

# **Service Availability and Readiness Assessment (SARA)**

**A methodology for measuring health systems  
strengthening**



**World Health  
Organization**

# 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**

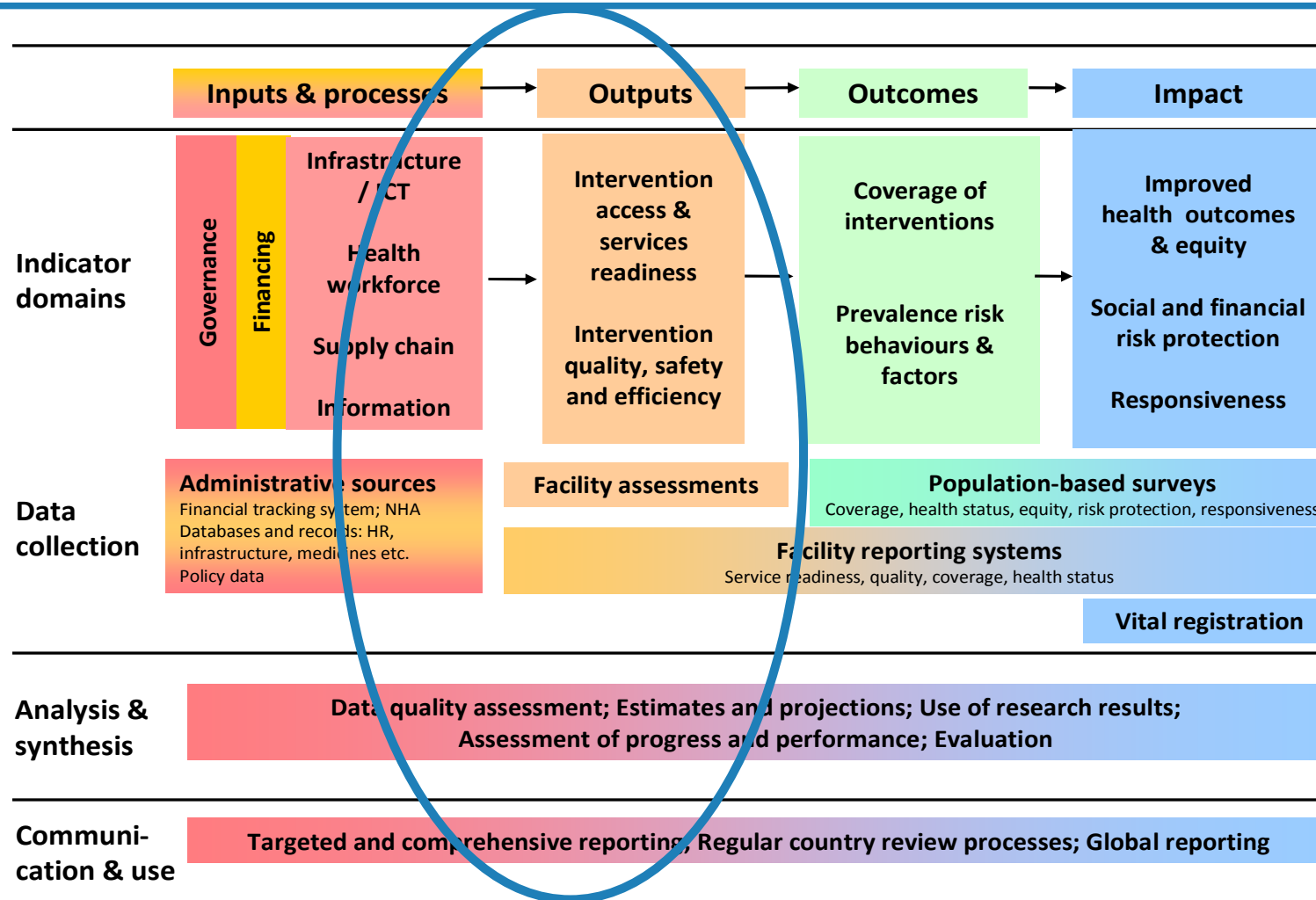


## MEASUREMENT of Readiness

- **Readiness index**
- **General and service specific Indicators**
  - Trained staff and guidelines
  - Availability of equipment
  - medicines and commodities, diagnostics
  - Infection control

