workers, and their micro-system. Successful adoption of best practices appeared where the implementing team, hospital management, and facilitator together provided leadership and supported a shift in organizational culture. Using an internal facilitator was helpful as they had responsibility for blending the explicit knowledge of the intervention with the implicit knowledge of their environment. They oriented new staff and available as knowledge resource, made and got approval for making small changes in program or procedure, and were clear displays of good practice, and reminded of the performance expected. Prior to intervention, links between cadres and between departments were hierarchical and perfunctory. Uptake of new practices was affected by: how cognitively simple the task became (through simplicity or repetition), degree of effort to perform the task, directness of control over the full execution of the task (linked to trust in colleague's co-performance and resource availability), positive experiences of better outcomes, and whether the task was considered a core, personal responsibility.	Structural and Contextual Attitudinal

Esan, O. T., & Fatusi, A. O. (2014). Performance Needs Assessment of Maternal and Newborn Health Service Delivery in Urban and Rural areas of Osun State, South-West, Nigeria. *African journal of reproductive health*, 18(2), 105-116.	Nigeria	Performance Needs Assessment of 14 urban and 10 rural-based randomly selected primary health care facilities, and questionnaire interview of 143 health workers and 153 antenatal clients.	Determine performance and compare gaps in maternal and newborn health services in urban and rural areas to inform decisions for improved services.	Urban areas performed better than rural in having basic emergency obstetric care (21.4% to 0% compared to 0%), rural better at focused antenatal care (10% to 0%). 10% of rural facilities have satisfactory status in essential drugs and consumables, vs. 14.3% in urban areas. % of ANC with satisfactory knowledge of warning danger signs in pregnancy is 16.4% in rural areas and 41.2% in urban areas. Barriers for providing focused antenatal care include lack of cooperation by clients in enforcing focused antenatal care. Recommendations include implement and enforce FANC policy, train and update health workers and educate patients. Barriers to providing basic emergency obstetric care include a shortage of skilled and trained staff - recommendations: recruit qualified and skilled health personnel. Lack of political will was the major underlying factor for most of the problems, particularly the local government authority. Lack of political will was identified as barriers to laboratory services and infrastructure weaknesses and equipment shortages, as well as insufficient funds. Health care workers lack of training in life saving skills is a result of lack of funding, lack of or irregular continuing health education, poor quality of training, poor knowledge about universal precautions, poor supervision. Political will was also an issue due to low interest in funding human capacity building activities and supplying relevant job aids and tools.	Knowledge and Competency Structural and Contextual
Farmer, D. B., Berman, L., Ryan, G., Habumugisha, L., Basinga, P., Nutt, C., ... & Ngabo, F. (2015). Motivations and Constraints to Family Planning: A Qualitative Study in Rwanda's Southern Kayonza District. *Global Health: Science and Practice*, 3(2), 242-254.	Rwanda	Interviews with 96 community members, community health workers, and health facility nurses.	Study community perceptions of reproductive health and family planning.	While family planning services are widely available at health centers, participants continued to face barriers to accessing high-quality services. Gender roles and social networks further exerted pressure on family planning use. Social and cultural logic promotes large family size for prestige and protection. Persistent barriers to access include contraceptive availability, service costs, long waits, and staff shortages at health centers. FP use influenced by family and community (spouses, partners, other FP users, religious and local leaders. Despite role of male partners in FP decision making, FP often seen as issue concerning women only. Side effects often resulted in method change or discontinuation. Transportation, variable quality of care, lack of diversity in the contraceptive methods available at health centers, and costs associated with services, long wait times upon arrival at the health center combined with the opportunity cost of lost work, often prohibited women from going to heath centers. Stock-outs at health centers also impacted the quality of the services that women received. Providers should receive training and mentorship to facilitate the delivery of appropriate counseling and services so that women can make informed choices when selecting contraceptive methods and better anticipate side effects. Clarifying and enforcing national policies regarding payment at the local level is essential.	Structural and Contextual

Farotimi, A. A., Nwozichi, C. U., & Ojediran, T. D. (2015). Knowledge, attitude, and practice of HIV/AIDS-related stigma and discrimination reduction among nursing students in southwest Nigeria. *Iranian Journal of Nursing and Midwifery Research*, 20(6), 705.	Nigeria	Descriptive survey of 150 second and third year nursing students.	Assess the knowledge, attitude, and practice of student nurses toward the reduction of HIV/AIDS-related stigma and discrimination.	In Nigeria, many people have been maltreated by health care providers or denied access to care because of providers' negative attitude to PLWHA. Nursing students surveyed were found to stigmatize patients with HIV. Contrary to national policy, 92%of nurses felt that all patients with medical ailment should be screened for HIV solely for the benefit of health workers' safety. 73% thought that PLHIV should be managed in a separate ward Some non-discriminatory findings included 91% disagreeing that PLWHA should not get married or pregnant.	Attitudinal
Fox, S., Witter, S., Wylde, E., Mafuta, E., & Lievens, T. (2013). Paying health workers for performance in a fragmented, fragile state: reflections from Katanga Province, Democratic Republic of Congo. *Health policy and planning*, czs138.	Democratic Republic of Congo	Cross-sectional design using quantitative and qualitative approaches, including government and donor expenditure data, fieldwork, and service delivery survey.	Assess the effectiveness of a payment for performance program in health facilities	Funding: public investment in health is low, allocation skewed towards central and administrative spending, funds are unpredictable and therefore unplanned. Government only pays salaries, all other expenses covered by donors or user fees. Challenges to pay for performance programs is 1) conflict between different incentive systems, heavy burden of monitoring, lack of coordination in payment levels between donors, and sustainability. P4P (donor supported) districts were found to perform worse in service delivery than those without P4P. Non-P4P had more medical supplies, had fewer stock-outs, and lower absenteeism (7.1% compared to 10.8%). P4P facilities had slightly lower user fees. Clients reported that friendliness of health personnel was the most important determinant of their choice of health facility (72%) while quality of care and proximity came in 69% and 61%. Quality of care was higher among non-P4P facilities. In one P4P district, workers paid twice as much as the other P4P district because funded by a different donor. Donor supported health workers did not feel that they were adequately compensated for the work they were expected to carry out. They also complained at the expense and time needed to collect government allowances, and the irregularity of their availability. There are significant challenges in terms of appropriate design and implementation of performance-based systems in low-income countries. Health workers were not necessarily more satisfied with P4P system.	Structural and Contextual Attitudinal
Frimpong, J. A., Helleringer, S., Awoonor-Williams, J. K., Yeji, F., & Phillips, J. F. (2011). Does supervision improve health worker productivity? Evidence from the Upper East Region of Ghana. *Tropical Medicine & International Health*, 16(10), 1225-1233.	Ghana	Time-use study and survey of health workers in four districts.	Assess whether supervision of primary health care workers improves their productivity.	While supervisory visits were frequent, only a minority of primary healthcare workers felt supported by their supervisors. Overall, supervision was positively associated with the productivity of primary healthcare workers, but only health workers who reported feeling supported by their supervisors displayed improved productivity.	Structural and Contextual

