In developing countries, increasing investments in health must focus on quality improvement to ensure that investments in health services produce the best results. The World Health Organization (WHO) defines quality of healthcare in six dimensions: effective, efficient, accessible, acceptable/patient-centered, equitable, and safe services. To measure some of these dimensions, the World Bank, African Economic Research Consortium, and the African Development Bank launched the Service Delivery Indicators (SDI), an Africa-wide initiative to collect data on service delivery in schools and health facilities. These indicators track the progress of quality improvements and the performance of decisionmakers over time (World Bank, 2014).

Health investments in Kenya have increased in the past two decades, resulting in the expansion of service delivery and improvements in the quality of health services (MOH, 2013a). Although devolution in Kenya provides better opportunities for increasing access to high-quality healthcare services, if the transition is not well managed it may erode the gains made over the last decade, especially in maternal and child health.

For example, a 2013 Service Availability and Readiness Assessment Mapping (SARAM) study found that “non-availability of medicines is commonly cited as the most important element of quality by health care consumers, and the absence of medicines is a key factor in the underuse of public health services” (MOH, 2013a).

Evidence from elsewhere indicates that devolved health systems lead to better service delivery. Communities will have greater say on running of health facilities in their locality and the new constitution empowers them to demand quality and efficient services.

—Director of Medical Services, in the Ministry of Medical Services, Francis Kimani (Medic East Africa, n.d.)
of care (QoC) facility survey in Kenya found that while “most ANC facilities were stocked with basic supplies (except iron), they lacked supplies that promote quality (counseling aids, infection control, etc.)” (Kagema et al., 2010). The 2010 Kenya Service Provision Assessment (2010 KSPA) found that only 3 percent of facilities had carried out all six of the critical services for emergency obstetric care, or signal functions, at least once during the three months preceding the survey. In addition, the full package of basic health services is available in 6 out of 10 facilities, with only one-quarter of facilities reporting quality assurance activities (NCAPD et al., 2011).

In an effort to improve the country’s health status, the government of Kenya’s (GOK) commitment to improve the quality of health services is articulated in several policy documents, including Vision 2030, the Kenya Health Sector Strategic Plan (KHSSP II), and the Kenya Health Policy (KHP), which outlines comprehensive health development and reforms (NCAPD et al., 2011). According to the draft KHP (MOH, 2014), health service providers must dispense improved services to deliver matibabu kwa wote (treatment for all), an essential element of Kenya’s Vision 2030. As counties assume their devolved responsibilities, which are detailed in the 2010 Constitution, improving the quality of service delivery requires adequate health investments for infrastructure, medical commodities, and human resources. In addition, counties must focus on provision of health outputs such as improved quality of care, access, and demand, which result in improved health outcomes.

The Kenya Institute of Public Policy Research and Analysis (KIPPRA) implemented the PETS-Plus surveys with support from the World Bank and the USAID- and PEPFAR-funded Health Policy Project (HPP). As a follow-up to this work, HPP is collaborating with partners in Kenya to strengthen the country’s health system and develop strategies to improve health service quality outcomes under devolution. Results from the PETS-Plus report highlight the importance of accountability in service delivery, and provide policymakers, civil society organizations (CSOs), and stakeholders with high-level data and analysis of the effectiveness and quality of health services in Kenya (KIPPRA and HPP, 2014). Stakeholders can use PETS-Plus data to assess the overall service delivery performance of primary healthcare facilities and district hospitals by linking the disbursement of funds to the availability of infrastructure, medical equipment, and medical commodities, and the ability and effort of service providers.

**FRAMEWORK TO ASSESS THE QUALITY OF CARE IN KENYA**

Quality of service delivery is a result of “key inputs along with service provider ability and effort” (SDI, 2013). To understand gaps in the quality of health service delivery, HPP used a framework from SDI to assess health inputs, provider effort, and provider availability, which are essential elements of high-quality healthcare services (SDI, 2013):

1. **Inputs**, such as infrastructure and distribution of medical service equipment and medical commodities
2. **Provider effort**, such as provider absenteeism, decentralization arrangements, and supervision and management structures
3. **Provider ability**, such as diagnostic accuracy, adherence to clinical guidelines, and provider skills and knowledge

**DATA SOURCES**

This study used the SDI framework of inputs, provider effort, and provider availability and data from the PETS-Plus study, supplemented by the 2013 SARAM; the 2012 Health Sector Customer Satisfaction, Employee Satisfaction and Work Environment Survey; and the 2010 KSPA. The goal of the study was to provide information about the overall quality of primary care service delivery in Kenya, and contribute to assessing the impact of some key policy reforms aimed at improving the quality of primary care service delivery.  

