**SERVICE DELIVERY INDICATORS**

Education | Health

# TANZANIA
## Service Delivery Indicators

HEALTH | MAY 2016

Tanzania has made some phenomenal gains in recent years. For example, the infant mortality rate has fallen by an average 3.2 percent per year, the fastest rate of decline among 20 countries in the region. Arguably, the next set of gains will be more challenging, reducing neonatal mortality and maternal mortality have proven harder and costlier, and addressing the performance gaps identified in the survey at the frontline health facilities and service providers will be a critical determinant of progress. As Tanzania's Vision 2025 sets out the country's development framework to achieve middle-income country status, the challenge facing the health sector is: What will be the drivers of the next set of health gains to reach the level of middle-income countries.

## Highlights

### Input availability

- Only half (50 percent) of the Tanzanian facilities had access to electricity, clean water and improved sanitation.

- Although in almost all the facilities most of the vaccines were available, 2/3 of the refrigerators were not compliant with the regulations for the temperature.

- Less than half (49 percent) of the priority drugs for mothers were available; only 8 percent of facilities had all 14 tracer drugs in stock; and just one percent of rural facilities did so.

### Provider effort

- On average 14 percent of health providers were absent from the facility down from 21 percent in 2010.

- Absence was more prevalent in Dar es Salaam where 21 percent could not be found in the facility.

- Doctors especially in urban areas were the most likely to be absent and their absence was more likely to not have been approved.

- Caseload was very low with the average health worker seeing on average 7.3 outpatients per day.

### Provider ability

- Health providers could correctly diagnose only 60 percent of five common conditions.[1]

- There was a significant difference between public providers in rural areas who managed to diagnose less than half (44 percent) of the conditions and those in the urban areas who correctly diagnosed 70 percent of conditions.

- Only 5 percent nurses could correctly diagnose at least 4 of the cases.

[1] The conditions are (i) malaria with anemia, (ii) diarrhea with severe dehydration, (iii) pneumonia, (iv) pulmonary tuberculosis, and (v) diabetes mellitus or type 2.

### Service Delivery Indicators in the Health Results Chain

**Input Availability**

- Infrastructure 50%
- Mininmum Equipment 84%
- Drugs Availability 60%

**Health Providers**

- Average Absence Rate 14%
- Doctors' Absence Rate 33%
- Diagnostic Accuracy 60%
- Adherence to guidelines 44%
- Caseload 7.3 patients a day
- Managing maternal and neonatal complications 30%

**Health Outcomes**

- Maternal Mortality 454
- Neonatal Mortality 26
- Births in health facilities 58%

### Delivering Health Services

Tanzania is facing a severe human resources for health (HRH) shortage. According to Tanzania's Health Sector Strategy Paper 2009-2015 (HSSP III) HRH are a priority to improving accessibility and quality of health services.

- Facilities on average were staffed with 13.1 health workers. Urban facilities had more staff (24.5 providers) compared to rural facilities (6.0 providers). Public facilities had fewer staff members than their private counterparts.

- Over half (55 percent) of health workers were nurses. Although only 10 percent of Tanzania's population lived in Dar es Salaam, the city was home to 45 percent of all doctors. In contrast, 70 percent of the population and 85 percent of the poor lived in rural areas but they were served by only 28 percent of the country's health workforce, and a mere 9 percent of its doctors. These stark service delivery inequalities are likely to translate and even reinforce welfare inequality.

> **85 percent of the poor lived in rural areas but they were served by only 28 percent of the country's health workforce, and a mere 9 percent of its doctors.**

# SDI Results

## Availability of Key Inputs

Tanzania performed relatively well in the availability of basic medical equipment such as stethoscopes, thermometers, or weighing scales. However, access to basic infrastructure and drug availability remained major challenges. Only half the facilities in Tanzania had the required components for infrastructure. Drug availability, particularly, for mothers and children was also poor.

**Drugs.** On average, 60 percent of the drugs were available in the Tanzanian facilities. The level of availability of the 14 tracer drugs was similar at 60 percent. With just above half (53 percent) of the tracer drugs available, public facilities had a significantly lower score compared to the private ones (e.g. 84 percent for private for-profit facilities). It is alarming that only 8 percent facilities had all the tracer drugs available. Virtually no rural public facility (1 percent) had all the tracer drugs on stock and unexpired. Neither drugs for children nor drugs for mothers were widely available with average scores of 59 percent and 49 percent, respectively. Given the national concern about maternal mortality and efforts to improve maternal health outcomes, the availability of tracer drugs for women was unsettlingly low. Rural facilities did consistently and significantly worse than urban facilities in terms of drugs availability.