Ghimire, L., Smith, W., & van Teijlingen, E. R. (2011). Utilisation of sexual health services by female sex workers in Nepal. *BMC Health Services Research*, 11(1), 1.	Nepal	Mixed methods approach with interviewer administered questionnaire-based survey of 425 FSW and in-depth interview.	Explore the factors associated with utilization of sexual health services by female sex workers.	FSW claimed that doctors raised fees when they perceived that they were sex workers. Many FSWs did not trust the confidentiality of health providers. Service providers in hospitals asked FSW about their work and sexual history, sometimes in front of other patients, which they disliked. They reported that indifference by doctors and other health services providers as a reason for not using government health services, and felt lack of proper care. Lack of gender compatibility (few female doctors) was also an issue. Some FSW experienced sexual harassment while receiving health services.	Attitudinal
Gizaw, G. D., Alemu, Z. A., & Kibret, K. T. (2015). Assessment of knowledge and practice of health workers towards tuberculosis infection control and associated factors in public health facilities of Addis Ababa, Ethiopia: A cross-sectional study. *Archives of Public Health*, 73(1), 15.	Ethiopia	Cross sectional study of 590 health workers.	Assess the knowledge and practice of health professionals towards tuberculosis infection control and its associated factors in health facilities.	One third of health workers had relatively poor knowledge and nearly half of them had unsatisfactory practice on tuberculosis infection control. Education level, experience in health facility and TB related training were significantly associated with good knowledge whereas experience in a TB clinic and TB related training were associated with better practice (education was not associated with better practice).	Knowledge and Competency
Goggin, K., Finocchario-Kessler, S., Staggs, V., Woldetsadik, M. A., Wanyenze, R. K., Beyeza-Kashesya, J., ... & Wagner, G. J. (2015). Attitudes, Knowledge, and Correlates of Self-Efficacy for the Provision of Safer Conception Counseling Among Ugandan HIV Providers. *AIDS patient care and STDs*, 29(12), 651-660.	Uganda	Survey and interviews of 57 heath care providers.	Evaluate the attitudes, knowledge and correlates of HIV providers towards conception counseling.	Religious beliefs did not prevent some providers from being strong supporters of a woman's reproductive right to choose, whereas for others, it was the main reason for not being involved in abortion provision.	
Ibrahim, L. M., Hadjia, I. S., Nguku, P., Waziri, N. E., Akhimien, M. O., Patrobas, P., & Nsubuga, P. (2014). Health care workers' knowledge and attitude towards TB patients under Direct Observation of Treatment in Plateau state Nigeria, 2011. The *Pan African medical journal*, 18(Suppl 1).	Nigeria	Cross sectional study with self-administered questionnaire and focus groups of 76 health workers.	Explore the knowledge of health care workers on management of TB patients and perceived reasons for patient non-compliance.	The majority of health care workers had poor to fair knowledge on the concept of direct observation o treatment, the key educational messages to patient at registration for treatment, during treatment and on how to avoid default from treatment. 30% had received no TB training. There was general consensus that the major factors that are required for a patient to adhere to treatment revolved around patient-health worker relationships, patients' education and proximity to health facility. They also identified the following major barriers to effectively educating patients: lack of knowledge of health workers about treatment, lack of communication skills by the health care workers, and unfriendly attitude towards patients.	Knowledge and Competency Attitudinal

Irimu, G. W., Greene, A., Gathara, D., Kihara, H., Maina, C., Mbori-Ngacha, D., ... & English, M. (2014). Factors influencing performance of health workers in the management of seriously sick children at a Kenyan tertiary hospital-participatory action research. *BMC health services research*, 14(1), 1.	Kenya	Ethnographic study based on the theory of participatory action research over an 18-month period at a national hospital.	Identifying the facilitators and barriers to the implementation of locally adapted clinical practice guidelines.	Educational interventions may be necessary but are unlikely to be sufficient to deliver improved services. One needs to understand organizational issues that influence the behavior of individual health professionals. Barriers to implementation of best-practices: 1) mismatch between hospitals vision and reality 2) poor communication 3) lack of objective mechanisms for M&E 4) limited capacity for strategic change 5) limited management skills 6) hierarchical relationships both within health workers and also with patients 7) inadequate adaption of intervention to the local context. Facilitators included relevance of the guidelines to routine work and the emergence of a champion of change.	Knowledge and Competency Structural and Contextual Attitudinal
Kalibala, S., Tun, W., Cherutich, P., Nganga, A., Oweya, E., & Oluoch, P. (2014). Factors associated with acceptability of HIV self-testing among health care workers in Kenya. *AIDS and Behavior*, 18(4), 405-414.	Kenya	Cross sectional survey after the implementation of intervention.	Identifying factors that increased HIV self-testing among health care workers.	Despite the risk of HIV infection among health care workers and the availability of ARVs, many HCWs are reluctant to seek HIV testing and do not access HIV treatment and prevention services. HCWs had anxieties about testing for HIV fearing others would know their status, fearing a lack of privacy, and experiencing stigma from colleagues who many assume that they are HIV positive. HCW were more likely to get tested if they could self-test.	Attitudinal
Kalk, A., Paul, F. A., & Grabosch, E. (2010). 'Paying for performance'in Rwanda: does it pay off?. *Tropical Medicine & International Health*, 15(2), 182-190.	Rwanda	Cross-sectional literature review, 69 semi-structured interviews, and analysis of factors confounding the impact evaluation of the P4P approach.	Analyze the strengths and weaknesses of the "Paying for Performance" approach.	80% of health workers declared that respect and appreciation by patients were the most previous remuneration to be received. Yet 56% felt that the pay for performance gave them a feeling that their work is appreciated more and that the salary increase is motivating. The program established a feedback loop which informed the managerial level about needs on the ground. Institutional funds were utilized for infrastructure and equipment which was a major constraint to performance. Half of health workers saw the P4P system as a control mechanism. 64% of staff felt that management support to their professional, personal and psychological needs was insufficient. 72% of medical staff reported regularly working supplementary hours and feeling constantly tired because of the workload. P4P caused conflict between spending time on necessary activities and those that were rewarded through P4P. Nearly all agreed that the infrastructure of the health institution was completely inadequate. The biggest concerns were the selection of indicators (seen as imposed from the outside), unfair distribution of awards, and delays in monthly payments. It is unclear whether national improvements in the health sector are a result of P4P, or due to large increases in health expenditures.	Structural and Contextual Attitudinal
Kalua, K., Gichangi, M., Barassa, E., Eliah, E., Lewallen, S., & Courtright, P. (2014). A randomised controlled trial to investigate effects of enhanced supervision on primary eye care services at health centres in Kenya, Malawi and Tanzania. *BMC health services research*, 14(Suppl 1), S6.	Kenya, Tanzania and Malawi	Randomized control trial of health care facilities in two districts	Test whether enhanced supervision for 2 years, focused on improving practical skills, would raise the skills and knowledge of health workers.	Intervention consisted of quarterly skills-based supervision by a district eye coordinator. After two years of the intervention, there were only very modest and of questionable clinical significance. Test scores improvement was only +1.84 points in the intervention site compared to +.42 points in the non-intervention site. The low impact of the intervention may be due to high turnover of PHCWs (75% over the intervention) or high absenteeism,	Knowledge and Competency Structural and Contextual