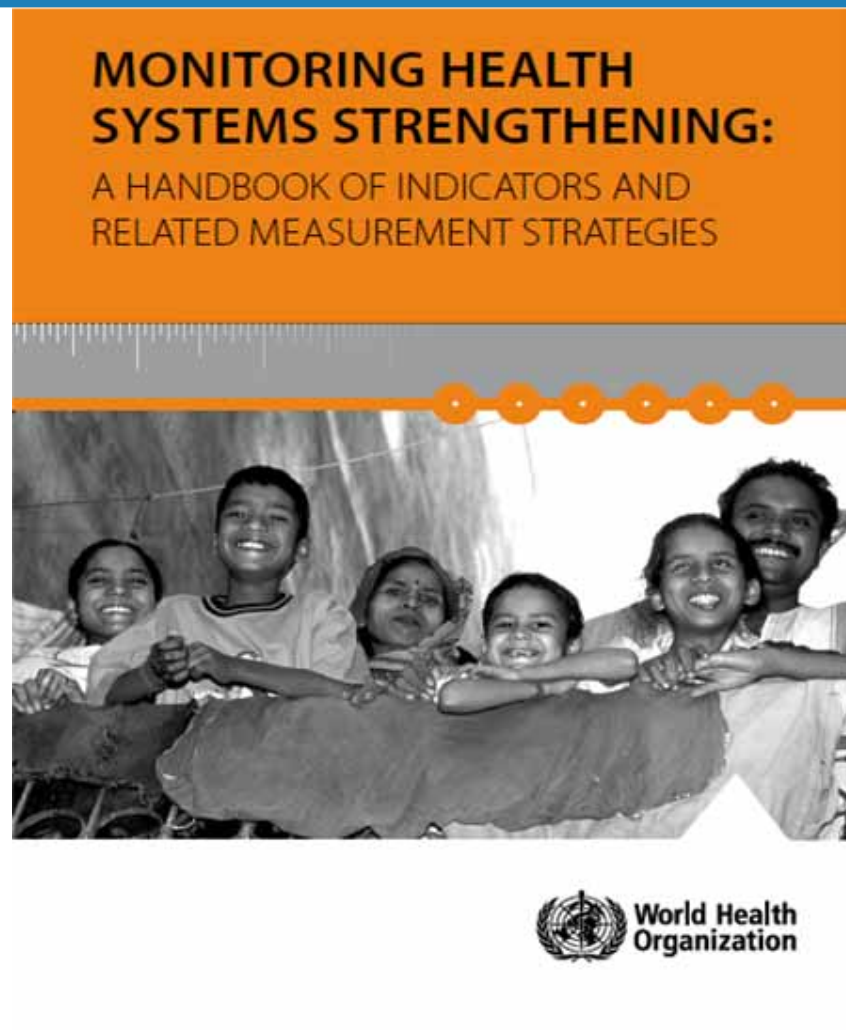


# Framework for M&E of health systems strengthening



# 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

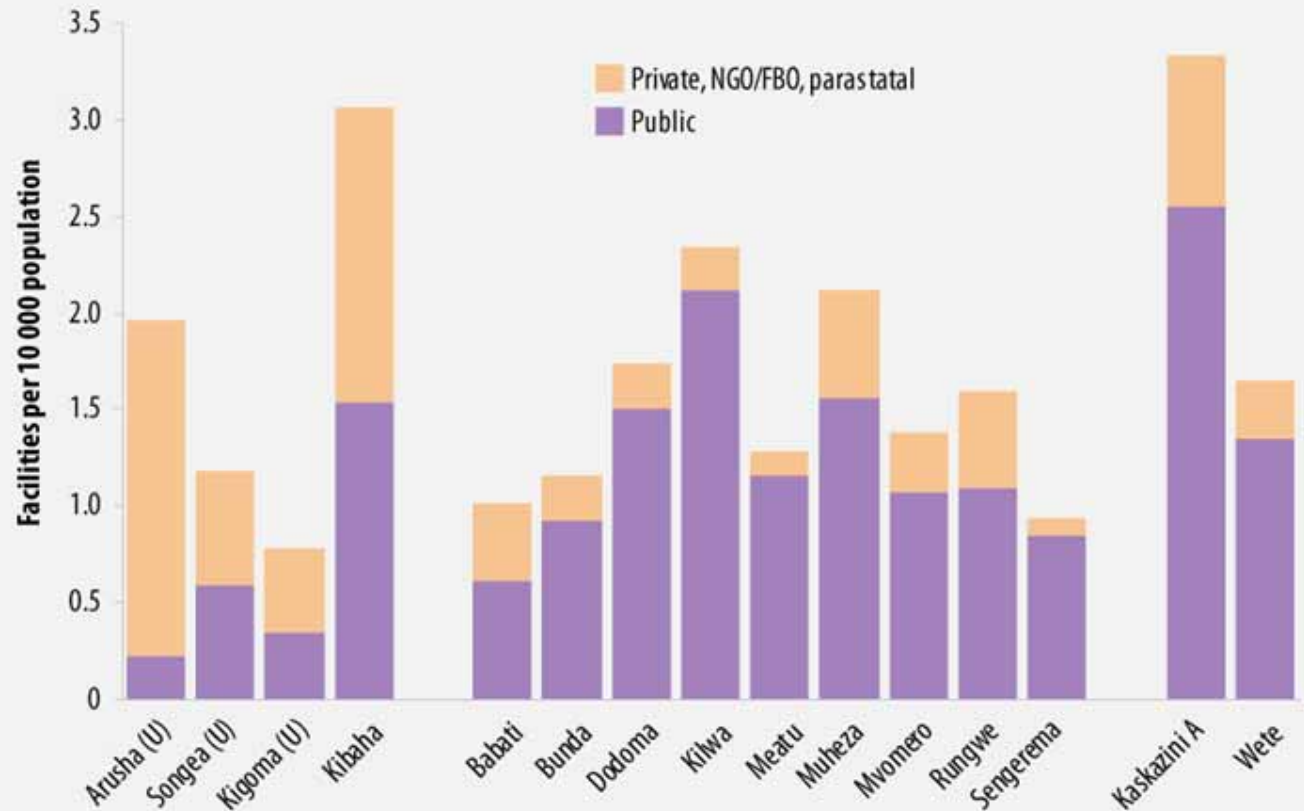
1. Infrastructure
  - a. Facility density
  - b. Inpatient bed density
  - c. Maternity bed density
2. Workforce
  - d. Core health workers density
3. Service utilization
  - e. Outpatient visits
  - f. Inpatient visits (admission)



# Density of health facilities per 10,000 population, and by management authority, 15 districts, Tanzania 2008/09

- On average, there are 1.5 facilities /10,000 population
- Global target: 2
- Ownership varies

Figure 3. Density of health facilities per 10 000 population, and type of management authority  
By 15 districts, United Republic of Tanzania, 2008–2009

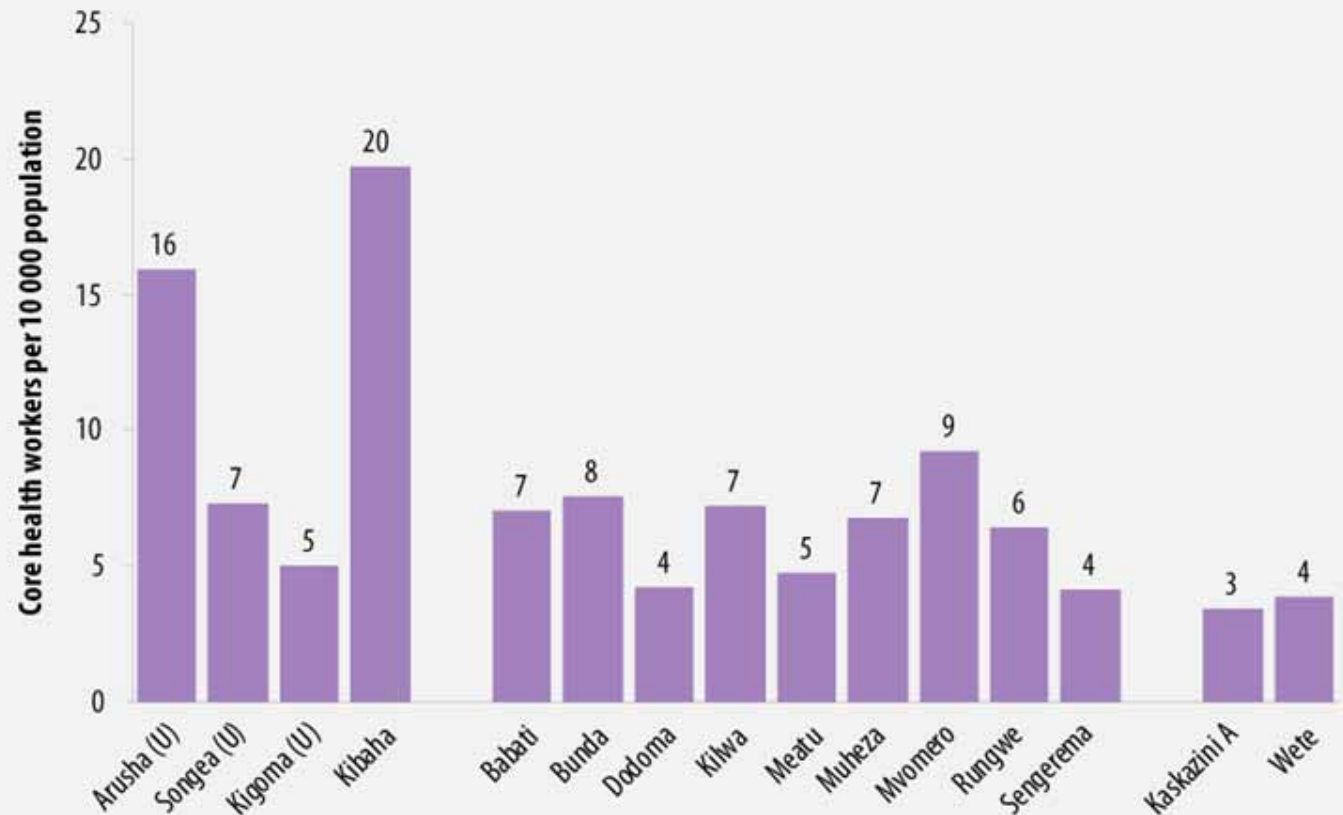


# Density of core health personnel, 15 districts, Tanzania 2008/09

- 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.

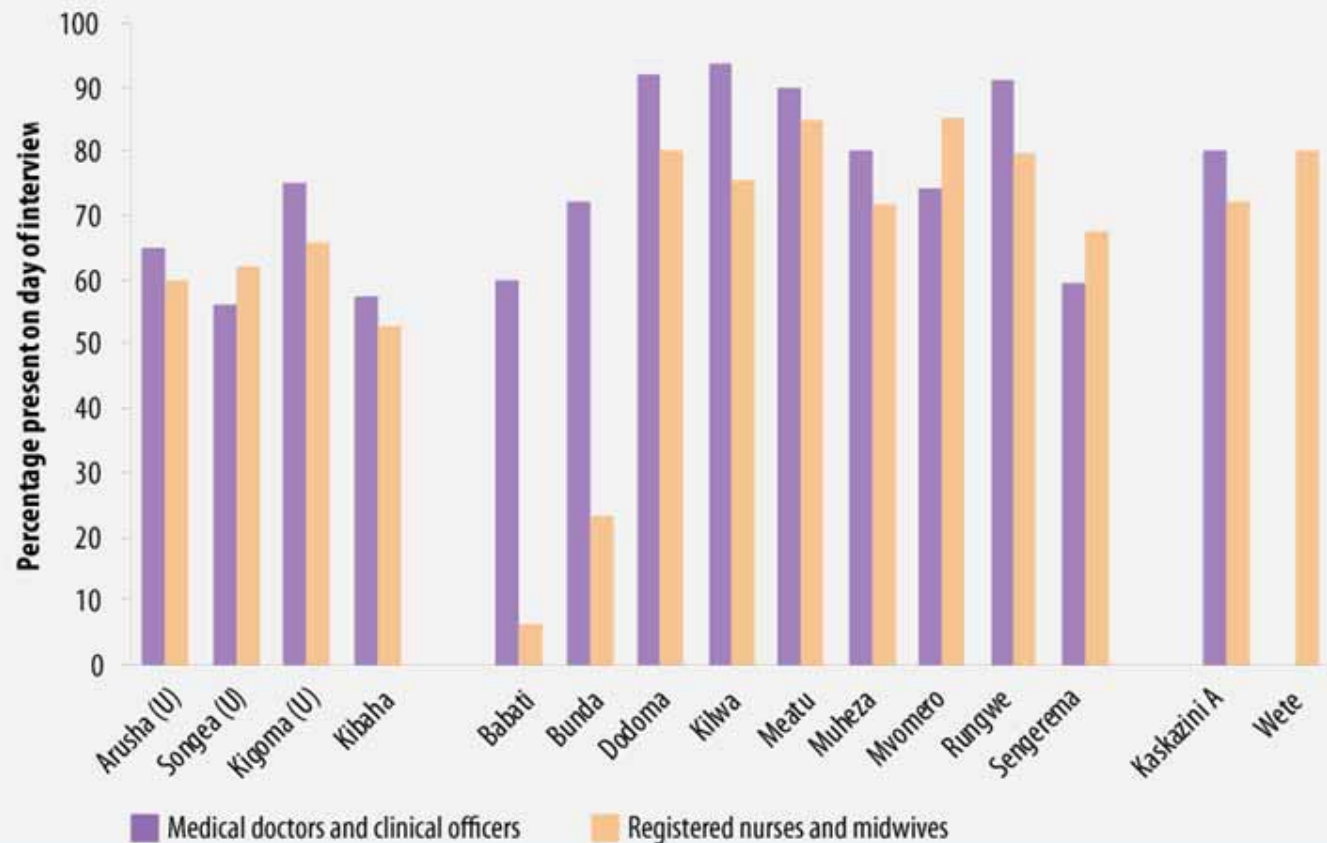
# Percentage of full-time health professionals present on the day of the interview