The PETS-Plus Survey combined a Public Expenditure Tracking Survey (PETS) and an SDI survey to assess overall service delivery performance of 294 public and nonprofit private health facilities and 1,859 health providers in Kenya. This sample is representative of the quality of service delivery and physical environment in which services are delivered at public and private nonprofit health facilities, health dispensaries, health centers, and district hospitals. The PETS-Plus survey used seven medical vignettes (i.e., patient simulations) to assess clinicians’ diagnostic accuracy and clinical knowledge. In each case, the service provider was assessed based on history-taking questions, physical examination questions asked, tests recommended, preliminary diagnosis and prescribed treatment, and health education offered to the patient.
Overall, the survey provides information at the health facility level to measure inputs and resources, and at the health work level to measure provider effort and competency. Fifteen counties were randomly selected for the first stage and categorized as rural or urban, based on urbanization levels in 1999; rich or poor, based on poverty rates in 1999; and service delivery performance. Some facilities were oversampled, and weights were used to achieve an accurate representation of facility distribution by stratum at the national level.

RESULTS

Inputs

Access to essential health services depends on the distribution and quality of essential health inputs, such as infrastructure and the distribution of medical service equipment and medical commodities. Inadequate and dilapidated infrastructure and malfunctioning medical equipment generally lead to poor quality of health services.

Infrastructure

In Kenya, the PETS-Plus infrastructure availability indicator is an unweighted average of three components that measure the availability of clean water, toilets, and electricity. Access to clean water, toilets, and electricity ensures that facilities are able to provide a certain level of health services. Using this indicator, approximately 57 percent of facilities had basic infrastructure. The majority of private nonprofit facilities (87%) had basic infrastructure, compared to public facilities (49%) (Figure 1). However, differentials were evident between urban and rural public facilities and between public and private nonprofit facilities. The study found that most public dispensaries lacked basic infrastructure—only 29 percent of rural public dispensaries had all three types of infrastructure. Within the public sector, rural health facilities had poorer equipment and infrastructure availability. On average, most first-level hospitals had all three infrastructure types, regardless of the type or location of the facility.

A detailed analysis of the infrastructure indicators, which is not shown in the graph, found that most public dispensaries (60%) did not have clean water, toilets, and electricity. Less than half of public facilities (43%) and 81 percent of private nonprofit facilities have access to electricity, which is necessary for the provision of drugs and commodities, operation of medical equipment, and basic services.

The SARAM measured general service readiness through a service readiness index that includes inputs such as “infrastructure, amenities, basic equipment, standard precautions for infection control, diagnostic tests, medicines and commodities” (MOH, 2013a). The findings showed that roughly half (57%) of all health facilities are ready to provide Kenya’s essential package of services (KEPH); of these, 47 percent have the basic amenities to provide services, 41 percent have essential medicines, and 73 percent follow the standard precautions (MOH, 2013a).

Medical Equipment

The PETS-Plus medical equipment indicator shows the availability of basic equipment necessary to provide essential health services (Figure 1). Seventy-two percent of public health facilities possess the basic medical equipment necessary to provide basic health services.8 Similarly, the 2013 SARAM found that 67 percent of facilities have the basic equipment required to provide KEPH services (MOH, 2013a). However, there were large discrepancies between public and private health facilities: private nonprofit health facilities had more medical equipment availability (95 percent) than public facilities (69 percent).
Drugs and Commodity Availability

A major factor affecting the quality services is the lack of essential medicines, which is a persistent problem in Kenya. The 2013 SARAM found that nonavailability of medicines was the most important barrier to quality cited by healthcare consumers, and a key factor in the underuse of public health facilities (MOH, 2013a). The 2012 Health Sector Customer Satisfaction, Employee Satisfaction and Work Environment Survey reported that less than half (47%) of clients were able to obtain all prescribed medicines, with the most common explanations for this were medicines being “not available” (77%) and cost (22%) (Omondi et al., 2012). Instead of monitoring the availability of all drugs and commodities, the PETS-Plus survey assessed four tracer drugs and three non-pharmaceutical drugs selected from the Kenya Ministry of Health’s list of 20 tracer medicines and non-pharmaceuticals, which it uses to monitor product availability (USAID, 2008). In addition, 10 tracer drugs for children and 16 tracer drugs for women were included in separate medicines indicators.