Kim, Y. M., Chilila, M., Shasulwe, H., Banda, J., Kanjipite, W., Sarkar, S., ... & Mulilo, J. C. (2013). Evaluation of a quality improvement intervention to prevent mother-to-child transmission of HIV (PMTCT) at Zambia defence force facilities. *BMC health services research*, 13(1), 1.	Zambia	Assessment of four intervention facilities and four comparison sites, with pre- and post- intervention assessment through observation and checklists.	QI intervention included 1) provider training 2) supportive supervision (2-3 day trips, twice a year from implementers) 3) detailed performance standards 4) repeated assessments of service quality, and 5) task shifting of group education to lay workers.	Training led to over increase in PMTCT score from 58% to 73%. There was a significant improvement in family planning counseling at intervention sites with the score improving from 35%-75%. Performance improved significantly on four of the eight antenatal care performance standards. Performance during group education increased only slightly, but major gains were made in the two weakest areas: making sure info is complete and using job aids and checking with health workers (22% to 78%) and demonstrating good communication and education skills (74% to 84%). Family planning improved the most, because it was prioritized - provider training dedicated an entire module to it and also received a family planning counseling kit containing job aids. Intervention sites reorganized work schedules to reduce the impact of staff shortages, enforced drug requisition procedures, and analyzed and redesigned client flow, leading intervention clinics to make greater improvements in facility readiness standards. Lay health workers outperformed health care providers in education because health care workers have many clinical responsibilities and juggle competing demands on their time and could not focus as intensely on non-clinical tasks like education.	Knowledge and Competency Structural and Contextual
Kotzee, T. J., & Couper, I. D. (2006). What interventions do South African qualified doctors think will retain them in rural hospitals of the Limpopo province of South Africa. *Rural Remote Health*, 6(3), 581.	South Africa	Semi-structured questionnaires with 10 randomly selected doctors from rural hospitals	Assess what factors lead to lack of retention of qualified doctors in rural hospitals.	To retain doctors in rural hospital service: 1) Improve financial situation of rural doctors (half said this was the most important factor) 2) improve physical hospital infrastructure and accommodations 3) improve working conditions in rural hospitals 4) improvements in continuing medical education 5) provide specialist support 6) improve career progression 7) improve rural hospital management (through better communication channels) 8) opportunities to utilize annual leave. Lack of proper equipment frustrated many doctors and caused them to leave.	Knowledge and Competency Structural and Contextual Attitudinal
Kress, C. M., Sharling, L., Owen-Smith, A. A., Desalegn, D., Blumberg, H. M., & Goedken, J. (2015). Knowledge, attitudes, and practices regarding cervical cancer and screening among Ethiopian health care workers. *International journal of women's health, 7, 765.*	Ethiopia	Self-administered survey of 334 health care providers at three government hospitals.	Determine the knowledge, attitudes, and practices of health care workers towards cervical cancer screening.	85% of providers recognized cervical cancer as a preventable disease and understood the importance of screening (91%), only 32% thought it was caused by a virus that was spread sexually, revealing limited understanding of its etiology. Knowledge of major risk factors were generally high and significantly associated with occupation. Only 18% of nurses and midwives knew of a vaccine to prevent it, compared with 76% of doctors. Although 89% of providers thought that a cervical cancer screening program should be started in their community, 52% reported that they had inadequate training to screen. Additional barriers included lack of equipment and supplies (53%), lack of laboratory resources (41%) expense to patient (42%) inability to follow-up with patients (37%). Only 22% had ever performed a pap smear, and of those, only 28% had performed more than 10. Only 17% reported ever having been screened for cervical cancer.	Knowledge and Competency Structural and Contextual

Lehmann, U., Dieleman, M., & Martineau, T. (2008). Staffing remote rural areas in middle-and low-income countries: a literature review of attraction and retention. *BMC health services research*, 8(1), 1.	Global	Literature Review	Explore the links between attraction and retention factors and strategies in retaining health workers in rural areas.	Retention is influenced by "push" factors (loss of employment or wages, poor living conditions) and "pull" factors (career prospects, better wages, better working conditions, more stimulating environment). In Ghana, doctors sited lack of staff accommodations, followed by lack of schools and teachers for refusing rural postings. Working conditions, including organizational arrangements, management support, high-risk work environments and availability of equipment have been identified as determining factors in deciding to stay or leave a remote area. Supportive supervision which has led to improved motivation in a number of countries. There is a correlation between quality of living conditions and willingness to move to or stay in a particular area. Many governments have targeted recruitment and training and compulsion, but fewer had strategies which alter the living environments or address management and working conditions at the work place even those have been shown to be factors that promote retention.	Structural and Contextual Attitudinal
Luboga, S., Hagopian, A., Ndiku, J., Bancroft, E., & McQuide, P. (2011). Satisfaction, motivation, and intent to stay among Ugandan physicians: a survey from 18 national hospitals. *The International journal of health planning and management*, 26(1), 2-17.	Uganda	Questionnaires of 63 physicians and 11 focus groups in 18 public and private facilities	Identify factors affecting physicians' job satisfaction and intent to stay.	37% of physicians said that they were satisfied with their jobs, and 46% reported that they were at risk of leaving the health sector or the country. The workforce is depleted due to low production and flight of qualified staff. Qualified health staff suffer from chronic fatigue related to workload, low motivation related to working conditions, and frustrations related to poor compensation. Physicians spoke highly of supervisors who respected staff, assisted in problem solving, and instilled a sense of ownership and responsibility, gave appropriate autonomy to staff while still providing adequate supervision. 43% of physicians said that they had the supplies and equipment they needed to do their job well and safely, or access to drugs and medication. Private (non-profit) sector had better availability of supplies and equipment. Only 64% said that the hospital access to safe water was sufficient, and 68% electricity. Some physicians considered these issues more important than compensation. Only 36% felt their workload was manageable, and complained of unfilled positions and lack of specialties. Decentralization has impacted decision-making and funding and was considered an issue and has led to political indifference. Compensation was the most important factor in job satisfaction, followed by quality of management, availability of equipment and supplies, quality of facility infrastructure, staffing and workload, political influence, community location, and professional development.	Structural and Contextual Attitudinal

Lutwama, G. W., Roos, J. H., & Dolamo, B. L. (2013). Assessing the implementation of performance management of health care workers in Uganda. *BMC health services research*, 13(1), 1.	Uganda	Self-administered survey and semi-structured interviews.	Examine the implementation of performance management of health care workers in order to propose strategies for improvement.	89.9% of health care workers indicated that they always have access to their supervisors and 69.9% indicated that their supervisors encouraged them to use different ways to improve performance. 49.6% of workers agreed that rewards and sanctions were based on performance, 30.8% disagreed and 19.6% were undecided. 80% of workers were dissatisfied with their fringe benefits and 70% indicated that their salaries are aligned to their job responsibilities. 50% said that their organizations do not offer sufficient opportunities for promotions. 30% said that they were not paid according to their experience. Discussions revealed that managers believed that when workers are motivated they are extremely likely to be enthusiastic about performance appraisal. 90% indicated that they had received the training required to succeed in their position, 60% felt there were opportunities for career advancement. Proposed strategy improvements include: understanding the context of performance m management, performance management planning, performance review, coaching, staff training and development, and rewards and recognition.	Structural and Contextual Attitudinal
Ma, Z., Huang, H., Chen, Q., Chen, F., Abdullah, A. S., Nie, G., ... & Wei, B. (2015). Mental Health Services in Rural China: A Qualitative Study of Primary Health Care Providers. *BioMed Research International*, 2015.	China	In-depth interviews with 32 primary health care providers.	Understand the challenges that primary health care providers faced in the process of delivering mental healthcare and assess their attitudes towards patients with mental health problems.	36% showed negative attitude towards mental disorders in the interview, most were scared of a sudden attack by the patients. An unmarried female respondent said that working with people with mental illness would affect her social interactions - "people ewould like me to do this kind of job. People usually have discrimination against those who serve the mental health paitents". Some primary health carre providers had negative attitudes towards mental disorder, which can affect their way of working, such as lack of patients, reluctance to treat, and dismissive or passive interactions, but can also affect the patient's self-assessment and treatment compliance, reducing the result of treatment by the providers.	Attitudinal