15 districts, Tanzania 2008/09

- 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%.

Figure 6. Percentage of full-time health professionals present on the day of the interview (excluding personnel in hospitals) By 15 districts, United Republic of Tanzania, 2008–2009



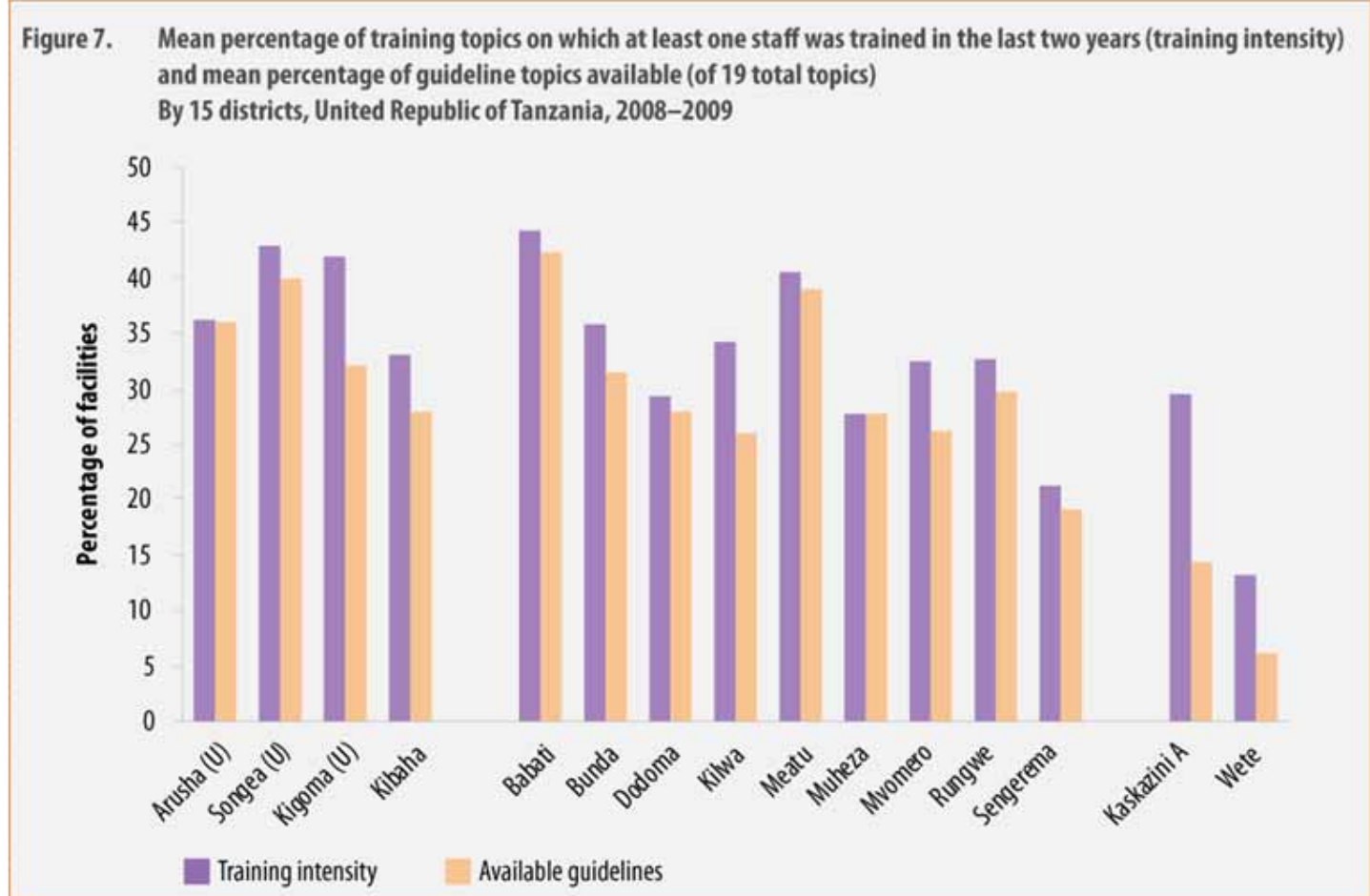
# Training intensity and mean percentage of guideline topics available

## 15 districts, Tanzania 2008/09

- 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  $2 * 4.5 / 365 * 1000 = 25$  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**

# Zambia

## Services Availability and Readiness Assessment

### 2010 Summary Report

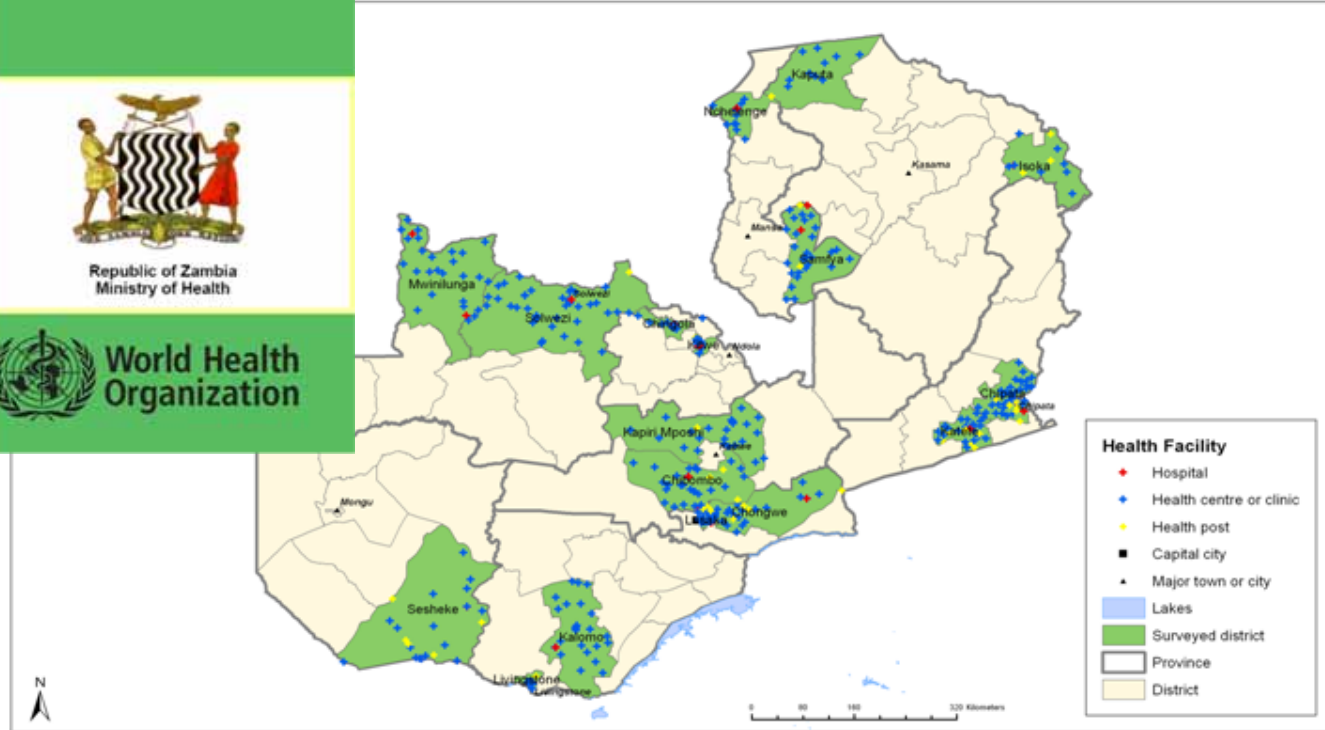


Republic of Zambia  
Ministry of Health



World Health  
Organization

Health facilities by type, SARA Zambia 2010.