PETS-Plus data showed that about half of all facilities had essential drugs available (Table 1). Despite widespread public and international concern with maternal mortality in Kenya, only 41 percent of all facilities had essential drugs for mothers. Health facilities’ ability to provide high-quality healthcare is hindered by the lack of availability and access to essential drugs.

The common expectation that rural health facilities faced shortages when compared with urban facilities was not supported by evidence from the survey, although the percentage availability of tracer drugs and non-pharmaceuticals was low in both rural and urban health facilities (49% for rural vs 50% for urban).

Table 1. Percentage Availability of Drugs

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Public</th>
<th>Private (nonprofit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Essential Drugs</td>
<td>51%</td>
<td>49%</td>
<td>50%</td>
</tr>
<tr>
<td>Drugs for Mothers</td>
<td>41%</td>
<td>39%</td>
<td>43%</td>
</tr>
<tr>
<td>Drugs for Children</td>
<td>71%</td>
<td>70%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Across all facility types, the availability of drugs for mothers is lower than that for essential drugs for children. Due to its high maternal mortality rate, the provision of high-quality health services for mothers is a priority in Kenya. The low availability of essential drugs for mothers is an obstacle to providing these services.

Medical Drug Distribution System: Push/Pull

Figure 2. Distribution of Drugs, Push v. Pull Facilities

Kenya has two distribution systems for medical commodities: the traditional push system in which KEMSA pre-packages supplies in structured universal drug kits; and the pull system in which facilities are at liberty to requisition medical commodities. The Ministry of Health (MOH) intends to phase out the push system once the county governments streamline their ordering systems. Data showed that on average, pull facilities were more effective and had a higher percentage of all drugs and maternal drugs available, with the exception of children’s drugs. The SARAM found that primary healthcare facilities had critically low availability of health commodities (Figure 2) (MOH, 2013a). This lack of essential drugs, especially for mothers and children, is a significant challenge to providing high-quality services. A greater share of pull than push facilities undertook purchases of out-of-stock drugs and essential medicines and medical supplies (EMMS)—87 percent of pull facilities had purchased EMMS locally in the previous quarter.
Provider Effort

As defined by the WHO, the core responsibilities of health service providers for quality improvement are ensuring that “the services they provide are of the highest possible standard and meet the needs of individual service users, their families, and communities” (WHO, 2006). Health worker knowledge, skills, and motivation are critical in ensuring health services are of high quality. Kenya and many other countries face huge human resource-related challenges including shortages, inadequate skills, geographic distribution, and performance of health workers (Chankova, Muchiri, Kombe, 2009). PETS-Plus assessed provider effort through provider absenteeism and caseload data (World Bank, 2014). An adequate supervision and management structure to monitor the provision of health services is also an essential element in improving the quality of services.

Absenteeism

Provider absenteeism for public facilities was close to 30 percent, compared to 20 percent at private nonprofit providers. In urban facilities, close to 4 in every 10 health workers were found to be absent (Figure 3). There was large variability among counties in provider absenteeism, with certain counties reporting rates of absenteeism as high as 42 percent. However, data from both PETS-Plus and SARAM found that 88 percent of absences were sanctioned, and 15 percent of health staff were not present because of training (MOH, 2013a). The high amount of absenteeism due to trainings indicates a level of inefficiency with the way health workers are managed for effective delivery of services at the facility level. The absence rate may have an impact on caseloads, which may in turn compromise the quality of healthcare provided by the health facilities.

Supervision and Management Structures/Decentralization Arrangements

“Management and supervision to primary care are likely to greatly improve primary care health worker effectiveness, and enable training programmes to be followed by better use in the field of newly acquired skills” (Jenkins et al., 2013). There are three levels of supervision within Kenya’s health system that provide management and supervision to monitor work and quality of health services (NCAPD et al., 2011). Official guidelines require a minimum of four annual supervisory visits at primary health centers. Kenya has a common framework for managing health providers, with decentralized annual health workplans and monitoring processes. However, there are capacity gaps in supervision. For example, the SARAM, which assessed health leadership, found that little more than half (55%) of facilities received the minimum four supervisory support visits in the preceding year (MOH, 2013a). The KSPA noted that routine staff supervision was most common at public facilities: health centers (93%), dispensaries (88%), and hospitals (86%) (NCAPD et al., 2011). Personal supervision was lowest among private for-profit facilities (58%), public health clinics (56%), and maternity wards (68%). With only half of Kenya’s health facilities receiving the minimum amount of required supervision, guidance and monitoring are insufficient to ensure high-quality health services.