Magadzire, B. P., Budden, A., Ward, K., Jeffery, R., & Sanders, D. (2014). Frontline health workers as brokers: provider perceptions, experiences and mitigating strategies to improve access to essential medicines in South Africa. *BMC health services research*, 14(1), 520.	South Africa	Cross-sectional, qualitative study using semi-structured interviews with 36 nurses, pharmacy personnel and doctors.	Examine supply ad demand access to medicine barriers from the provider perspective.	Availability: lack of transportation to get drugs to clinics led to frequent stock-outs where HCW referred patients to other clinics, or gave them a date to return. Erratic supplies were reported as one of the main factors leading to patients' loss of confidence in local clinics. Accessibility: public transport to clinics is either absent or limited. District boundaries in rural locations are out of sync with public transport networks. Accommodations: Down referral, or transferring patients to the clinics nearest their home, has not been successful because patients would rather travel further to a better-equipped and better-staffed hospital than go to their local clinics. Proximity of health services to social services emerged as important. Health facilities fail to take into account circular migration between areas. Acceptability: ART patients travel to further facilities so that others won't see them taking ART drugs. It doesn't make a difference if there are drugs available locally. Affordability: While drugs are free, transportation costs, especially for ART and TB, are a significant barrier to patients. Providers come up with ad hoc solutions such as giving stable patients several months' worth of drugs, or scheduling appointments during grant-collection days. Improvements recommended by providers were having more sites accredited for ART, incentivizing doctors to work in rural clinics, and improving coordination between clinics and municipalities. They did not think that mobile clinics were a good solution. The role of providers as health-care brokers with their creative responses in addressing patients needs and mitigating health system shortfall. Having flexibility allows providers to make critical, responsible and responsive decisions in practice and demonstrate clinical empathy,	Structural and Contextual Attitudinal
Majrooh, M. A., Hasnain, S., Akram, J., Siddiqui, A., & Memon, Z. A. (2014). Coverage and quality of antenatal care provided at primary health care facilities in the 'Punjab'province of 'Pakistan'. *PloS one*, 9(11), e113390.	Pakistan	Focus group discussion and in-depth interviews with clients, providers and health managers from 19 primary health care facilities of the public sector.	Assess the coverage and quality antenatal care in the primary health care facilities.	Lack of functional equipment, medicines and supplies was perceived as an underlying factor for low coverage and quality. Most clients reported indifferent attitude and uncertainty in availability of staff.	Structural and Contextual Attitudinal
Makene, C. L., Plotkin, M., Currie, S., Bishanga, D., Ugwi, P., Louis, H., ... & Nelson, B. D. (2014). Improvements in newborn care and newborn resuscitation following a quality improvement program at scale: results from a before and after study in Tanzania. *BMC pregnancy and childbirth*, 14(1), 1.	Tanzania	Cross-sectional survey pre- and post- intervention in 52 health facilities.	Evaluate the effects of a large-scale maternal-newborn quality improvement intervention in Tanzania that assessed the quality of provision of essential newborn care and resuscitation.	After a two-year QI intervention, health care knowledge improved from 23% to 41%. Significant improvements in the quality of several areas of newborn care, but skills actually decreased in neonatal resuscitation skills. Suggestions to improve these skills include supportive supervision, trainings, guided on-the-job practice, and SMS text reminders to providers.	Knowledge and Competency

Malangu, N., & Adebanjo, O. D. (2015). Knowledge and practices about multidrug-resistant tuberculosis amongst healthcare workers in Maseru. *African Journal of Primary Health Care & Family Medicine*, 7(1), 1-5.	Lesotho	Cross-sectional survey of 110 health care workers.	Investigate the knowledge level and practices surrounding MDR-TB among healthcare workers.	47% of health workers had good knowledge about MDR-TB. Practices were also poor, with only 83% wearing masks, and only 55% referred to MDR-TB guidelines. Knowledge was significantly higher among medical doctors than nurses. Some of those who were found to have poor knowledge were also responsible for educating patients on MDR-TB. Those who had better knowledge also were those with safer practices, signifying that increasing knowledge may lead to safer practices among health workers.	Knowledge and Competency
Malangu, N., & Mngomezulu, M. (2015). Evaluation of tuberculosis infection control measures implemented at primary health care facilities in Kwazulu-Natal province of South Africa. *BMC infectious diseases, 15(1), 1.*	South Africa	Cross sectional survey of healthcare workers at 52 facilities.	Describe and compare the TB infection control measures implemented by health facilities.	Less than 50% of requirements for tuberculosis infection control were complied with by surveyed facilities. In particular, environmental control factors were lacking, such as lack of opening windows or fans to air circulation.	Structural and Contextual
Masanja, I. M., Selemani, M., Khatib, R. A., Amuri, B., Kuepfer, I., Kajungu, D., ... & Skarbinski, J. (2013). Correct dosing of artemether-lumefantrine for management of uncomplicated malaria in rural Tanzania: do facility and patient characteristics matter?. *Malar J*, 12(446), 1475-2875.	Tanzania	Interviews with patients, health facility data and inventory, and logistic regression.	Assess factors that influence correct dosing of antimalarial drugs in rural facilities.	Neither health workers' training nor possession of reference material improved the odds of correct AL dosing - one explanation is that it takes time and experience for trainees to be competent in new topics, and underscores the need for frequent supervision from health management teams, refresher trainings, and on-the-job training to compliment formal training. Receipt of supervisory visits was not associated with correct dosing.	Knowledge and Competency Structural and Contextual
Mason L., Dellicour, S., Ter Kuile, F., Ouma, P., Phillips-Howard, P., Were, F., ... & Desai, M. (2015). Barriers and facilitators to antenatal and delivery care in western Kenya: a qualitative study. *BMC pregnancy and childbirth*, 15(1), 1.	Kenya	Qualitative study using 8 focus group discussions each consisting of 8-10 women	Ascertain why women do not fully utilize health facility ANC and delivery services.	Attitudes of nursing staff were perceived to be a major barrier to attending an ANC clinic, as well as having an unprofessional attitude, preferring to chat amongst themselves rather than working, which kept women working. Attitudes of nurses also were a barrier to having facility-based birth, although less so than ANC.	Attitudinal
McAuliffe, E., Daly, M., Kamwendo, F., Masanja, H., Sidat, M., & de Pinho, H. (2013). The critical role of supervision in retaining staff in obstetric services: a three country study. *PloS one*, 8(3), e58415.	Malawi, Tanzania, Mozambique	Cross-sectional descriptive study of obstetric health care facilities, using data from 561 mid-level health care workers.	Evaluate the impact of poor and non-existent supervision on mid-level health care personnel motivation and retention.	Due to shortages in skilled health personnel, mid-level providers are undertaking roles and tasks that are normally the responsibility of established cadres such as doctors and nurses. These mid-level providers are effective in service delivery but maintaining their effectiveness is contingent on supportive working environments and successful delegation of tasks. For mid-level workers, supervision is frequently absent and when present is solely corrective. Findings show that inappropriate or absent workplace supervision is a strong predictor of healthcare workers' intentions to leave their position. Successful task shifting to mid-level cadres and retention is contingent on the existence of adequate supervision systems. Negative supervision was almost as de-motivating as no supervision.	Structural and Contextual