**Infrastructure.** Only half (50 percent) of the health facilities had access to clean water, improved toilets, and electricity. There was a large difference, however, between rural and urban facilities (36 percent for public vs. 79 percent urban). Rural health

facilities particularly lacked access to electricity and clean water, a critical input in the health sector. The infrastructure indicator steadily improved with the level of the facility starting from 44 percent for dispensaries and reached 75 percent for health centers and 87 percent for district hospitals. However, a larger share of dispensaries in Dar es Salaam had a better access to infrastructure (85 percent) when compared to health centers in rural areas (52 percent).
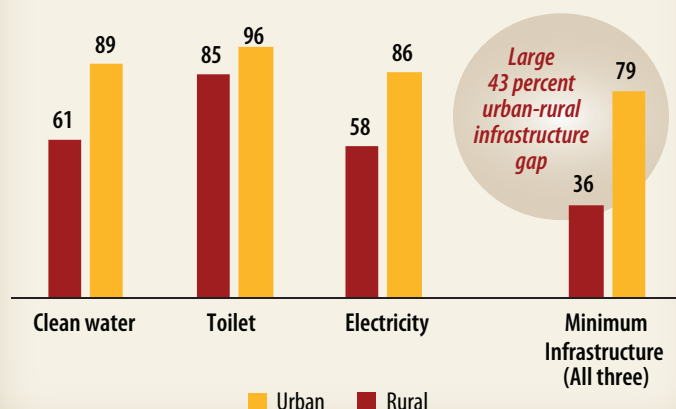
Seventy percent of facilities in Tanzania had access to clean water and 67 percent had access to electricity. The public sector lagged the private sector for all three basic infrastructure but the gap was especially important for access to clean water. This gap was mostly driven by the rural public sector (56 percent) which itself was far behind the urban public sector (81 percent).

## Provider effort: What providers do?

In countries which experience shortages in human resources for health, it is usually a concern that health workers are overworked i.e. their caseload is unsustainably high potentially compromising the quality of service. In Tanzania, however, the SDI data suggest that a large share of health providers, especially those in moderately sized facilities, had very low caseload levels.

The average caseload in Tanzania stood at 7.3 outpatients per provider per day. Private for profit facilities had the highest, albeit still low, daily caseload with 10.8 outpatients seen by the average health provider. The outpatient workload decreased with the size of the facility with district hospital staff consulting only 3.8 patients per day. Health staff that worked in urban dispensaries were the busiest and saw 11.5 outpatients a day. Despite the shortage in health personnel, providers' caseload in Tanzania was low suggesting that there was room for a significant

**FIGURE 1: Rural-Urban contrast in availability of key inputs (percent of facilities)**



Large 43 percent urban-rural infrastructure gap

| | Clean water | Toilet | Electricity | Minimum Infrastructure (All three) |
| --- | --- | --- | --- | --- |
| Urban | 89 | 96 | 86 | 79 |
| Rural | 61 | 85 | 58 | 36 |

improvement of health providers' productivity without jeopardizing quality.

Compared to African as well as Asian standards, absenteeism in Tanzania's health sector was relatively low at 14 percent. It also improved as it went down from 21 percent in 2010. Absenteeism was higher in Dar es Salaam where 21 percent health providers were absent. Absence was particularly high in Dar es Salaam's health centers (22 percent) and hospitals (25 percent). Staff in private not-for-profit facilities were as likely to be absent as those in public or other private facilities (difference in absence rates were positive but not statistically significant).

Four major themes were observed in relation to absence rate: (i) Absence rates were similar in dispensaries while significant differences were observed in health centers; (ii) Facilities with staff in excess of six workers relative to facilities with 2 or fewer workers were found to have higher absence rates; and (iii) 1-in-3 urban doctor was absent from the facility at any point in time; and (iv) While absence in private (non-profit) facilities was 40 percent lower than public facilities, this was not statistically significant after controlling for other factors.

