Service Availability and Readiness Assessment (SARA)

A methodology for measuring health systems strengthening
Why Measuring health services availability and readiness:

- More demand for accountability and to demonstrate results at country and global level
- Information needed to track how health systems respond to increased inputs and improved outputs and impact on health outcomes
- Need for strong country monitoring system of facilities and their readiness to deliver services (that includes public and private sectors):
  - Key to achieving MDGS – e.g. interventions to reduce child mortality, maternal mortality
  - Scaling up response against major diseases, disease outbreaks, and other events
  - Planning and managing health system (HR, essential services, drug supply, equipment)
  - Guiding country and partner investments ("evidence-based" policy)
- Implies need for core indicators of service availability and readiness and appropriate sustainable measurement strategies to generate required data over time
Ensuring access to quality health services is one of the main functions of the health system.

**ACCESS**

- **Physical access – Availability**
- Economic access – affordability
- Cultural access – e.g. gender and ethnic issues between patient and provider

**MEASUREMENT of Availability**

- **Statistics**
  - Distribution within country
  - Density per 10,000 population → availability

- **Indicators**
  - Facilities, beds
  - Health workforce
  - Outpatient utilization; inpatient discharge rates
Quality components

**Readiness**
- **Capacity of health facilities to provide health services**

**Execution of the service**
- Does the provider carry out the right actions?
- Does this result in the right actions by the patient?
- Measurement: exit interviews, patient provider observation, mystery client; follow up studies of patients

**Need for tracer conditions to monitor quality**

**MEASUREMENT of Readiness**
- Readiness index
- **General and service specific Indicators**
  - Trained staff and guidelines
  - Availability of equipment
  - medicines and commodities, diagnostics
  - Infection control
Framework for M&E of health systems strengthening

**Indicator domains**

- **Governance**
- **Financing**
- **Facility workforce**
- **Supply chain**
- **Information**

**Data collection**

- **Administrative sources**
  - Financial tracking system; NHA
  - Databases and records: HR, infrastructure, medicines etc.
  - Policy data

- **Facility assessments**
- **Population-based surveys**
  - Coverage, health status, equity, risk protection, responsiveness

**Analysis & synthesis**

- Data quality assessment; Estimates and projections; Use of research results;
  - Assessment of progress and performance; Evaluation

**Communication & use**

- Targeted and comprehensive reporting; Regular country review processes; Global reporting

**Outputs**

- Intervention access & services readiness
- Intervention quality, safety and efficiency

**Outcomes**

- Coverage of interventions
- Prevalence risk behaviours & factors

**Impact**

- Improved health outcomes & equity
- Social and financial risk protection
- Responsiveness

**Inputs & processes**

- Improved health outcomes & equity
- Social and financial risk protection
- Responsiveness

**World Health Organization**
Measuring health systems strengthening: Service Availability and Readiness

- **Global core set of indicators** and measurement methods to detect change and monitor progress in HSS

- **Measurement tool for Service Availability and Readiness** to address critical data gaps in service availability and readiness
  - **Availability**: Physical presence of services
  - **Readiness**: Capacity to deliver services

- Builds on experiences of SAM, SPA working with USAID and partners to scale up SARA in countries
Main domains assessed

To generate reliable information on

1) Service Availability
   – Facility density, health worker density, service utilization

2) Service readiness
   – Basic amenities, equipment & supplies, diagnostics, essential medicines & commodities

3) Specific service readiness areas:
   – Family planning, antenatal care
   – Obstetric care
   – Neonatal care and child health (curative, immunization)
   – HIV, PMTCT, TB, Malaria
   – Chronic Diseases
Index of tracer items for scores

- Needs adequate number of tracer items that capture different aspects of service delivery

- Provides objective information whether or not a facility meets a required condition

- Can be summarized using summary or composite indicators or "indices"
  - As mean or median or conditional score (all items for a minimum standard are met)
  - As a score of all items or of domains (item groups)
(1) Service availability

1. Infrastructure
   a. Facility density
   b. Inpatient bed density
   c. Maternity bed density

2. Workforce
   d. Core health workers density

3. Service utilization
   e. Outpatient visits
   f. Inpatient visits (admission)
Density of health facilities per 10,000 population, and by management authority, 15 districts, Tanzania 2008/09

- On average, there are 1.5 facilities per 10,000 population
- Global target: 2
- Ownership varies
Density of core health personnel,
15 districts, Tanzania 2008/09

- On average, there are 7.2 core health professionals per 10,000 population.
- WHO target: 23

Figure 5. Density of core medical personnel per 10,000 population
By 15 districts, United Republic of Tanzania, 2008–2009.