McKenna, K., Arcara, J., Rademacher, K. H., Mackenzie, C., Ngabo, F., Munyambanza, E., ... & Tolley, E. E. (2014). Policy and programmatic considerations for introducing a longer-acting injectable contraceptive: perspectives of stakeholders from Kenya and Rwanda. *Global Health: Science and Practice, 2(4), 459-471.*	Rwanda and Kenya	Qualitative case studies in two countries, and in-depth interviews with 27 service providers and 19 policy makers, and electronic feedback from 28 international family planning opinion leaders.	Address system-level considerations for the introduction of a new longer-acting injectable contraception method.	Introduction of a new form of contraception requires a lot of bureaucracy (both national and international), leading to time and cost constraints. Longer acting injectable contraception could help relieve job-related stress through reducing workload, however there would be initial difficulty or learning curves in time management, clinic workflow, and side effect management, but providers remained mostly positive about the new methods potential.	Structural and Contextual
Moyer, C. A., Aborigo, R. A., Logonia, G., Affah, G., Rominski, S., Adongo, P. B., ... & Engmann, C. (2012). Clean delivery practices in rural northern Ghana: a qualitative study of community and provider knowledge, attitudes, and beliefs. *BMC pregnancy and childbirth*, 12(1), 1.	Ghana	In-depth interviews and focus group discussions among 253 respondents.	Explore knowledge, attitudes, and beliefs towards safe birth methods among community members and health workers.	Women do not feel like they get treated like equals, and don't want to come into the hospital to deliver because the health workers are perceived to be judgmental so many stay away. There is a disconnect between health care providers and the community members in terms of their understanding of ideal and actual maternal and child health behaviors. While many patients and providers expressed respect for each other there was repeatedly language used to describe tension between the uneducated rural women and the midwives in facilities. The two are not always in agreement about what is happening in the community or in the health care facility.	Attitudinal
Moyer, C. A., Adongo, P. B., Aborigo, R. A., Hodgson, A., & Engmann, C. M. (2014). 'They treat you like you are not a human being': Maltreatment during labour and delivery in rural northern Ghana. *Midwifery*, 30(2), 262-268.	Ghana	7 focus groups and 43 individual interviews with community members, and 13 individual interviews with health-care providers.	Explore community and health-care provider attitudes towards maltreatment during delivery.	Women are hit, slapped, or beaten by nurses to get them to push. Respondents reported that midwives and nurses shouted and insulted them, which led to a negative desire to deliver at a facility in the future. "In the house the old women will pamper you, but in the hospital they will be shouting on you treating you as if you are not a human being". All types of community respondents suggested that the poorest women and the women with the least education were the most likely to experience discrimination and neglect when they visited health facilities. One compound head reported nurses ignoring his family while they attended to families with money. If women didn't bring the supplies they needed (soap, receiving blanket, etc.) the nurses were more likely to treat women poorly. The nurses also denied women of traditional customs, such as providing the placenta for burial after birth. Health care providers mentioned negative attitudes of midwives towards laboring women, discrimination, and denial of traditional customs. Providers stated that health care workers are perceived to be judgmental, and don't treat patients as equals, and that denial of traditional practices may be an important deterrent for some women. However, many respondents were very happy with the treatment they received in clinics, and said that the birth attendants were caring and treated patients well, and many providers did not see maltreatment or discrimination as an issue. Socio-economic status and power differentials are cited as possible causes. Maltreatment was brought up, unprompted, in 6 of 7 community focus groups, 14 of 43 community interviews, and 8 of 13 interviews with providers.	Attitudinal

Mtetwa, S., Busza, J., Chidiya, S., Mungofa, S., & Cowan, F. (2013). "You are wasting our drugs": health service barriers to HIV treatment for sex workers in Zimbabwe. *BMC public health*, 13(1), 698.	Zimbabwe	Three focus group discussions among HIV-positive female sex workers.	Explore the reasons for non-attendance and high rate of attrition for HIV referrals for ART among sex workers despite well-attended services targeted to female sex workers.	Reports of active discrimination from hospital staff dominated sex workers' narratives. Most women who had gone to the referral hospital felt they would not access services there again. In all focus groups, women described how hospital staff would make public announcements in the waiting room that all sex workers present should queue at the back or stand in a separate line. Reports of this treatment spread, leading many sex workers to avoid treatment for fear of humiliation. Participants complained that staff had no sense of urgency when doing their work, and reported spending up to 8 hours at the hospital waiting to be seen. While initial consulting fee and CD4 test, other charges were cost prohibitive. They had negative perceptions of ART (it would make them change their diet, was too strong for their bodies).	Structural and Contextual Attitudinal
Mushi, A. K., Schellenberg, J., Mrisho, M., Manzi, F., Mbuya, C., Mponda, H., ... & Schellenberg, D. (2008). Development of behaviour change communication strategy for a vaccination-linked malaria control tool in southern Tanzania. *Malaria journal, 7(1), 1.*	Tanzania	Mixed methods including rapid qualitative assessment and quantitative health facility survey.	Describe the development of a behavior change communication strategy to support the implementation of intermittent preventive treatment of malaria in infants.	BCC strategy was interpersonal communication between health workers and mothers at the time of giving babies anti-malarial vaccines. Program consulted with senior stakeholders for strategy, and health workers, mothers, and community-own resource persons for materials development. Hearsay was the main source of communication on EPI and on SP use among mothers. The use of posters helped to facilitate greater communication between mothers and health providers regarding malaria vaccine.	Attitudinal
Mutemwa, R., Mayhew, S., Colombini, M., Busza, J., Kivunaga, J., & Ndwiga, C. (2013). Experiences of health care providers with integrated HIV and reproductive health services in Kenya: a qualitative study. *BMC health services research*, 13(1), 1.	Kenya	Semi-structured in-depth interviews with 32 frontline clinical officers, registered nurses and enrolled nurses	Explore provider experiences with integration of HIV and reproductive health to ascertain their significance to the performance of integrated health facilities.	Some facilities were provider-integrated, where a single provider provided both HIV and reproductive help services. Others were unit-integrated, where different providers would provide services, but in the same facility. Benefits of integration were increased client satisfaction, personal skills enhanced, experiential learning, and professional stimulation. Improved communication performance and systems were also reported: improved communication among staff, increase in client repeat visits, increase in service uptake, no more multiple queues per visit for the client., Increase in willingness to take HIV test among clients, increased convenience for staff during service provision, decrease in number of clients who leave before being attended during a visit, reduced pressure on under-staffed facilities. Challenges were: low salaries, lack of psychosocial support for occupational stress. Lack of systems adaptation to support integration included increase in workload per provider (without additional compensation for additional work-time), burdensome clinical recording, long session times, long waiting time s for clients, lack of clinical supplies, equipment, room space, and electricity supply, lack of guidelines on user-fee management. Improved communication was one of the most commonly mentioned positive changes. and overall attitudes towards work and working relationships.	