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Absenteeism was more acute for doctors compared to other staff. Clinical officers and nurses were equally likely to be absent, but they were also more likely to be absent than para-professionals. Urban doctors (35 percent) were almost three more likely to be absent than their counterparts serving in rural areas (14 percent). This may be due to opportunities for moonlighting or other income generating activities. In a more sophisticated regression analysis, very small facilities with 1 or 2 health workers still had a much lower absence rate. In terms of health providers'
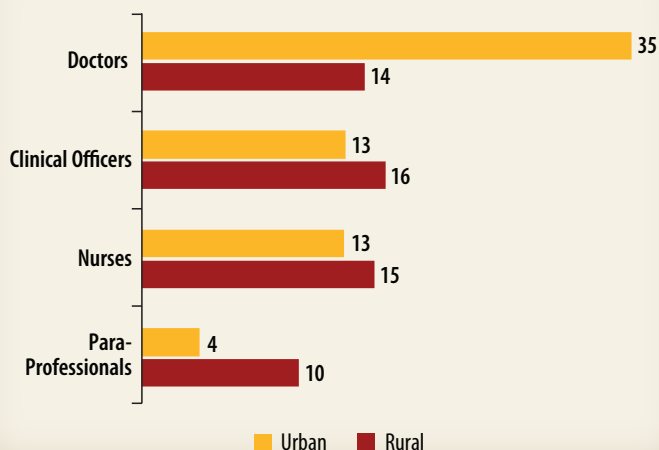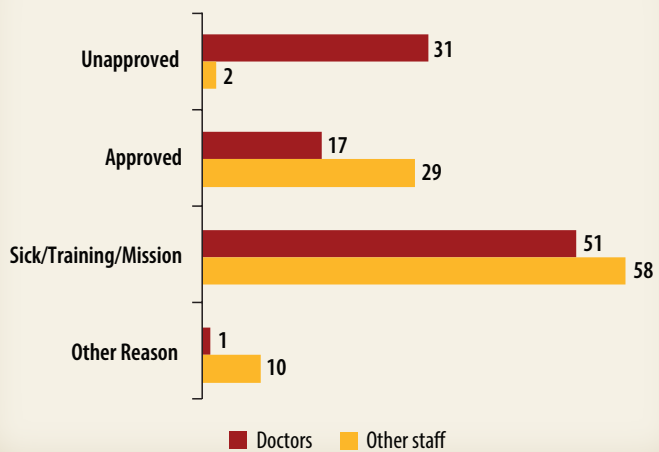


**FIGURE 2: Absence rates by cadre (percent)**

Doctors — Urban 35, Rural 14
Clinical Officers — Urban 13, Rural 16
Nurses — Urban 13, Rural 15
Para-Professionals — Urban 4, Rural 10

■ Urban   ■ Rural



**FIGURE 3: Reasons for absence (percent of all absences)**

Unapproved — Doctors 31, Other staff 2
Approved — Doctors 17, Other staff 29
Sick/Training/Mission — Doctors 51, Other staff 58
Other Reason — Doctors 1, Other staff 10

■ Doctors   ■ Other staff

characteristics, age was mildly negatively correlated with absence.

The survey found that the overwhelming share (88 percent) of absence was in fact sanctioned or approved absence. It is possible that absence can be improved by more prudent sanctioning policy of absence. This suggests that management improvements and better organization and management of staff can potentially improve the availability of staff for service delivery.

## Provider Ability: What providers know?

The SDI survey assessed provider ability and knowledge using two process quality indicators (the adherence to clinical guidelines in five common conditions, and the management of two maternal and newborn complications), and an outcome quality indicator (diagnostic accuracy in five common conditions).

Providers were able to correctly diagnose 60 percent of the five common conditions. Urban providers as a whole significantly outperformed their rural counterparts (66 percent of cases versus 50 percent of cases). Across cadres, clinical officers performed on par with doctors but nurses' score was just slightly above half that of clinical officers. It is also noteworthy that private-for-profit providers (54 percent) performed worse than providers in both the public (60 percent) and not-for-profit sectors (66 percent). Within the public sector, rural providers found less than half (44 percent) of the cases. The best performers are doctors in rural facilities who accurately diagnosed 85.4 percent of cases. Nurses in faith-based organizations performed the worst, correctly diagnosing only 22 percent of cases.

Only 2 out of 5 providers were able to correctly diagnose at least 4 of the conditions and 1 out of 5 managed to correctly diagnose all 5 conditions. Three out of 5 providers could not identify a case of severe dehydration, a fatal condition for children. On the other hand, almost 20 percent of the providers could not correctly diagnosed more than one case. Only 3 percent of the nurses correctly diagnosed all 5 cases, and almost half of them (45 percent) diagnosed at most one case. Clinical officers were the best performers as 31 percent of them diagnosed all cases, a feat managed by only 20 percent of doctors. The diagnostic accuracy rate varied across case conditions, ranging from 39 percent for acute diarrhea with severe dehydration to 92 percent for pulmonary tuberculosis. Almost half of the providers could not diagnose diabetes, and about 1 in 4 health providers misdiagnosed pneumonia. Even for very common, but dangerous,