Note: Core medical personnel include physicians, assistant medical officers and clinical officers, registered nurses and registered midwives.
The proportion of core health workers who were present was 71% for physicians and non-physician clinicians and 63% for registered nurses and midwives.

Expected presence of personnel is around 75-80%.
The training intensity score was 33%.

The average guideline availability was 28% of 19 selected topics.

The most common training topics were malaria (64%), PMTCT (51%), and HIV counselling and testing (50%).
How to score = Rate/benchmark*100%

- **Facility density**: usually there is a country target, such as at least one facility per 5,000 population, or 2 per 10,000.

- **Inpatient beds**: the global average is 27 per 10,000, lower and upper middle income countries have 18 and 29 hospital beds per 10,000 respectively. As arbitrary benchmark 30 per 10,000 is selected.

- **Maternity beds**: under the assumption that there should be sufficient beds for all pregnant women with an occupancy rate of 50% (to account for the uneven spread of demand over time) and a mean duration of stay of 4.5 days, the target should be \(2 \times \frac{4.5}{365} \times 1000 = 25\) per 1,000 pregnant women.

- **Health workers**: the WHO has published a figure of 23 per 10,000 population.

- **Outpatient service utilization**: in the OECD countries, the average number of physician consultations per person per year is about 6. The proposed benchmark is 5 visits per person per year.

- **Inpatient service utilization**: in the OECD countries, which have an ageing population, there are about 15 discharges per 100 population per year. 10 discharges per 100 people per year is proposed as a benchmark.
2. General service readiness

1. Basic amenities: % facilities with 7 items (power, improved water source, room with privacy, adequate sanitation facilities, communication equipment, access to computer with internet, emergency transportation)

2. Basic equipment: % facilities with 7 items (blood pressure apparatus, stethoscope, adult scale, infant scale, child scale, thermometer, and light source)

3. Standard precautions: % facilities with 13 items (sterilization equipment, safe disposal of sharps and infectious wastes, sharps box, waste receptacle, disposable syringes, disinfectant, hand-washing soap and water or alcohol based hand rub, latex gloves, masks, gowns, eye protection, and guidelines)

4. Laboratory capacity: % facilities with 12 items (hemoglobin, blood glucose, malaria diagnostic capacity, urine dipstick- protein, urine dipstick- glucose, HIV diagnostic capacity, DBS collection, TB microscopy, syphilis RDT, general microscopy, urine pregnancy test, ALT and creatinine)

5. Essential medicines: % of 14 essential medicines available
2010: 18 districts surveyed, 559 facilities analyzed
2008: GFE 9 districts surveyed, 384 facilities analyzed
Basic amenities
Percentage of facilities with all 5 basic amenities* (excluding computer/internet)

17 districts, Zambia 2010

• Overall, 30% of facilities had the 5 basic amenities (excluding computer/internet)

• If we consider all 6 items (including access to computer/internet), the average proportion of facilities with all items drops to under 10% (shown with crosses)

* Power, improved water source, sanitation facilities, communication equipment, emergency transportation.
** Five items above plus computer with internet/email access.
Mean percentage of basic amenities* available in facilities

17 districts, Zambia 2010

• On average, facilities have 4 out of the 6 (65%) basic amenities items

*Basic amenities consist of the following 6 items: power, improved water source, sanitation facilities, communication equipment, computer with internet/email, emergency transportation.
Mean percentage of basic amenities* available in facilities

17 districts, Zambia 2010

- Computer with internet/email was the least available amenity, generally present only in urban districts.

* Basic amenities consist of the following 6 items: power, improved water source, improved sanitation facilities, communication equipment, computer with internet/email, emergency transportation.
Basic equipment
Percentage of facilities with all 6 basic equipment items*
17 districts, Zambia 2010

- On average, about 4 in 10 (43%) facilities had all 6 basic equipment items.
- Facilities in urban areas were more likely to have all items compared to rural facilities.

* Basic equipment consists of the following 6 items: adult scale, child scale, thermometer, stethoscope, sphygmomanometer & BP cuff, and light source.
Mean percentage of basic equipment items* available in facilities
17 districts, Zambia 2010

• On average, facilities have 5 of the 6 items (85%).

* Basic equipment consists of the following 6 items: adult scale, child scale, thermometer, stethoscope, sphygmomanometer & BP cuff, and light source.
Mean percentage of basic equipment items* available in facilities
17 districts, Zambia 2010

- On average, facilities have 5 of the 6 items.

- The least commonly available piece of equipment was a light source (crosses). Availability was much lower in rural districts compared to urban.