Mwaka, A. D., Wabinga, H. R., & Mayanja-Kizza, H. (2013). Mind the gaps: a qualitative study of perceptions of healthcare professionals on challenges and proposed remedies for cervical cancer help-seeking in post conflict northern Uganda. *BMC family practice*, 14(1), 193.	Uganda	Fifteen key informant interviews with medical directors, gynecologists, medical officers, nurses and midwives.	Explore the views of operational level health professionals on perceived barriers to cervical screening and early help-seeking for symptomatic cervical cancer.	Health professionals' perceived barriers to cervical cancer care included 1) patients and community related barriers e.g. lack of awareness on cervical cancer and available services, discomfort with exposure of women's genitals and perceived pain during pelvic examinations, and men's lack of emotional support to women 2) individual health care professional's challenges e.g. inadequate knowledge and skills about cervical cancer management 3) health facility related barriers e/g/ long distances and lack of transport to cervical cancer screening and care centers ,few gynecologists and lack of pathologists, delayed histology results, lack of established palliative care services and inadequate pain control, and 4) health policy changes e.g. lack of specialized cancer treatment services, and lack of vaccination for human papilloma virus.	Knowledge and Competency Structural and Contextual
Mwaniki, M. K., Vaid, S., Chome, I. M., Amolo, D., & Tawfik, Y. (2014). Improving service uptake and quality of care of integrated maternal health services: the Kenya kwale district improvement collaborative. *BMC health services research*, 14(1), 1.	Kenya	Data was abstracted from government registers monthly from 21 public health facilities.	Explore whether improvement approaches can be applied to increase utilization of women's health services.	Health care workers formed improvement teams that met regularly to examine performance gaps in service delivery, identify root causes of gaps, then develop and implement change ideas to address gaps. As a result of these teams, the number of pregnant mothers starting ANC within the first trimester from 8% to 24% and getting four ANC checkups from 37% to 64%. Number of women delivering in facilities increased from 33% to 52%.	Structural and Contextual
Myers, B., Carney, T., & Wechsberg, W. M. (2015). "Not on the agenda": A qualitative study of influences on health services use among poor young women who use drugs in Cape Town, South Africa. *International Journal of Drug Policy*.	South Africa	Four focus groups and 14 in-depth interviews.	Explore perception of factors that influence poor alcohol and other drug-using young women's use of health services.	Stigma was evident in participants' descriptions of interactions with service providers. In all focus group discussions, participants reported that providers were rude and that stigma was pervasive in the health care system. They gave examples of how they were denied health treatment because of their AOD use and how their rights to confidential care were not respected. Providers may be reflecting greater societal stigma, which particularly targets women who use alcohol and other drugs, where use among men is permissible but among women is socially unacceptable.	Attitudinal
Nalwadda, G., Mirembe, F., Tumwesigye, N. M., Byamugisha, J., & Faxelid, E. (2011). Constraints and prospects for contraceptive service provision to young people in Uganda: providers' perspectives. *BMC health services research*, 11(1), 1.	Uganda	Semi-structured questionnaires were used for face- to-face interviews with 102 providers of contraceptive services.	Identify constraints and prospects for contraceptive service provision to young people.	Most providers said that they were not prepared to provide contraceptives to young people. More than a third said that they would not provide contraceptives to those less than 18 years of age, unmarried, still in school, and those without children. Slightly less than one third of providers believed that if young women used contraceptives early in life, they could have long-term side effects such as infertility. A fifth said they would rather advise abstinence to young women. 14% of providers revealed that as parents, it was impossible to give contraceptives to young people because it was morally unacceptable. Only a quarter of providers were comforable giving contraceptives to sexually active young people, the other three quarters believed that contraceptives should not be provided to young people. The provider's health and safety concerns, especially regarding unmarried young women and women without children, illustrates that providers have misconceptions just like their clients and the rest of the community. Providers' restrictions and behavior might reflect their own personal attitudes and values, rather than evidence-based knowledge and national policies and guidelines.	Attitudinal

Namazzi, G., Waiswa, P., Nakakeeto, M., Nakibuuka, V. K., Namutamba, S., Najjemba, M., ... & Peterson, S. (2015). Strengthening health facilities for maternal and newborn care: experiences from rural eastern Uganda. *Global health action*, 8.	Uganda	Quantitative data collection through routine process monitoring and qualitative data through support supervision visits.	Describe the experience of building capacity for mother and newborn care at lower-level health facilities.	Intervention included 6-day refresher in-service training on obstetric and newborn care and modified for the level of service delivery; identifying patient bottlenecks and redesigning and reorganization of space to cater for labor management and newborn care; construction of special care neonatal unit; and support supervision and mentoring by national and district management on a quarterly basis. The supervision included assessment of skills, support for problem solving, review of health records, and development and review of health facility work plans. The intervention also included a one-time delivery of supplies to fill immediate gaps and shortages, and identification and development of local champions, which were later involved in mentorship teams, learning visits, trainings, reviews, and dissemination activities. Knowledge increased from 32% to 80% a year after training. Health workers gained confidence and skills in various activities. Most facilities had specific staff that were designated as change champions and mobilized and trained others. Implementation of a kangaroo mother care practice led to 547 preterm babies being cared for there. Supervision and learning opportunities were well utilized. Less than 40% of hospitals reported no stock-outs during the 2-year study. Facility deliveries increased by 30%. Of 547 preterm babies admitted into kangaroo mother care, 85% were discharged alive.	Knowledge and Competency Structural and Contextual
Nankumbi, J., Groves, S., Leontsini, E., Kyegombe, N., Coutinho, A., & Manabe, Y. (2011). The impact on nurses and nurse managers of introducing PEPFAR clinical services in urban government clinics in Uganda. *BMC international health and human rights*, 11(1), 1.	Uganda	A mixed method approach using key informant interviews with nurse managers, and questionnaire to 20 staff nurses.	Evaluate the impact on nurses of an HIV service expansion in six clinics.	Because of shortages of physicians, many clinics are led by nurses. In addition to clinical skills, they need practical managerial skills and adequate resources to ensure procurement of essential supplies, quality assurance implementation and productive work environments. Giving nurses more autonomy in their work empowers than and had shown to improve work attitudes and behaviors. In implementing a new HIV program, nurse managers were aware of the need and benefits, and while the program increased their responsibilities id didn't substantially increase their work load because they were equipped with new knowledge, skills training, and the logistical system to do the tasks. Stock-outs of non-HIV drugs to treat malaria and infections was cited as a big challenge. Improved infrastructure patient care services by the nurses and lab techs and improved significantly making it easier for nurse managers to monitor and improve operations. They were happy that they were always included in health facility management meetings and that their opinion was respected. Cash rewards were seen to significantly increase health worker morale, although inequities occasionally caused conflict. Regular nurses claimed to like their job because of the opportunity to learn and improve their skills. 80% reported additional workload after the HIV project. 95% of nurses who received training felt that it had been useful to their current work, and through the training they had acquired both clinical (70%) and non-clinical (55%) knowledge and skills. On 5 point Likert scale, 4.05 felt support, 4.65 felt confident, 3.3 work load is too demanding, 2.65 facilities are adequate to carry out work, 2.3 work is stressful. See article for more.	Knowledge and Competency Structural and Contextual Attitudinal

Nyamtema, A. S. (2010). Bridging the gaps in the Health Management Information System in the context of a changing health sector. *BMC medical informatics and decision making*, 10(1), 36.	Tanzania	Cross-sectional descriptive study in 11 health facilities, and a semi-structured interview of 43 health workers.	Explore the gaps and factors influencing HMIS usage	81% had never been trained on HMIS, 65% didn't properly define it, 54% didn't know who was supposed to use the information and 42% did not use the data for planning budgeting and evaluation. The gaps were linked to lack of training, inactive supervision, staff workload pressure, and the lengthy and laborious nature of the system. The article suggests the incorporation of HMIS in ongoing reviews of curricula for all cadres of health care providers, and development of a more user-friendly system.	Knowledge and Competency Structural and Contextual
Ojakaa, D., Olango, S., & Jarvis, J. (2014). Factors affecting motivation and retention of primary health care workers in three disparate regions in Kenya. *Hum Resour Health*, 12(33), 1.	Kenya	Cross-sectional cluster sample design of 59 health facilities with interviews with 404 health care workers. using structured questionnaires and focus group discussions.	Investigate factors influencing motivation and retention of HCW at primary health care facilities.	44.3% of workers were satisfied. 43.2% reported not having the necessary equipment. 45.2% did not feel they had job security. Family health care was considered most important compensation factor (87%) followed by salary (83%) and terminal benefits (79%). 66% would leave their current position if given the opportunity. Lack of housing, inadequate payment for support staff, and poor physical state of the facility contribute to a non-conducive working environment.	Structural and Contextual Attitudinal
Okello, D. R., & Gilson, L. (2015). Exploring the influence of trust relationships on motivation in the health sector: a systematic. *Human Resources for Health, 13:16*.	Global	Literature Review	Explore evidence on health worker motivation, and possible influences of workplace trust relationships or motivation.	In 21 of the 31 articles, trust relationships with colleagues, supervisors, managers, employing organizations or patients influenced motivation and/or performance. Factors linked to trust relationships include respect; recognition, appreciation, and rewards; supervision; teamwork; management and welfare support; professional autonomy and professional association; communication, feedback, and openness; and staff shortages, heavy workload, and resource unavailability. Appreciation between doctors and nurses was ranked as the second strongest motivator after remuneration.	Structural and Contextual Attitudinal
Opondo, C., Ntoburi, S., Wagai, J., Wafula, J., Wasunna, A., Were, F., ... & English, M. (2009). Are hospitals prepared to support newborn survival?–an evaluation of eight first-referral level hospitals in Kenya. *Tropical Medicine & International Health*, 14(10), 1165-1172.	Kenya	Direct observation of 8 district-level hospitals across the country.	To assess the availability of resources that support the provision of basic neonatal care in eight first-referral level hospitals.	Of the eight domains considered, hospitals scored poorest in Organization of Staff and Systems of Care. In six of the eight hospitals there was no nurse specifically allocated to duty in the newborn nursery. Hygiene and safety of facility, staff, caretaker and child was the second to lowest score. Important structural components for providing newborn care were often unavailable, include lack of supplies such as cleaning materials, oxygen supply and delivery systems, limited availability of guidelines for care. Hospitals were often unable to maintain a safe hygienic environment, staffing was insufficient and sometimes poorly organized to support the provision of care, some key equipment, lab tests, drugs and consumables were not available, and patient management guidelines were missing in all sites.	Structural and Contextual