Data Source: World Health Organization

**2010: 18 districts surveyed, 559 facilities analyzed**  
**2008: GFE 9 districts surveyed, 384 facilities analyzed**

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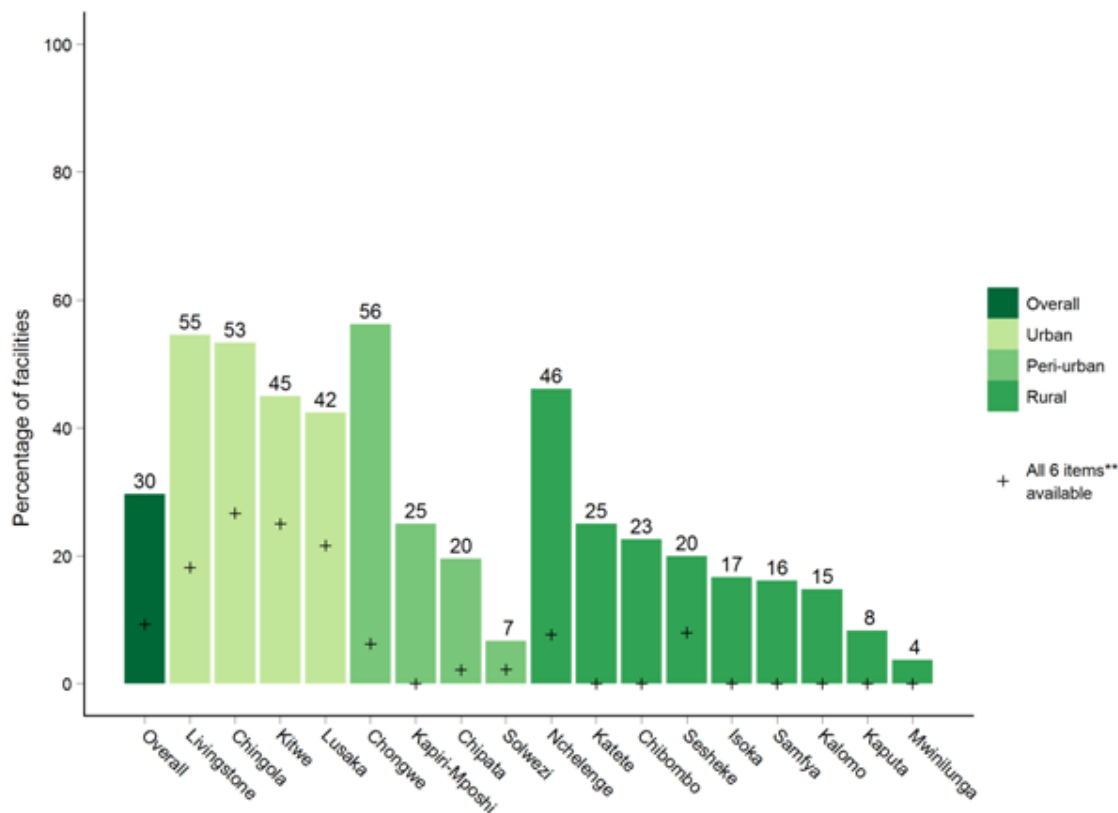
# Basic amenities



# 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)



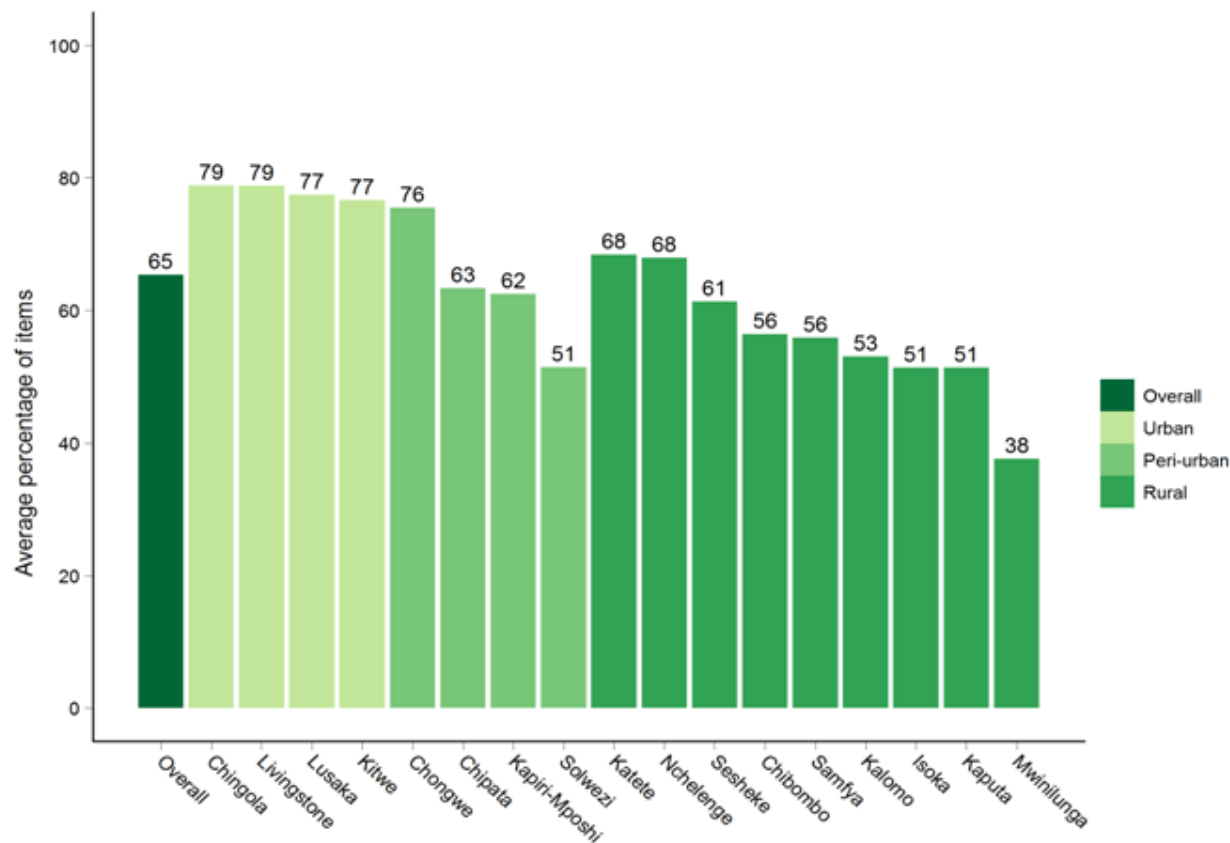
\* Power, improved water source, sanitation facilities, communication equipment, emergency transportation.