* Basic equipment consists of the following 6 items: adult scale, child scale, thermometer, stethoscope, sphygmomanometer & BP cuff, and light source.
Standard precautions
14% of facilities had all 9 tracer items.

* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.
Mean percentage of standard precaution items* available in facilities
17 districts, Zambia 2010

On average, facilities have 7 of the 9 items.

* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.
Sterilization equipment and masks were the least available items.

* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.
Laboratory
Laboratory tests consist of the following 9 items: hemoglobin, blood glucose, HIV RDT, syphilis RDT, malaria RDT or smear, TB microscopy, general microscopy, urine pregnancy test, urine dipstick.
• On average, facilities were able to conduct 4 of the 9 laboratory tests on site.

* Laboratory tests consist of the following 9 items: hemoglobin, blood glucose, HIV RDT, syphilis RDT, malaria RDT or smear, TB microscopy, general microscopy, urine pregnancy test, urine dipstick.
Mean percentage of laboratory tests* available on site in facilities
17 districts, Zambia 2010

- The most commonly available test was for malaria (RDT or smear).
- The least commonly available on site test was TB microscopy

* Laboratory tests consist of the following 9 items: hemoglobin, blood glucose, HIV RDT, syphilis RDT, malaria RDT or smear, TB microscopy, general microscopy, urine pregnancy test, urine dipstick.
Medicines & commodities
Percentage of facilities with all 14 essential medicines*
17 districts, Zambia 2010

- Very few facilities had all 14 essential medicines available.

* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.
On average, facilities had about half of the 14 essential medicines available.

* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.
Amoxicillin was the most commonly available medicine, simvastatin the least available.

* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.
• Medicines for NCDs were the least common, medicines for infectious diseases were the most common.

*Medications were grouped as follows:

**NCD:** salbutamol, glibenclamide, atenolol, captopril, simvastatin, amitriptyline, diazepam, omeprazole

**Infectious:** ciprofloxacin, co-trimoxazole, amoxicillin, ceftriazone,

**Pain:** diclofenac, paracetamol.
Summary index of general service readiness
Overall index of general service readiness

17 districts, Zambia 2010

- Overall facilities have mean readiness score of 64%
- With lowest readiness in the laboratory & medicines domains
3. Service specific readiness

- Family planning
- Maternal & newborn care
- Child health
- HIV/AIDS (VCT, PMTCT, ART)
- Malaria
- Tuberculosis
- Non-communicable diseases

"Readiness" to deliver services =
Trained staff + Guidelines + Equipment/supplies + Diagnostics + Medicines/commodities
Antenatal care readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

• Close to 100% of facilities had medicines for antenatal care (iron, folic acid, tetanus toxoid).

• Availability of diagnostics (hemoglobin and urine protein tests on site) was low across districts, with an overall availability of 40%.

*Tracer items for antenatal care include: blood pressure machine, stethoscope, hemoglobin test, urine protein test, iron tablets, folic acid tablets, tetanus toxoid.
Basic emergency obstetric care readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

• On average, facilities had 7 of 11 tracer items.

• Readiness appears higher in urban compared to rural districts.

* Tracer items for basic emergency obstetric care consist of the following 11 items: guidelines for BEmOC/IMPAC, emergency transport, examination light, suction apparatus, newborn bag and mask, partograph, gloves, eye prophylaxis, injectable uterotonic, magnesium sulphate, intravenous infusion kit.
Child health curative care readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

- On average, facilities have about 10 of the 12 tracer items.
- Availability of diagnostic tests (hemoglobin, stool parasite test, malaria) appears to be lowering overall readiness.

* Tracer items for child health curative care include: guidelines for IMCI, child scale, thermometer, growth charts, hemoglobin test, test for parasite in stool, malaria blood test, oral rehydration solution packet, amoxicillin, co-trimoxazole, paracetamol, albendazole.
Malaria

% facilities offering malaria services
17 districts, Zambia 2010

- Malaria services are offered in almost all facilities; reflective of the high burden of malaria in Zambia
Malaria readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

• On average, facilities had 4 out of 5 tracer items.

* Tracer items for malaria include: guidelines, malaria RDT or smear, ACT, fansidar, ITN bednets
HIV testing and counseling readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

• On average, facilities had 3 of the 4 tracer items.

• Male condoms were available in over 90% of facilities.

* Tracer indicators for HIV testing and counselling include: guidelines on HIV testing, guidelines on HIV/AIDS counselling, HIV rapid diagnostic test, and male condoms.
HIV testing and counseling readiness:
Mean percent of tracer items available*
8 districts, Zambia 2008 & 2010

- Increase in readiness seen in 7 of 8 districts.