Otu, A., Ebenso, B., Okuzu, O., & Osifo-Dawodu, E. (2016). Using a mHealth tutorial application to change knowledge and attitude of frontline health workers to Ebola virus disease in Nigeria: a before-and-after study. *Human resources for health, 14(1), 1.*	Nigeria	Pre- and post-intervention surveys of 185 participants.	Assess the effect of using a tablet computer tutorial application for changing the knowledge and attitude of health workers regarding Ebola virus disease.	Most improvements in knowledge and reported attitudinal change towards Ebola virus suggests mHealth tutorial applications could hold promise for training health workers and building resilient health systems.	Knowledge and Competency
Patabendige, M., & Senanayake, H. (2015). Implementation of the WHO safe childbirth checklist program at a tertiary care setting in Sri Lanka: a developing country experience. *BMC pregnancy and childbirth*, 15(1), 1.	Sri Lanka	Hospital-based prospective observational study.	Study the institutionalization of the WHO Safe Childbirth Checklist in a tertiary care center.	Adoption rate of checklist was only 46%. Lack of motivation and poor enthusiasm of health workers towards new introductions to their routine schedule, increased work load, lack of staff in the hospital and level of user friendliness of the checklist were main barriers to its greater usage. 69% agreed that the checklist could stimulate inter-personal communication and teamwork among nurses, midwives and doctors. Study concluded that it would have been useful if education regarding the checklist was given to all health care providers including medical personnel instead of just nurses and midwives. Clinical practice problems with health workers are known to improve care quality. Behavioral interventions are known to be effective but it is always challenging to bring evidence based changes into routine practices.	Knowledge and Competency Structural and Contextual Attitudinal
Pathmanathan, I., O'Connor, K. A., Adams, M. L., Rao, C. Y., Kilmarx, P. H., Park, B. J., ... & Clarke, K. R. (2014). Rapid assessment of Ebola infection prevention and control needs–six districts, Sierra Leone, October 2014. *MMWR Morb Mortal Wkly Rep*, 63(49), 1172-4.	Sierra Leone	Structured interviews with key informants in six districts.	Assess the needs of Ebola infection prevention and control	No districts examined had dedicated infection control focal persons or supervisors within district health management structures. No infection prevention and control standard operating procedures at any level for proper screening and isolation of suspected or confirmed Ebola patients. Screening procedures at all facilities visited were inadequate. Supplies were reported insufficient for patient care and transport, and infrastructures were inadequate, often lacking running water, incinerators, and blood collection supplies. Key informants reported that the availability of hospital and holding center staff was inadequate. Staff shortages were compounded by delays in receiving hazard pay and staff fatigue (one facility reported that staff had not had a day off in two months).	Structural and Contextual Attitudinal

Qureshi, A. M. (2010). Case Study: Does training of private networks of Family Planning clinicians in urban Pakistan affect service utilization?. *BMC international health and human rights*, 10(1), 1.	Pakistan	Survey data consisting of interviews with 1113 clinical and non-clinical providers working in public and private hospitals and clinics.	Determine whether training of providers participating in franchise clinic networks is associated with increased Family Planning service use among low-income urban families.	Dual practice, providers participate in both the public and private sector to generate more income, continues to be a significant problem, leading to a propensity to overprescribe and to make inappropriate use of facilities, staff, health technology, and other resources available in the public sector. They also divert patients from their public practice to their private practice. training on reproductive health, monitoring, and standardization of services through the Ministry of Health improves providers engaged in dual practice and may act as a non-financial incentive to improve attitudes. Negative judgments about the quality of nursing care may prevent women from consulting nurses in Pakistan. Many women refused FP services from male providers. Quality of care is negatively influenced by barriers affecting access to services in supply chains, facilities and equipment, in staff training, in media campaigns, and record keeping. In some countries, providers' negative attitudes towards family planning have restricted clients' access to services. Only about one-fifth of the providers surveyed devoted up to 40 hours per week to FP care. This number increased to one-third after training, suggesting that providers' attitudes and counseling skills can be enhanced.	Knowledge and Competency Structural and Contextual Attitudinal
Reuter, K. E., Geysimonyan, A., Molina, G., & Reuter, P. R. (2014). Healthcare in Equatorial Guinea, West Africa: obstacles and barriers to care. *The Pan African medical journal*, 19.	Equatorial Guinea	Interviews with members of the healthcare community.	Describe the state of the health care system through the perceptions of health care workers.	Though healthcare seminars and lectures were frequently mentioned, respondents were not clear if these were successful in their aims of conveying information to the public. The conflict between traditional and modern medicine was raised several times as a negative healthcare outcome. Over half of the respondents reported conflicts between the community and health care facilities.	Structural and Competency
Rockers, P. C., & Barnighausen, T. (2013). Interventions for hiring, retaining and training district health systems managers in low-and middle-income countries. C*ochrane Database Syst Rev*, 4.	Global	Literature Review	Assess the effectiveness of interventions to hire, retain and train district health system managers in low- and middle-income countries	In many low- and middle-income countries, the responsibility for managing important aspects of the health services are being decentralized to local governing bodies, including district health teams. As a result, district health systems managers are playing an increasingly important role. While interventions did show an increase in knowledge, better M&E skills, increased availability of equipment and supplies and whether the clinic is open 24 hours a day, there is little evidence showing how efforts to hire, retain and train district health systems managers (either through in-service training, or "contracting-in" to private, NGOs) has on people's health, on their use of health care, or on the quality or efficiency of care.	Attitudinal