\*\* 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

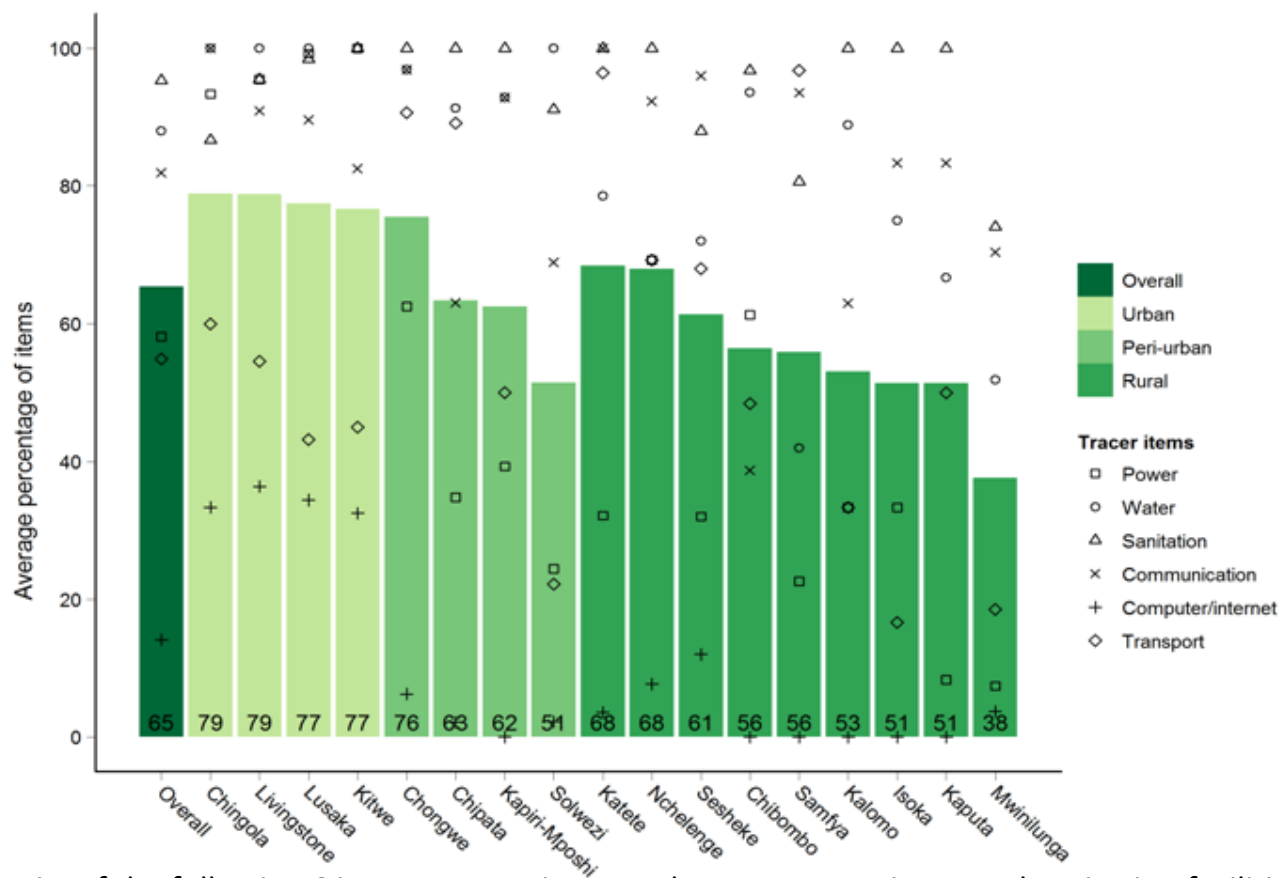


\*Basic amenities consist of the following 6 items: power, improved water source, sanitation facilities, communication equipment, computer with internet/email, emergency transportation.

# 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.

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# Basic equipment

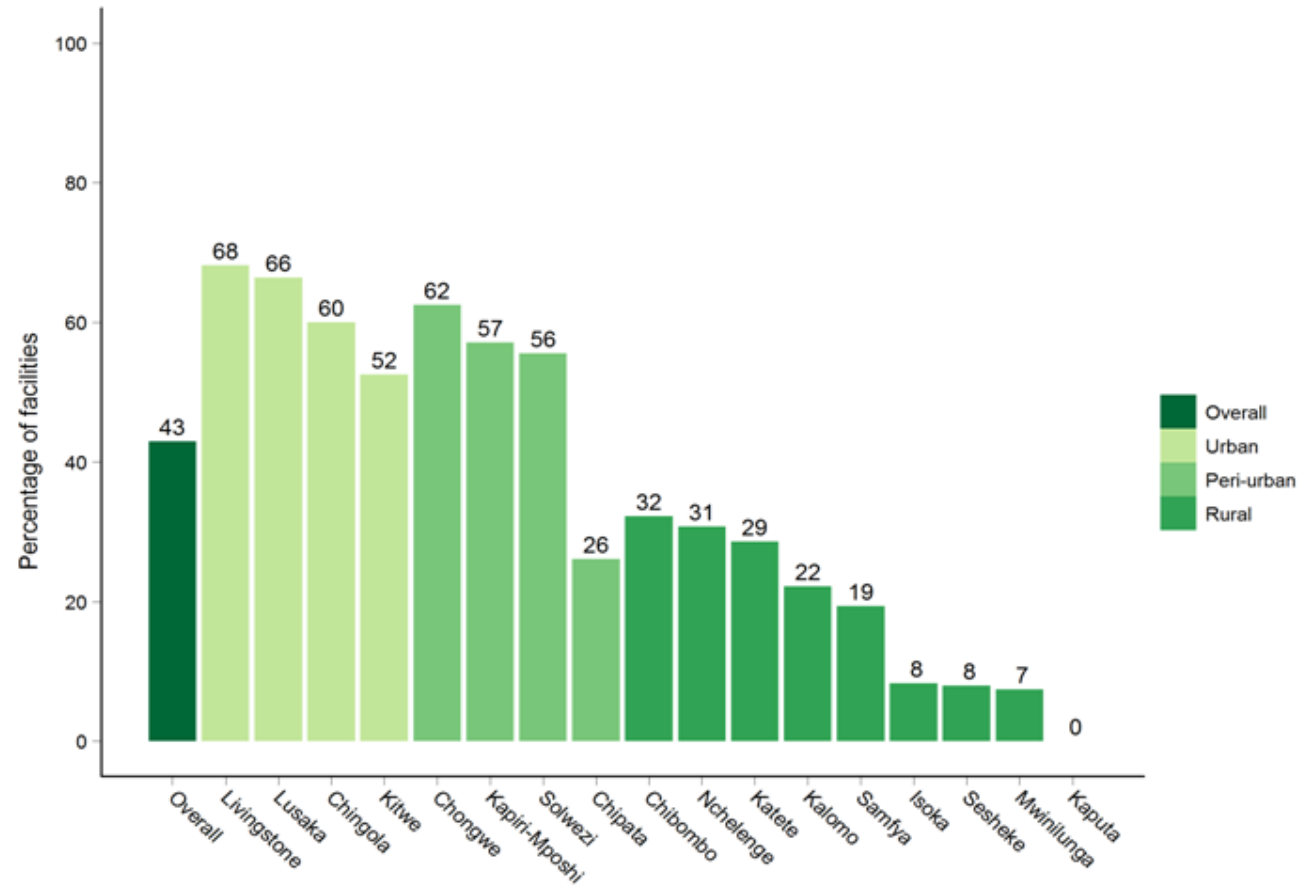


# Percentage of facilities with all 6 basic equipment items\*

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.