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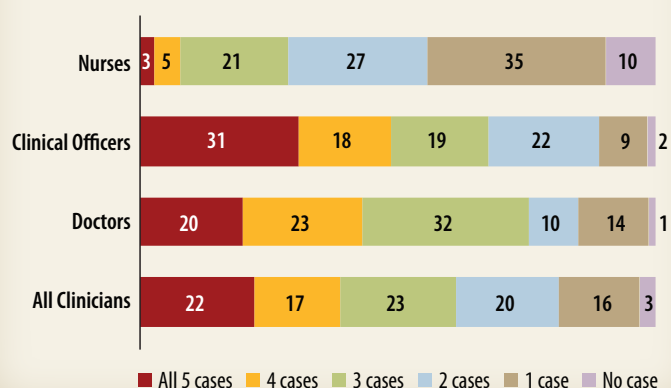
conditions such as acute diarrhea with severe dehydration or malaria with anemia, more than half clinicians were unable to offer correct diagnosis for the former; 3-in-5 clinicians failed the latter.

Due to the significance of malaria in Tanzania's burden of disease a closer look was taken at the malaria case. The diagnosis of malaria with anemia was the second least accurate at 45 percent, although a very large majority (89 percent) of providers arrived at the diagnosis of malaria the majority among them did not take the additional required step to identify the presence of anemia.

### *Did providers adhere to guidelines for maternal and neonatal complications? When providers correctly diagnosed the condition did they provide the adequate treatment?*

Although Tanzania has surpassed the Millenium Development Goals (MDGs) related to infant and under-5 mortality rates, neonatal mortality barely contributed to this achievement. Indeed, under-five mortality decreased from 143 per 1000 live birth to 81 per 1000 live births between 1996 and 2010, while neonatal mortality went from 31 to a mere 26 per 1000 live births. Between 2006 and 1000 one third of the Tanzanian children who did not live to celebrate their fifth birthday actually died right after birth.[2] As for neonatal mortality, maternal mortality rate is not improving fast enough if at all[3] and Tanzania already missed the marked for the MDGs, and is unlikely to

**FIGURE 4: Diagnostic accuracy (percent providers who correctly diagnosed number of clinical cases)**



| | All 5 cases | 4 cases | 3 cases | 2 cases | 1 case | No case |
|---|---|---|---|---|---|---|
| Nurses | 3 | 5 | 21 | 27 | 35 | 10 |
| Clinical Officers | 31 | 18 | 19 | 22 | 9 | 2 |
| Doctors | 20 | 23 | 32 | 10 | 14 | 1 |
| All Clinicians | 22 | 17 | 23 | 20 | 16 | 3 |

2    "The proportion of infant deaths occurring in the first month of life is 55 percent in the period 0 to 4 years preceding the survey. Furthermore, […]; 72 percent of neonatal deaths were early neonatal deaths." [2010 TDHS report]
3    Maternal mortality decreased from 578 in 2004-05 to 454 in 2010 according to the 2010 DHS but that decrease was not statistically significant although it suggest a declining trend has started.

meet the Sustainable Development Goals (SDGs) related to maternal mortality. Maternal and neonatal mortality are therefore two critical areas where the Tanzanian health system needs to register some progress.

The process quality indicator is clinicians' ability to manage maternal and neonatal complications. Overall, providers adhered to only 30 percent of the clinical guidelines for managing maternal and newborn complications. Doctors were again more likely to adhere more closely although they followed only 36 percent of clinical guidelines.

Less than 1 percent of providers adhered to at least 75 percent of the guidelines for the two maternal and neonatal complications. Using a lower threshold of 50 percent, only 20 percent of providers adhered to at least half of the treatment actions for each of the two complications.

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**Although providers correctly diagnosed 60 percent of the conditions they provide the full correct treatment in only 44 percent of the cases.**

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For the other 5 common conditions, public providers adhered to only 44 percent of the clinical guidelines for managing maternal and newborn complications, a rate similar to private providers (46 percent). This process quality was also found to progressively decline by cadre type, with the observed differences between rural public and urban public providers observed to be statistically significant: 48 percent difference between rural and urban among doctors to 16 percent difference between rural and urban nurses. The lowest scores for adherence to clinical guidelines were among rural public nurses at 39 percent compared to 49 percent among their urban counterparts (percent difference of 23). The implication is that when a child or adult patient receives treatment for very basic conditions like diarrhea or diabetes from a rural nurse only about two fifths of the country's clinical guidelines will be followed.