PROVIDER ABILITY

Provider ability is measured through provider diagnostic accuracy and adherence to clinical guidelines.

Provider Diagnostic Accuracy

PETS-Plus assessed provider diagnostic accuracy for seven tracer conditions, whose successful diagnosis and management could avert a large share of child and adult mortality and morbidity. The tracer conditions were malaria with anemia, diarrhea with severe dehydration, pneumonia, pulmonary tuberculosis, diabetes, postpartum hemorrhage, and neonatal asphyxia. Diagnostic accuracy varied depending on the tracer condition and cadre of staff involved (Figure 4). Public doctors provided the highest diagnostic accuracy at 76 percent in rural public health facilities and 93 percent in urban public health facilities. Private nonprofit nurses provided the least diagnostic accuracy, at 69 percent for
tracer conditions. One reason for the low percentage of accurate diagnoses may be the lack of long-term staff trainings, with only 12 percent of health facility staff members having undergone some form of training in the two years preceding the study (MOH, 2013a). In addition, only one-quarter of facilities reported quality assurance activities and only 11 percent have documentation of quality assurance activities (NCAPD et al., 2011).

For clinical management of maternal and newborn complications, clinical knowledge was only 45 percent. This overall low clinical knowledge demonstrated a large gap in facilities’ ability to provide high-quality services to mothers and children. The KSPA found that only 3 percent of facilities had carried out all six of the critical services for emergency obstetric care, or signal functions, at least once during the three months preceding the survey. Offering high-quality signal functions is a proxy to measure the quality of health services that are proven to significantly reduce maternal deaths and improve birth outcomes. For more detailed information on maternal and child health services, please refer to Effective Implementation of the New Health Financing Policies (Maina and Onguti, 2014) and Free Maternal Care and Removal of User Fees at Primary-Level Facilities in Kenya (Chuma and Maina, 2014).

Adherence to Clinical Guidelines

Adherence to clinical guidelines was low, and only 43 percent of providers in public facilities adhered to clinical guidelines in the management of the selected tracer conditions. The lowest adherence was among rural nurses in public facilities (39%), and the highest among rural doctors in public facilities (73%). Thirteen percent of providers adhered to at least half of the guidelines for each tracer condition. Public providers adhered to 44 percent of the clinical guidelines for managing maternal and newborn complications, indicating that more than half of these patients are not receiving care that follows the recommended clinical management and guidelines. Of note, doctors failed to adhere to more than 40 percent of Kenya’s official clinical guidelines for managing maternal and newborn complications. The low level of adherence to clinical guidelines, especially for managing maternal and newborn complications, shows a need to increase the quality of routine provider training and supervision to improve capacity in provider knowledge and monitoring of health service provision.

DISCUSSION

A review of PETS-Plus data highlights important gaps in the quality of care in Kenya, specifically in basic infrastructure, medical equipment, availability of drugs and other medical supplies, and service providers’ diagnostic accuracy and adherence to clinical guidelines. The data showed that only 65 percent of health expenditures reach end users, indicating a large amount of inefficiency and leakage. If not addressed, this lack of inputs may affect the quality and accessibility of services provided by county health facilities. Table 2 summarizes the PETS-Plus SDI for health.

One major challenge facing county health services is the serious shortage of human resources, primarily due to financial limitations. A major human resource challenge is health providers’ effort measured in terms of absenteeism and knowledge and skills to manage common conditions. PETS-Plus data demonstrated that improvements are needed in several areas, including human resources, infrastructure, and medical equipment.
Assessing the Quality of Primary Health Care Services in Kenya

Table 2. PETS-Plus SDI for Health

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Public</th>
<th></th>
<th>Private</th>
<th>Nonprofit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure Availability</td>
<td>47%</td>
<td>37%</td>
<td>59%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>Equipment Availability</td>
<td>78%</td>
<td>76%</td>
<td>81%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>Drug Availability (all)</td>
<td>54%</td>
<td>53%</td>
<td>49%</td>
<td>62%</td>
<td></td>
</tr>
<tr>
<td>Maternal Drug Availability</td>
<td>44%</td>
<td>41%</td>
<td>44%</td>
<td>54%</td>
<td></td>
</tr>
<tr>
<td>Child Drug Availability</td>
<td>70%</td>
<td>71%</td>
<td>57%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td><strong>Provider Effort</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence from Faculty</td>
<td>28%</td>
<td>28%</td>
<td>38%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Caseload</td>
<td>9</td>
<td>8.5</td>
<td>10.3</td>
<td>10.4</td>
<td></td>
</tr>
<tr>
<td><strong>Provider Availability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic Accuracy</td>
<td>72%</td>
<td>73%</td>
<td>79%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>Adherence to Clinical Guidelines</td>
<td>44%</td>
<td>42%</td>
<td>52%</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Management of Maternal/neonatal Complications</td>
<td>45%</td>
<td>43%</td>
<td>49%</td>
<td>46%</td>
<td></td>
</tr>
</tbody>
</table>