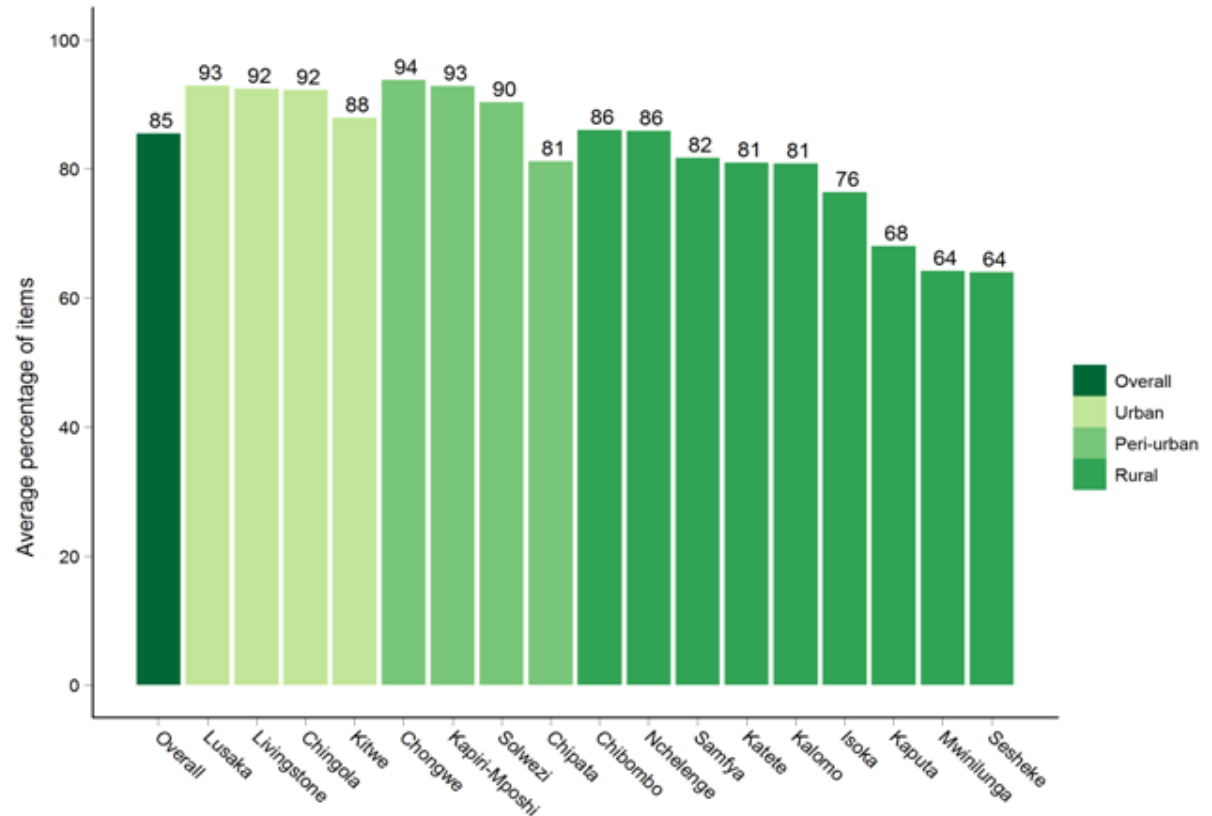


\* Basic equipment consists of the following 6 items: adult scale, child scale, thermometer, stethoscope, sphygmomanometer & BP cuff, and light source.

# Mean percentage of basic equipment items\* available in facilities

## 17 districts, Zambia 2010

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



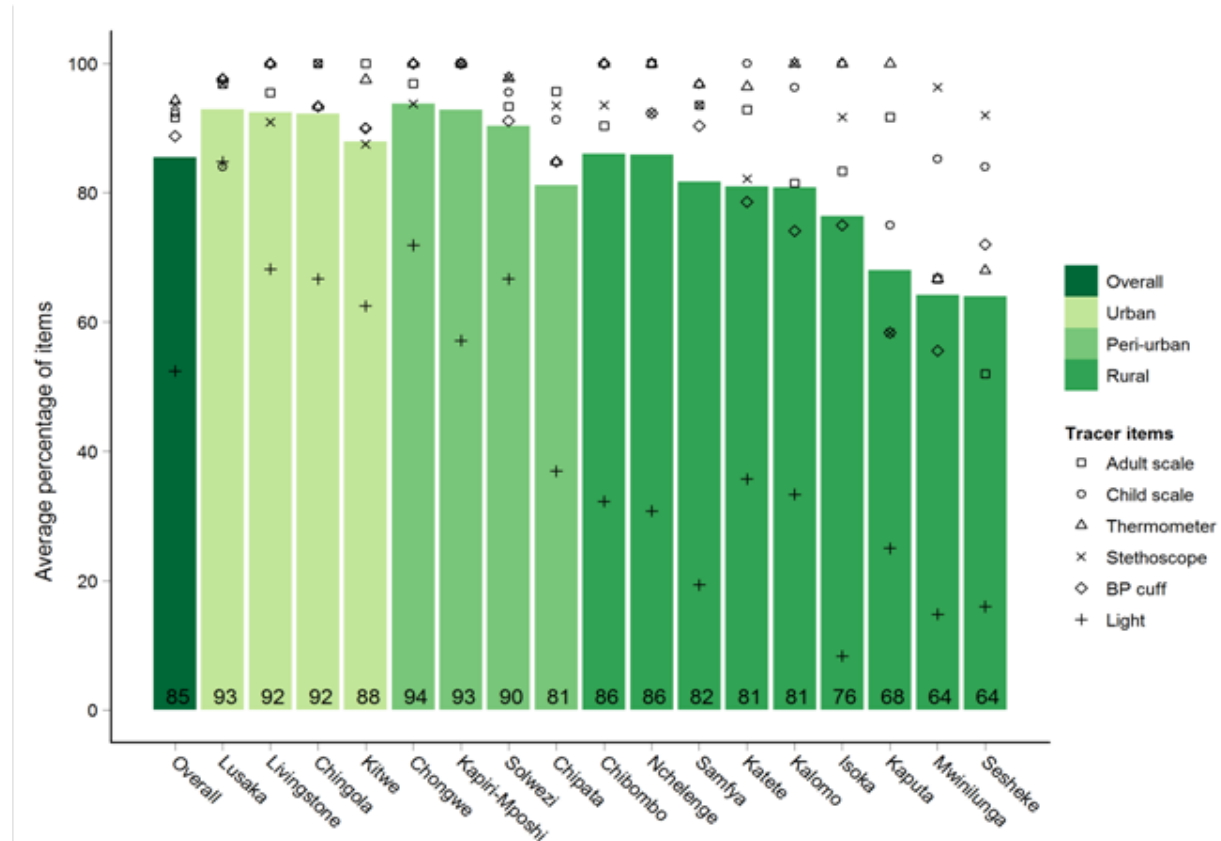
\* Basic equipment consists of the following 6 items: adult scale, child scale, thermometer, stethoscope, sphygmomanometer & BP cuff, and light source.

# 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.

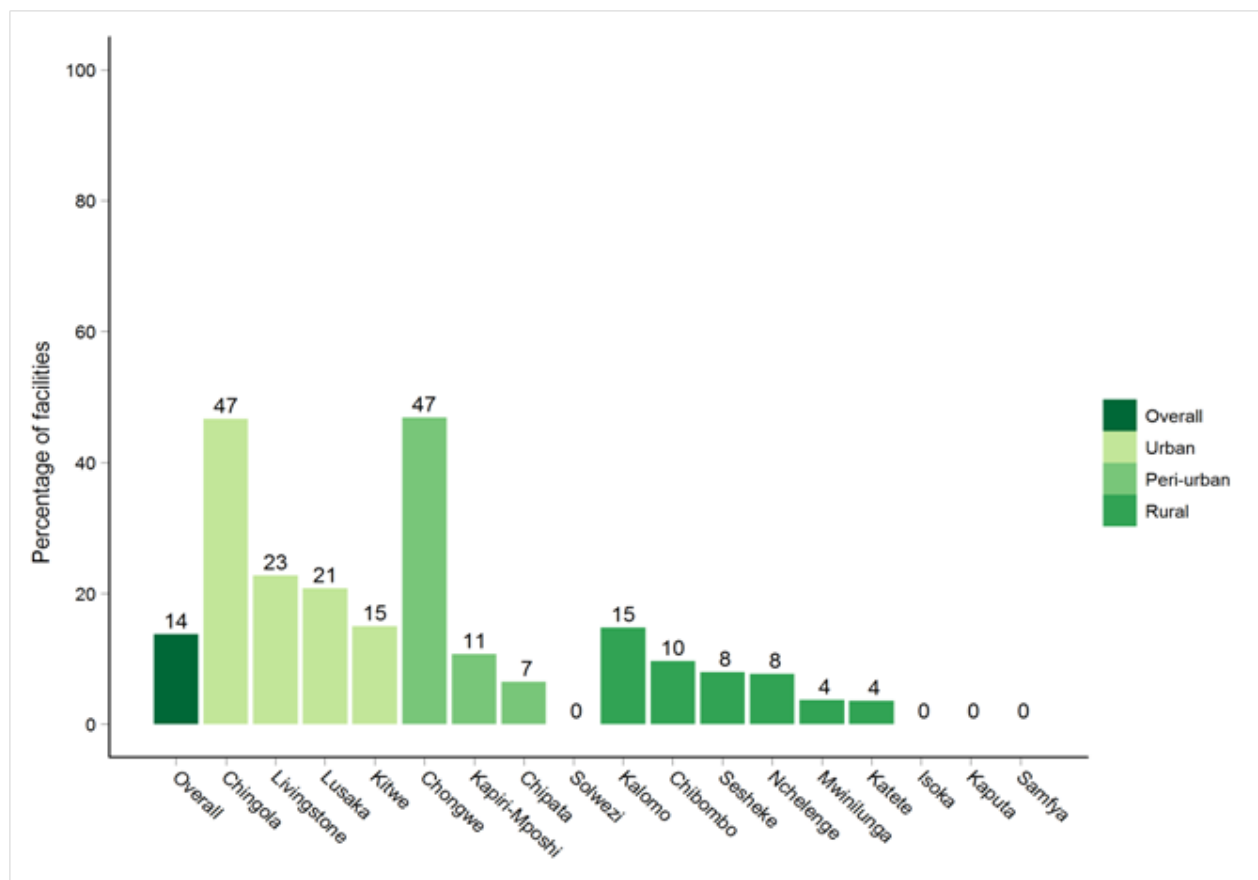
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# Standard precautions