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**FIGURE 5:** Diagnostic and Treatment Accuracy (% providers offering correct diagnosis and treatment).
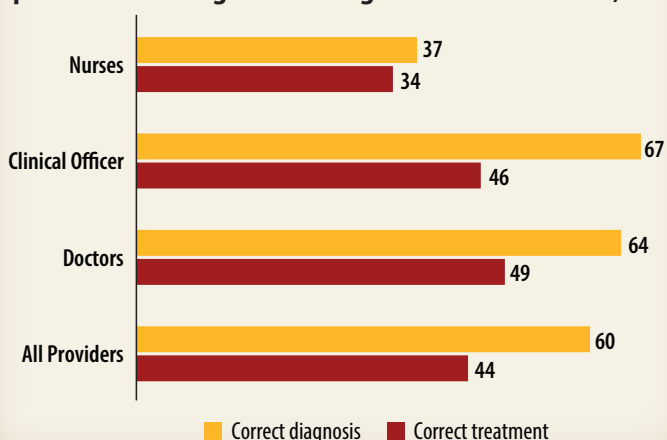
treatment in only 44 percent of the cases. Clinical officers displayed the largest gap between the correct diagnosis and the correct treatment. Interestingly, nurses have a low diagnostic accuracy score but in contrast to doctors and clinical officers they provide the right treatment nearly every time they correctly diagnose the condition presented to them. Still they lagged behind better trained providers in the share of correct treatments.

Ideally any patient seeking care would like to walk out of a health facility with both a correct diagnostic and a relevant and complete treatment. If 92 percent of health providers correctly diagnosed the pulmonary tuberculosis case only 1-in-10 (12 percent) could provide the complete treatment resulting in only 11 percent providers finding both the diagnostic and providing the treatment. TB appears as an extreme case with high diagnostic accuracy but very low treatment accuracy. Malaria with anemia is the other case where only 10 percent of the patients will walk out of the facility with a satisfactory outcome. For diabetes, only half of the providers correctly diagnosed the case but then once diagnosed nearly all of them (97 percent) gave the adequate treatment.

### What would providers do differently without technical capacity constraints?

Sometimes providers do know what they should do but were just constrained by the technical capacity at their disposal. For instance, for neonatal resuscitation the provider might not have any bag or mask for that purpose and then the provider would just respond with what she could do when faced with that case in the facility. Providers were asked what they would do

differently if they were in a facility that provides all necessary material and technology needed to diagnose and treat the patient.

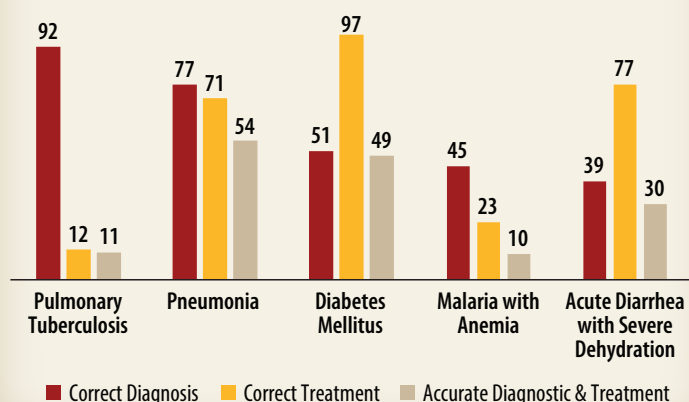**FIGURE 6: Diagnostic accuracy and treatment accuracy in 5 common conditions**

| | Pulmonary Tuberculosis | Pneumonia | Diabetes Mellitus | Malaria with Anemia | Acute Diarrhea with Severe Dehydration |
|---|---|---|---|---|---|
| Correct Diagnosis | 92 | 77 | 51 | 45 | 39 |
| Correct Treatment | 12 | 71 | 97 | 23 | 77 |
| Accurate Diagnostic & Treatment | 11 | 54 | 49 | 10 | 30 |

**FIGURE 7: Tanzania's service delivery performance in the EAC.**

| | Absence Rate | Drug Availability | Diagnostic Accuracy | Maternal & Neonatal Complications | Equipment Availability | Infrastructure Availability |
|---|---|---|---|---|---|---|
| Tanzania 2014 | 14 | 60 | 60 | 30 | 84 | 50 |
| Kenya 2012 | 28 | 54 | 72 | 45 | 76 | 47 |
| Uganda 2013 | 47 | 47 | 58 | 19 | 22 | 64 |
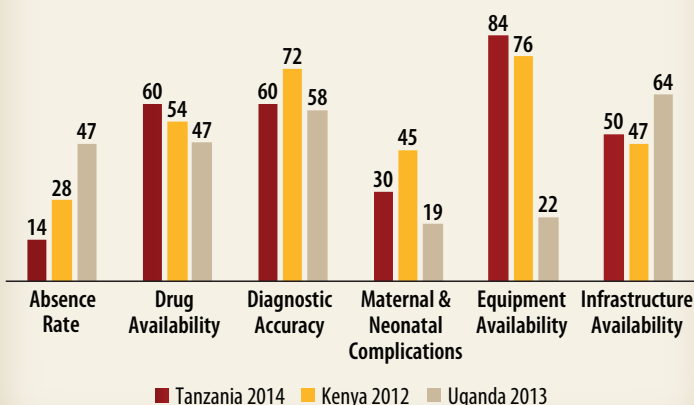
**FIGURE 8: Trends in service delivery in Tanzania.**