Based on these key gaps, HPP recommends the Ministry of Health take action in the following areas to improve the quality of health services in Kenya:

1. **Availability of tracer and maternal drugs:** Increase the budget for procurement of drugs and commodities and build capacity within KEMSA to improve procurement and distribution systems at the national and county levels. In addition, build the capacity of county governments to forecast and quantify the supply chain cycle of medical supplies.

2. **Provider absenteeism:** Increase management, supervision, and control at the facility level; increase the frequency of supervisory visits on a monthly or quarterly basis; and consider performance-based conditional grants to promote improvement of healthcare delivery at the facility level.

3. **Provider diagnostic accuracy and adherence to clinical guidelines:** Improve higher provider certification and training prior to working in the health facilities, capacity building and routine training, and systems for monitoring the quality of health services, supervision, and management. Consider using incentive strategies to improve provider performance and quality of service.

4. **Long-term human resources for health (HRH):** Formulate a long-term plan to ensure a sufficient number of high-quality, certified health providers and better distribution and deployment of existing and future HRH.

For more information on specific PETS-Plus data, please see Public Expenditure Tracking Survey, 2012 (KIPPRA and HPP, 2014). For more information about county readiness to deliver KEPH see Devolution of Healthcare in Kenya (Barker, Mulaki, Mwai, and Dutta, 2014) and for more information about how the two new health financing policies will fare during devolution, see Effective Implementation of the New Health Financing Policies (Maina and Onguti, 2014).
ENDNOTES

1. See WHO’s Quality of Care: a process for making strategic choices in health systems (2006) for more information.

2. The 2013 SARAM assesses the provision of all health services outlined in Kenya’s essential package of services and provides information on quality of service delivery and readiness to provide services, including national and county-level data (MOH, 2013a).

3. The 2012 Health Sector Customer Satisfaction, Employee Satisfaction and Work Environment Survey assessed the perceived quality of services linked to customer satisfaction, and employee perceptions of their ability to deliver high-quality services (Omondi et al., 2012).

4. The 2010 KSPA captured service provision for priority conditions, particularly relating to reproductive and child health, and quality of the related care (MOH, 2013b).

5. The vignettes covered seven conditions: acute diarrhea with severe dehydration, pneumonia, diabetes mellitus (Type II), pulmonary tuberculosis, malaria with anemia, postpartum hemorrhage, and neonatal asphyxia.

6. The detailed methodology can be obtained from the PETs-Plus report (KIPPRA and HPP, 2014).

7. The most recent Norms and Standards for Kenya 2013–2018 does require that facilities at levels 2–6 have clean water, toilets (stand pipe latrine), and electricity (MOH, 2013a; KHSSP III).

8. The PETS-Plus medical equipment indicator measures the availability of basic medical equipment to include any weighing scale, stethoscope, sphygmomanometer, thermometer, a functioning refrigerator, and sterilizing equipment.

9. Drugs identified in the PETS-Plus survey include amoxicillin syrup/suspension, Ampicillin powder for injection, artemisinin combination therapy, artesunate, azithromycin cap/tab or oral liquid, procain benzylpenicillin powder, betamethasone/Dexamethasone injectable, calcium gluconate injectable, cefixime cap/tab, ceftriaxone powder for injection, gentamycin injectable, magnesium sulfate injectable, misoprostol cap/tab, morphine granule injectable/cap/tab, nifedipine cap/tab, ORS, oxytocin injectable, paracetamol syrup/suspension, sodium chloride injectable solution, zinc tablets, vitamin A, iron supplements, and medroxyprogesterone.

10. These differ from the standards set by the WHO and the Kenya Essential Medicines List 2010.

11. The SARAM assessed health leadership by assessing organizational capacity, stewardship, partnership, and governance readiness in delivering health services (MOH, 2013a).

REFERENCES


USAID. 2008. Recommended Supply Chain Indicators for PEPFAR Next Generation Program Indicators. Arlington, VA: JSI.