# Percentage of facilities with all 9 standard precaution items\* 17 districts, Zambia 2010

- 14% of facilities had all 9 tracer items.

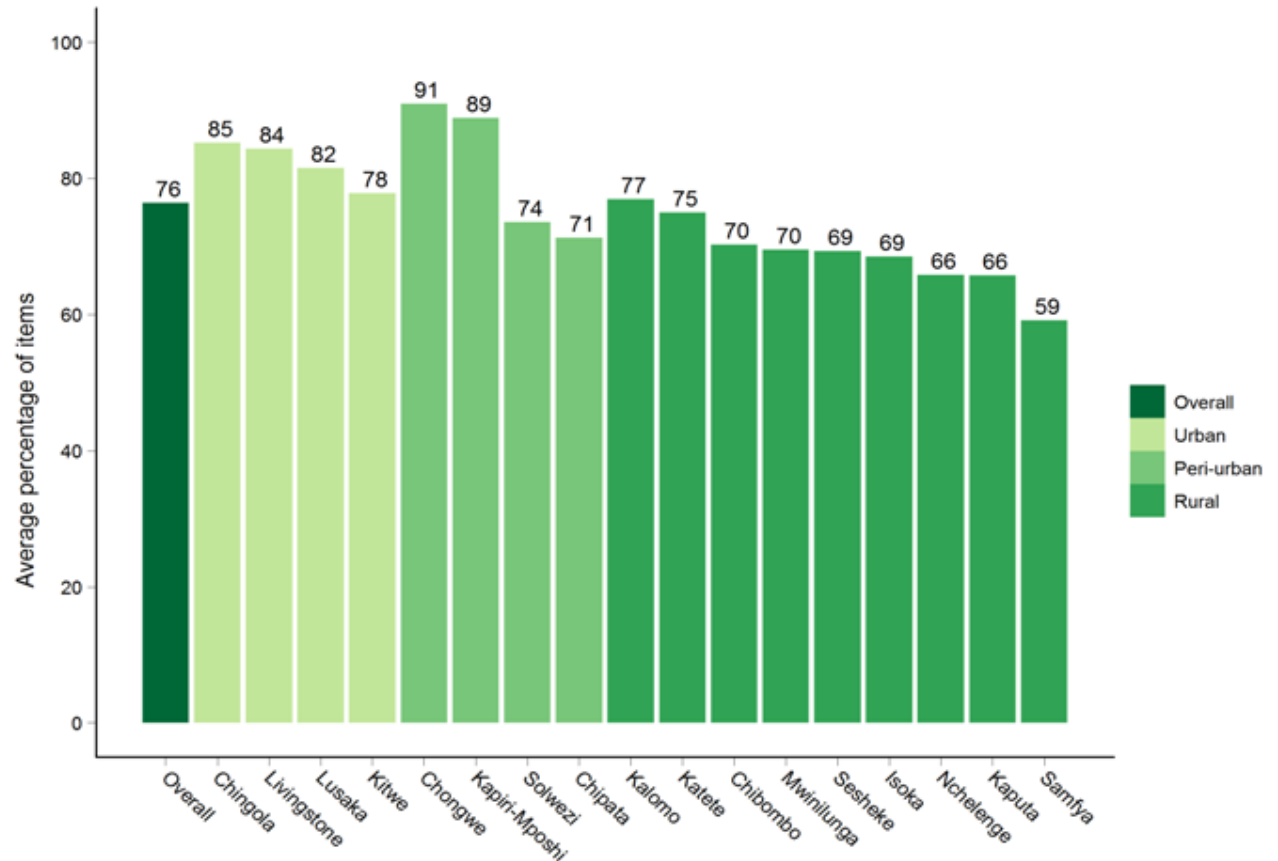


\* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.

# Mean percentage of standard precaution items\* available in facilities

## 17 districts, Zambia 2010

• On average, facilities have 7 of the 9 items.

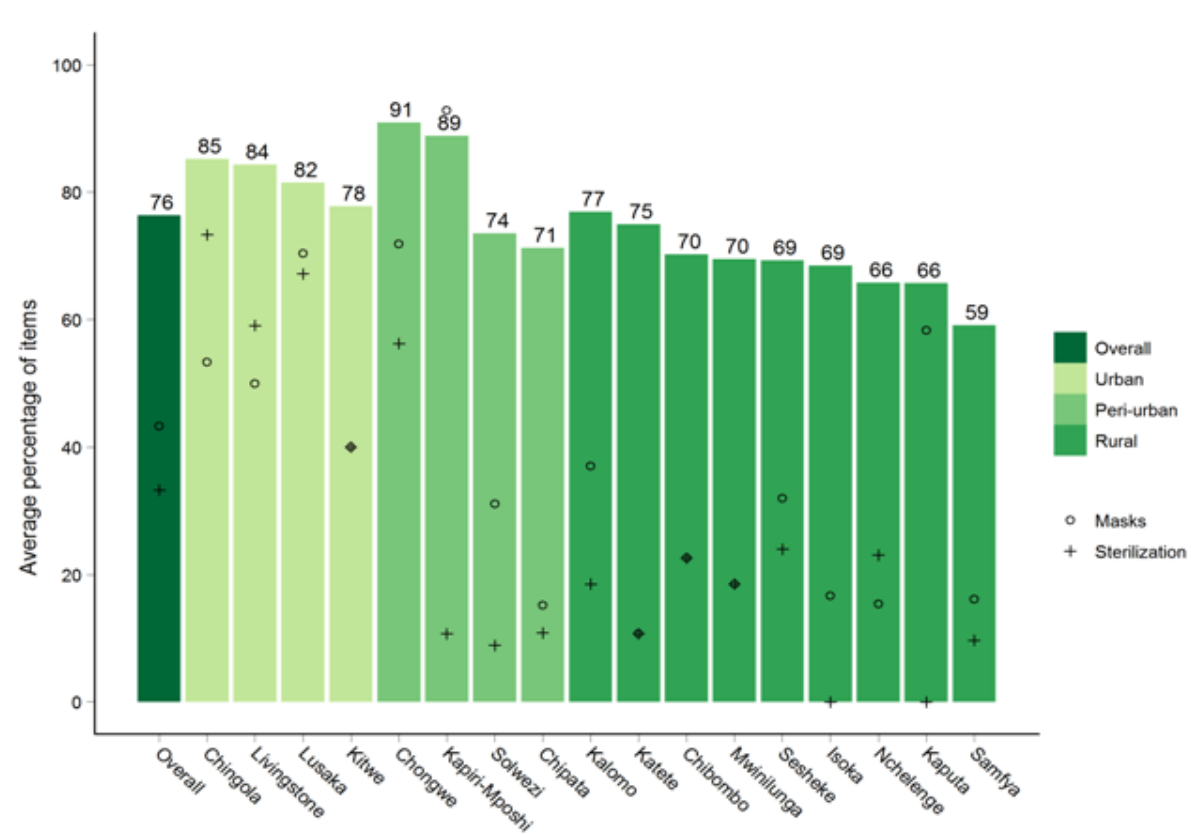


\* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.

# Mean percentage of standard precaution items\* available in facilities

## 17 districts, Zambia 2010

• Sterilization equipment and masks were the least available items.