| | Tanzania 2010 | Tanzania 2014 |
|---|---|---|
| Infrastructure availability | 19 | 50 |
| Equipment availability | 78 | 84 |
| Diagnostic accuracy | 57 | 60 |
| Absence rate | 21 | 14 |

Two important laboratory tests to diagnose pulmonary tuberculosis are sputum examination and a chest X-ray which is usually done in case of a smear negative TB test or at the end of outpatient treatment. All of the providers who got the diagnosis right after probing requested a sputum examination and 73 percent requested a chest X-ray. For those who still did not get the correct diagnosis, 47 percent would have requested a sputum examination and 59 percent a chest X-ray. Even among those who correctly diagnosed the condition from the start, 15 percent said they would do a sputum examination and twice as many would ask for the X-ray. Tanzanian health providers faced severe technical constraints that hampered their ability to reach the correct diagnosis and provide the correct treatment.

### How does Tanzania compare EAC neighbors, other African countries, and itself over time?

Compared to its EAC neighbors such Uganda and Kenya, Tanzania performed fairly well on the quality of service delivery.

Kenyan and Ugandan providers were respectively twice and three times more likely to be absent than their Tanzanian counterparts. Tanzanian facilities had also more drugs on stock and equipment compared to facilities in neighboring countries. In terms of diagnostic accuracy, Kenyan providers outperformed Tanzanians and Ugandans who performed at par. For maternal and neonatal complications, Kenyans again outperformed Tanzanians who bested Ugandans. Generally speaking, the three EAC countries performed better than Mozambique, Nigeria, Senegal, and Togo.

Tanzania made also noticeable progress in almost all areas of service delivery between 2010 and 2014. The most impressive progress were in reducing the absence rate which dropped by more than 30 percent,

and access to infrastructure which almost tripled from 19 percent in 2010 to 50 percent in 2014. Equipment availability and diagnostic accuracy also slightly improved. It must however be noted that diagnostic accuracy in rural areas deteriorated.

## What does this mean for Tanzania?

Progress has been made in Tanzania's health sector, however, more can be done to improve service delivery. Perception of quality at facilities is often a deciding factor in service utilization. Like many countries, Tanzania faces an inequitable geographic distribution of service quality. Quality and provider availability is often best in urban areas, particularly in Dar es Salaam. While Dar es Salaam is home to about 10 percent of the population, about 45 percent of the country's doctors are concentrated in Dar es Salaam.[4] The availability of medical equipment and diagnostic accuracy are also higher in urban areas than rural areas. Attention

4 World Bank. 2015. *Tanzania - Strengthening Primary Health Care for Results Program Project.* Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/2015/05/24481589/ tanzania-strengthening-primary-health-care-results-program-project

needs to be paid to reducing geographic inequality in the quality of services available to the citizens.

A major challenge for Tanzania's health sector is the shortage of skilled human resources for health (HRH). This survey found that provider knowledge and abilities were not adequate to deliver quality services. Caseload per provider and absenteeism are relatively low, so the issue is not over-burdened providers. There seems to be ample room for a significant increase in the caseload of Tanzanian providers, i.e. the level of productivity in health service delivery, without jeopardizing quality. In addition to increasing the volume of skilled HRH to address the shortage of providers, improvements in management, supervision and training is important to improving service delivery. Health for all in Tanzania will mean the simultaneous availability of widely accessible inputs and skilled providers.

Finally to improve the quality of health care it is important that other measures such as the motivation of health providers, or systemic issues which are not covered in SDI that require attention from all stakeholders be addressed.