* Tracer indicators for HIV testing and counselling include: guidelines on HIV testing, guidelines on HIV/AIDS counselling, HIV rapid diagnostic test, and male condoms.
HIV/AIDS care & support readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

- On average, facilities have 5 of 7 tracer items.
- Availability of medicines & commodities was relatively high across districts.

* Tracer items for HIV/AIDS care and support consist of the following 7 items: guidelines for HIV/AIDS opportunistic infection treatment and care, TB test, intravenous infusion kit, co-trimoxazole, first-line TB medications, diclofenac, and condoms.
Antiretroviral therapy
% facilities offering ART services
17 districts, Zambia 2010

• ART is offered in only 1 out of 3 facilities.
ART Readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

- On average, facilities have 4 of the 6 tracer items.
- Greater variability in readiness in rural and peri-urban districts.

* Tracer items for antiretroviral therapy consist of the following 6 items: guidelines, complete blood count, CD4 or viral load, blood urea levels, liver function test, and first-line antiretrovirals (TDF+FTC+EFZ/NVP).
PMTCT Readiness
Mean percent of tracer items available*
17 districts, Zambia 2010

- On average, facilities have 5 of 6 tracer items.

- Availability of medicines was relatively high across districts.

* Tracer indicators for PMTCT include: guidelines on PMTCT, guidelines on infant and young child feeding counselling, HIV diagnostic test, DBS testing, zidovudine, and nevirapine.
Tuberculosis

% facilities offering tuberculosis services
17 districts, Zambia 2010

- Lower percentage of facilities offering TB services in urban districts due to large number of private facilities: less than 30% of private facilities in Lusaka offered TB services.
- On average, 6 out of 10 facilities offer DOTS.
Tuberculosis readiness:
Mean percent of tracer items available*
17 districts, Zambia 2010

• On average, facilities have 3 of the 5 tracer items.

• Availability of diagnostic tests (TB microscopy, HIV test) appears to be lowering readiness.

* Tracer items for TB include: guidelines on diagnosis and treatment of TB, guidelines on management of HIV/TB co-infection, TB smear microscopy, HIV diagnostic test, and first-line TB medications (isoniazid, pyrazinamide, rifampicin, and ethambutal as separate drugs or in any fixed dosed combinations).
Tuberculosis readiness:
Mean percent of tracer items available*
8 districts, Zambia 2008 & 2010

- Small increase in readiness seen in 7 out of 8 districts between 2008 and 2010.

* Tracer items for TB include: guidelines on diagnosis and treatment of TB, guidelines on management of HIV/TB co-infection, TB smear microscopy, HIV diagnostic test, and first-line TB medications (isoniazid, pyrazinamide, rifampicin, and ethambutal as separate drugs or in any fixed dosed combinations).
Summary index of service-specific readiness
TB has a mean service readiness score of 70% (70% of tracer items are available)
Methodology
Service availability and readiness for health sector reviews: Methodology

- **Availability**: requires a national master list of health facilities
  - Provides data on the availability of services
  - Needs to be updated by districts
  - Repeat census of facilities every 5 years

- **Readiness**: sample of facilities by type, including public and private facilities
  - Sample size 150+ facilities for national domain (stratified by facility type, managing authority)
  - Consider combining with quality assessment of routine data

- **Execution**
  - Conduct about 4-6 months before health sector review date
  - National team
  - Use of electronic data collection and automated table production
### A system of service availability and readiness assessment

<table>
<thead>
<tr>
<th>Year</th>
<th>Master facility list</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Facility census</td>
</tr>
<tr>
<td>1</td>
<td>Updating from districts</td>
</tr>
<tr>
<td>2</td>
<td>Facility assessment (sample surveys) (With Rapid DQA)</td>
</tr>
<tr>
<td>3</td>
<td>Facility census</td>
</tr>
<tr>
<td>4</td>
<td>Facility census</td>
</tr>
<tr>
<td>5</td>
<td>Facility census</td>
</tr>
</tbody>
</table>
Process and budgeting

- Country adaptation of instrument and training of data collectors/supervisors

- Equipment
  - Data collection devices (e.g. PDAs, netbooks, laptops)
  - GPS units
  - Software – data collection (e.g. CSPro) and data analysis (e.g. Stata, SPSS, R..)

- Field survey
  - 2 person teams + driver (transport & per diem)
  - On average 2 facilities per day
  - Supervision

- Data processing, analysis and report writing

- Analytical /dissemination workshop (as part of the analytical reviews)
Thank You!

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