Sattari, M., Mokhtari, Z., Jabari, H., & Mashayekhi, S. O. (2013). Knowledge, attitude and practice of pharmacists and health-care workers regarding oral contraceptives correct usage, side-effects and contraindications/ Connaissances, attitudes et pratiques des pharmaciens et des agents de soins de santé concernant l'utilisation correcte des contraceptifs oraux, les effets secondaires et les contre-indications. *Eastern Mediterranean Health Journal*, 19(6), 547.	Iran	Survey of 150 health care workers and 150 pharmacists.	Examine the level of knowledge, attitude and practice of oral contraceptive pills providers.	The study highlighted two problems: lack or low level of knowledge about oral contraceptive pills and the low level of counselling of OCP users. Pharmacists had a lower level of knowledge in many areas of OCP usage, side-effects, signs of problem, and contraindications than health care workers (midwives and public health educators), perhaps because their continuing education did not focus on OCP topics whereas the HCW refresher trainings were more focused. HCW were more often providing counselling to users compared with the pharmacists. Not all knowledge resulted in counselling, which shows deficiencies in communication with OCP users - lack of communication training, an unsuitable environment for counselling, and high number of clientele or responsibilities.	Knowledge and Competency Structural and Contextual
Shayo, E. H., Våga, B. B., Moland, K. M., Kamuzora, P., & Blystad, A. (2014). Challenges of disseminating clinical practice guidelines in a weak health system: the case of HIV and infant feeding recommendations in Tanzania. *International breastfeeding journal, 9(1), 1.*	Tanzania	22 in-depth interviews and two focus group discussions for managers at regional and district levels and health workers at health facility level.	Explore how content of a series of diverging infant feeding guidelines have been communicated to managers in the PMTCT.	There were serious gaps in knowledge regarding PMTCT infant feeding at every level, including regional managers. Vital policy changes were not widely known among informants. There was a fundamental lack of awareness of the scientific explanations behind the many policies. Changes were communicated top down through workshops, meetings and trainings. Informants particularly emphasized the difficulties in delivering the message to HIV-infected mothers because it was difficult for them to understand. Frequent changes in the guidelines confused PMTCT managers. Not providing reasons or sufficient explanation for policy changes was reported to be common in communication about the guidelines. Usually only one person at a site was trained, and then was responsible for training colleagues, usually through only brief, on-site trainings, leading to many mistakes of various kinds. Guidelines were clouded by English academic jargon. Supportive supervision is required to make sure that messages are clear to lower-level staff. Regional informants did not have a problem with language, but informants at the district and health facilities found the use of English language prohibitive for their understanding. Those at the district levels responsible for facility-level training did not understand the guidelines themselves. There was also a lack of links between departments, making it difficult to enforce implementation. In many facilities informants said that they had never received a copy of the updated recommendation.	Knowledge and Competency Structural and Contextual

Shiferaw, S., Spigt, M., Godefrooij, M., Melkamu, Y., & Tekie, M. (2013). Why do women prefer home births in Ethiopia?. *BMC pregnancy and childbirth*, 13(1), 1.	Ethiopia	Mixed study design using a cross sectional survey of community women ages 15-49 combined with in-depth interviews and focus group discussion.	Explore why women continue to prefer home delivery, even when an ongoing project minimizes challenges related to transportation and availability of obstetric services.	42.3% of women said the reason for not delivering in a facility was because it was not necessary, 35.8% said not customary, and only 1.9% said that it was because they did not trust service/poor quality service. Subthemes related to poor quality of service included incompetent health workers, out of hours availability, health workers do not allow cultural practices, no attention for privacy and psychosocial support (not allowing family members in), and shortages of female health workers.	Structural and Contextual
Sidze, E. M., Lardoux, S., Speizer, I. S., Faye, C. M., Mutua, M. M., & Badji, F. (2014). Young Women's Access to and Use of Contraceptives: The Role of Providers' Restrictions in Urban Senegal. *International perspectives on sexual and reproductive health*, 40(4), 176-183.	Senegal	Two-stage stratified sampling of 9,614 women and 205 health care providers.	Identify barriers that young women face to using contraceptives, including barriers imposed by health providers.	57% of public-sector service providers reported that they would not provide a client below a certain age with the pill, and 12-14% reported requiring that a woman be married to receive the pill, injection or implant.. In the private sector, 21-30% of providers reported refusing to offer unmarried women the pill, injectable implant or emergency contraception. Men were more likely to report applying a minimum age restriction of the injectable (54% vs. 39), and more likely to restrict access to at least one of the three methods studied (58% vs. 45%). In the public sector, nurses were more likely than other providers for having a minimum age restriction.	Attitudinal
Spreng, C. P., Ojo, I. P., Burger, N. E., Sood, N., Peabody, J. W., & Demaria, L. M. (2014). Does stewardship make a difference in the quality of care? Evidence from clinics and pharmacies in Kenya and Ghana. *International Journal for Quality in Health Care*, 26(4), 388-396.	Ghana and Kenya	Survey of 300 healthcare facilities.	Measure level and variation of healthcare facilities in Ghana and Kenya and which factors are associated with improved quality.	Government stewardship appears to be associated with quality of clinics hospitals. Significant positive association with quality in clinics that had all six elements of stewardship suggests that comprehensive government engagement with providers may be especially influential.	Structural and Contextual
Sunguya, B. F., Poudel, K. C., Mlunde, L. B., Urassa, D. P., Yasuoka, J., & Jimba, M. (2013). Nutrition training improves health workers' nutrition knowledge and competence to manage child undernutrition: a systematic review. *Frontiers in public health, 1(37), 1-27.*	Global	Literature Review	Examine the effectiveness of in-service nutrition training on health workers' nutrition knowledge, counseling skills, and child undernutrition management practices.	All studies showed that health care workers had improved nutrition and general counseling skills after nutrition training. Communication skills improved in those trainings that included a communication component. Studies concluded that doctors in intervention group were more likely to report improved post-intervention practices in managing child undernutrition compared to their counterparts. Physicians who previously did not feel that nutrition counseling was part of their job responsibilities were more likely to provide counselling after training.	Knowledge and Competency

van den Akker, T., van Rhenen, J., Mwagomba, B., Lommerse, K., Vinkhumbo, S., & van Roosmalen, J. (2011). Reduction of severe acute maternal morbidity and maternal mortality in Thyolo District, Malawi: the impact of obstetric audit. *PloS one*, 6(6), e20776.	Malawi	Collection of hospital data.	Assess the incidence of facility-based complications during two years of audit and feedback.	Audit and feedback have potential to reduce serious maternal complications including maternal mortality. The number of women with severe maternal complications fell from 13.5 to 10.4 per 1000 deliveries over the course of the study.	Knowledge and Competency Structural and Contextual
Yamey, G. (2012). What are the barriers to scaling up health interventions in low and middle income countries? A qualitative study of academic leaders in implementation science. *Globalization and health, 8(1), 1.*	Global	Interviews with 14 key informants.	Explore the barriers that impede scale-up in low and middle income countries.	Overly complex interventions are difficult to scale-up. Insufficient capacity in low and middle income in human resources, leadership, and management, and health system capacity impede scale-up. Scale up is limited when implementers do too little to actively spread knowledge. Oftentimes scale ups fail because they are not delivered as intended - lack of implementation fidelity. Can also fail due to lack of community readiness or engagement. There is often lack of donor coordination, and situations in which politics plays a greater role in decision-making than science.	Structural and Contextual
Yousafzai, M. T., Janjua, N. Z., Siddiqui, A. R., & Rozi, S. (2015). Barriers and Facilitators of Compliance with Universal Precautions at First Level Health Facilities in Northern Rural Pakistan. *International Journal of Health Sciences,* 9(4), 388.	Pakistan	Interviews with 485 health care workers.	Assess the compliance at first level care facilities with universal precautions and its behavior predictors.	Only 6% of health care workers reported "always or often" complying with all of the 11 components of universal precautions. Compliance with UP is determined by higher knowledge about modes of transmissions, fewer barriers in practicing UP (time constraint, inconvenience, not wanting to offend patients, lack of equipment, presumption that patient was not infected), higher perceived benefits of practicing UP, and higher perceived susceptibility to blood-born pathogens in the workplace. Improving knowledge could be the first step towards improving compliance.	Knowledge and Competency Structural and Contextual Attitudinal