# At-a-Glance

**TABLE 1:** SDI Health Indicators by Geographic Area: Ability, Efforts and Inputs Across Countries

| | Tanzania 2014 | Kenya 2012 | Senegal 2010 | Tanzania 2010 | Uganda 2013 | Togo 2013 | Nigeria 2013 | Mozambique 2014 |
|---|---|---|---|---|---|---|---|---|
| **What providers do (effort provider)** | | | | | | | | |
| **Caseload** (per provider per day) | 7.3 | 15.2 | - | - | 6.0 | 5.2 | 5.2 | 17.4 |
| Absence from facility (% providers) | 14.3 | 27.5 | 20 | 21 | 46.7 | 37.6 | 31.7 | 23.9 |
| **What providers know (provider ability)** | | | | | | | | |
| **Diagnostic accuracy** (% clinical cases) | 60.2 | 72.2 | 34 | 57 | 58.1 | 48.5 | 39.6 | 58.3 |
| **Adherence to clinical guidelines** (% percent clinical cases) | 43.8 | 43.7 | 22 | 35 | 41.4 | 35.6 | 31.9 | 37.4 |
| **Management of maternal and neonatal complications** (% clinical cases) | 30.4 | 44.6 | - | - | 19.3 | 26.0 | 19.8 | 29.9 |
| **What providers have to work with (availability of inputs)** | | | | | | | | |
| **Drug availability** (% drugs) | 60.3 | 54.2 | 78 | 76 | 47.2 | 49.2 | 49.2 | 42.7 |
| **Equipment availability** (% facilities) | 83.5 | 76.4 | 53 | 78 | 21.9 | 92.6 | 21.7 | 79.5 |
| **Infrastructure Availability** (% facilities) | 50.0 | 46.8 | 39 | 19 | 63.5 | 39.2 | 23.8 | 34.0 |

**TABLE 2:** SDI Health Indicators by Geographic Area: Ability, Efforts, and Inputs Across Tanzania

| Indicators | TANZANIA | Public | Private (non-profit) | Private (for-profit) | Rural | Urban | Rural Public | Urban Public |
|---|---|---|---|---|---|---|---|---|
| *What providers do (effort provider)* | | | | | | | | |
| **Caseload** (per provider per day) | 7.3 | 7.1 | 5.7 | 10.8 | 6.4 | 9.5 | 6.9 | 7.8 |
| **Absence from facility** (% providers) | 14.3 | 13.9 | 17.0 | 12.8 | 14.4 | 16.4 | 15.1 | 13.4 |
| *What providers know (provider ability)* | | | | | | | | |
| **Diagnostic accuracy** (% clinical cases) | 60.2 | 59.9 | 65.9 | 54.2 | 50.0 | 62.3 | 43.9 | 70 |
| **Adherence to clinical guidelines** (% clinical cases) | 43.8 | 43.7 | 45.5 | 42.1 | 37.7 | 46.7 | 34.1 | 49.6 |
| **Management of maternal and neonatal complications** (% clinical cases) | 30.4 | 31.3 | 30.1 | 26.4 | 25.7 | 32.0 | 24.1 | 35.7 |
| *What providers have to work with (availability of inputs)* | | | | | | | | |
| **Drug availability** (% drugs) | 60.3 | 58.9 | 66.0 | 62.8 | 56.2 | 69.4 | 55.3 | 71.6 |
| **Equipment availability** (% facilities) | 83.5 | 81.7 | 92.5 | 84.5 | 80.7 | 87.6 | 79.8 | 88.5 |
| **Infrastructure availability** (% facilities) | 50.0 | 40.6 | 66.9 | 91.2 | 36.0 | 79.2 | 33.5 | 65.8 |

## Annex. Definition of the Health Service Delivery Indicators

**Caseload per health provider**

| | |
|---|---|
| Number of outpatient visits per clinician per day. | The number of outpatient visits recorded in outpatient records in the three months prior to the survey, divided by the number of days the facility was open during the three-month period and the number of health professionals who conduct patient consultations (i.e. excluding cadre-types such as public health nurses and out-reach workers). |

**Absence rate**

| | |
|---|---|
| Share of a maximum of 10 randomly selected providers absent from the facility during an unannounced visit. | Number of health professionals that are not off duty who are absent from the facility on an unannounced visit as a share of ten randomly sampled workers. Health professionals doing fieldwork (mainly community and public health professionals) were counted as present. |

**Diagnostic accuracy**

| | |
|---|---|
| Average share of correct diagnoses provided in the five clinical cases. | For each of the following five clinical cases: (i) acute diarrhea; (ii) pneumonia; (iii) diabetes mellitus; (iv) pulmonary tuberculosis; (v) malaria with anemia. For each clinical case, assign a score of one as correct diagnosis for each clinical case if diagnosis is mentioned. Sum the total number of correct diagnoses identified. Divide by the total number of clinical cases. Where multiple diagnoses were provided by the clinician, the diagnosis is coded as correct as long as it is mentioned, irrespective of what other alternative diagnoses were given. |

**Adherence to clinical guidelines**

| | |
|---|---|
| Unweighted average of the share of relevant history taking questions, the share of relevant examinations performed. | For each of the following five clinical cases: (i) acute diarrhea; (ii) pneumonia; (iii) diabetes mellitus; (iv) pulmonary tuberculosis; (v) malaria with anemia. History Taking Questions: Assign a score of one if a relevant history-taking question is asked. The number of relevant history taking questions asked by the clinician during consultation is expressed as a percentage of the total number of relevant history questions included in the questionnaire. Relevant Examination Questions: Assign a score of one if a relevant examination question is asked. The number of relevant examination taking questions asked by the clinician during consultation is expressed as a percentage of the total number of relevant examination questions included in the questionnaire. For each clinical case: Unweighted average of the: relevant history questions asked, and the percentage of physical examination questions asked. The history and examination questions considered are based on the Nigeria National Clinical Guidelines and the guidelines for Integrated Management of Childhood Illnesses (IMCI). |

**Management of maternal and neonatal complications**

| | |
|---|---|
| Share of relevant treatment actions proposed by the clinician. | For each of the following two clinical cases: (i) post-partum hemorrhage; and (ii) neonatal asphyxia. Assign a score of one if a relevant action is proposed. The number of relevant treatment actions proposed by the clinician during consultation is expressed as a percentage of the total number of relevant treatment actions included in the questionnaire. |

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| | |
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**Drug availability**

| | |
|---|---|
| Share of basic drugs which at the time of the survey were available at the health facilities. | Priority medicines for mothers: Assign score of one if facility reports and enumerator confirms/observes the facility has the drug available and non-expired on the day of visit. The list of priority drugs can be accessed from the Technical report. The aggregate is adjusted by facility type to accommodate the fact that not all drugs (injectables) are expected to be at the lowest level facility, dispensaries/health posts where health workers are not expected to offer injections. |

**Equipment availability**

| | |
|---|---|
| Share of facilities with thermometer, stethoscope and weighing scale, refrigerator and sterilization equipment. | Assign score of one if enumerator confirms the facility has one or more functioning of each of the following: thermometers, stethoscopes, sphygmonometers and a weighing scale (adult, child, or infant weighing scale) as defined below. Health centers and first level hospitals are expected to include two additional pieces of equipment: a refrigerator and sterilization device/equipment. |

**Infrastructure availability**

| | |
|---|---|
| Share of facilities with all three items: electricity and water and sanitation. | Infrastructure aggregate: Assign score of one if facility reports and enumerator confirms facility has electricity and water and sanitation as defined. Electricity: Assign score of one if facility reports having the electric power grid, a fuel operated generator, a battery operated generator or a solar powered system as their main source of electricity. Water: Assign score of one if facility reports their main source of water is piped into the facility, piped onto facility grounds or comes from a public tap/standpipe, tubewell/borehole, a protected dug well, a protected spring, bottled water or a tanker truck. Sanitation: Assign score of one if facility reports and enumerator confirms facility has one or more functioning flush toilets or VIP latrines, or covered pit latrine (with slab). |

## *About the SDI surveys*

The SDI survey was conducted between May and September 2014. The fieldwork involved collecting information from 400 primary schools, 3,692 teachers regarding absence, 2,196 teachers for knowledge assessment, and 4,041 pupils who sat a test. The results provide a representative snapshot of the quality of service delivery and the physical environment within which education services are delivered in Tanzania's primary schools. The survey provides information on three dimensions of service delivery: measures of (i) provider's effort; (ii) provider's knowledge and ability; and (iii) the availability of key inputs, such as chalk, pencils, notebooks, or a blackboard, basic equipment and infrastructure (such as availability of toilet, clean water, etc.). Tanzania was a pioneer SDI country in 2010 and the first country to implement a follow up SDI allowing trend analysis in service delivery. SDI surveys are rapidly expanding and have been implemented in eight countries: Kenya, Mozambique, Niger, Nigeria, Senegal, Tanzania, Togo, and Uganda. This allows for comparison across countries and benchmarking of country performance.

## *The Service Delivery Indicators (SDI) Program*

The SDI initiative is a partnership of the World Bank, the African Economic Research Consortium (AERC), and the African Development Bank to develop and institutionalize the collection of a set of indicators that would gauge the quality of service delivery within and across countries and over time. The ultimate goal is to sharply increase accountability for service delivery across Africa, by offering important advocacy tools for citizens, governments, and donors alike; to work toward the end goal of achieving rapid improvements in the responsiveness and effectiveness of service delivery.

More information on the SDI survey instruments and data, and more generally on the SDI initiative can be found at: www.SDIndicators.org and www.worldbank.org/SDI, or by contacting SDI@worldbank.org.

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