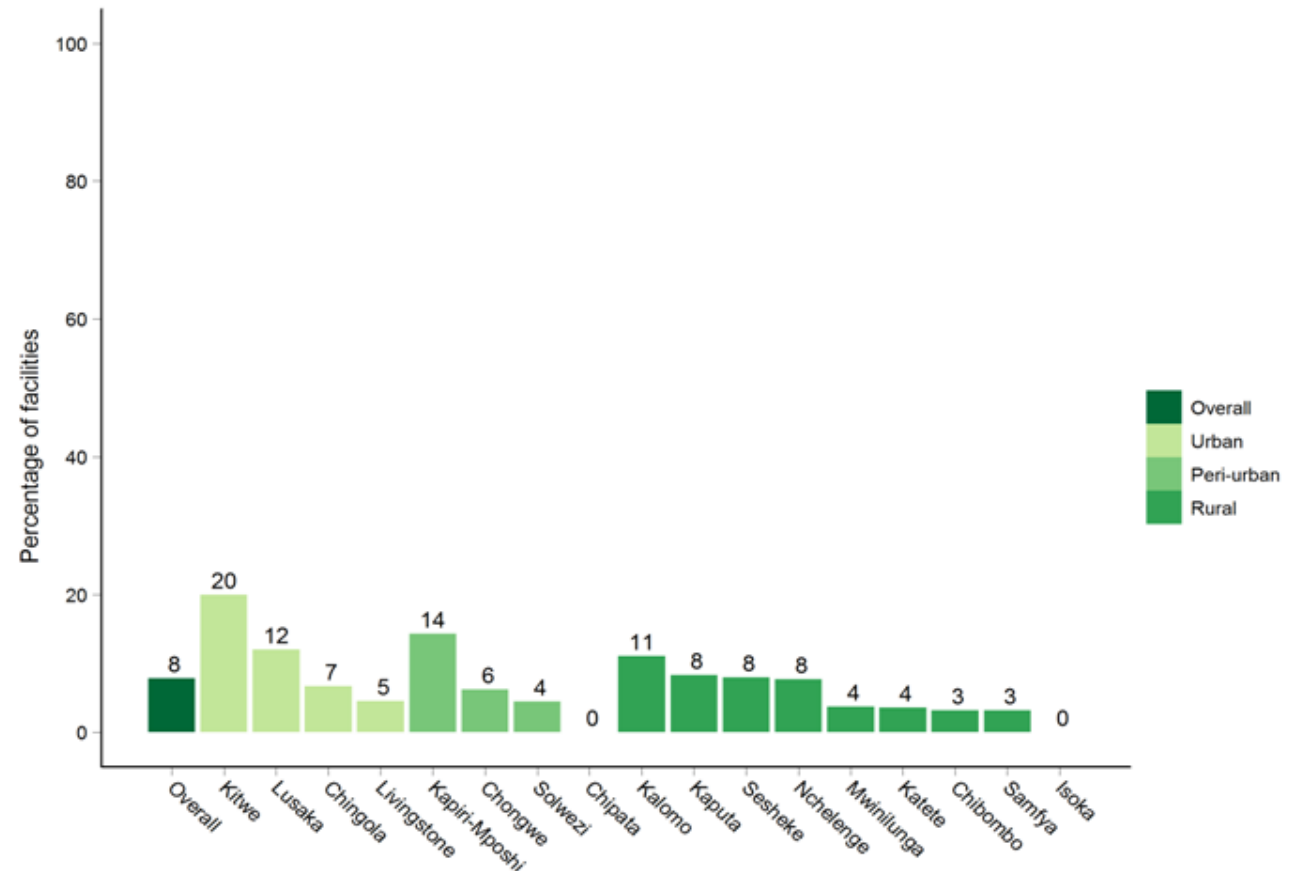
\* Items for standard precautions consist of the following 9 items: sterilization equipment (autoclave or dry heat sterilizer), safe disposal of sharps, sharps box, disinfectant, disposable/auto-disable syringes, soap/hand disinfectant, latex gloves, masks, and guidelines for standard precautions.

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# Laboratory

# Percentage of facilities with all 9 laboratory tests\* 17 districts, Zambia 2010

• Only 8% of facilities had all 9 laboratory tests.

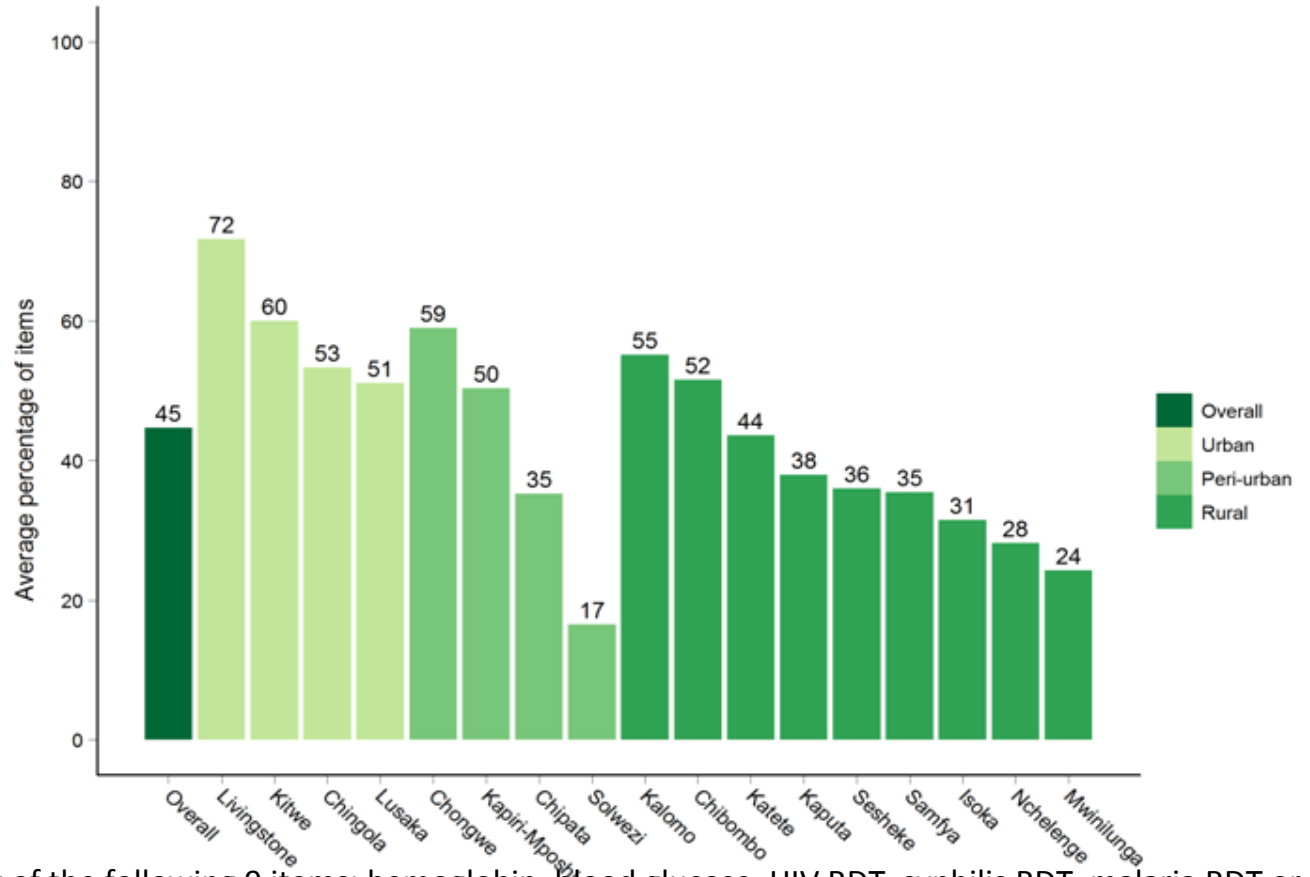


\* Laboratory tests consist of the following 9 items: hemoglobin, blood glucose, HIV RDT, syphilis RDT, malaria RDT or smear, TB microscopy, general microscopy, urine pregnancy test, urine dipstick.

# Mean percentage of laboratory tests\* available on site in facilities

## 17 districts, Zambia 2010

• On average, facilities were able to conduct 4 of the 9 laboratory tests on site.



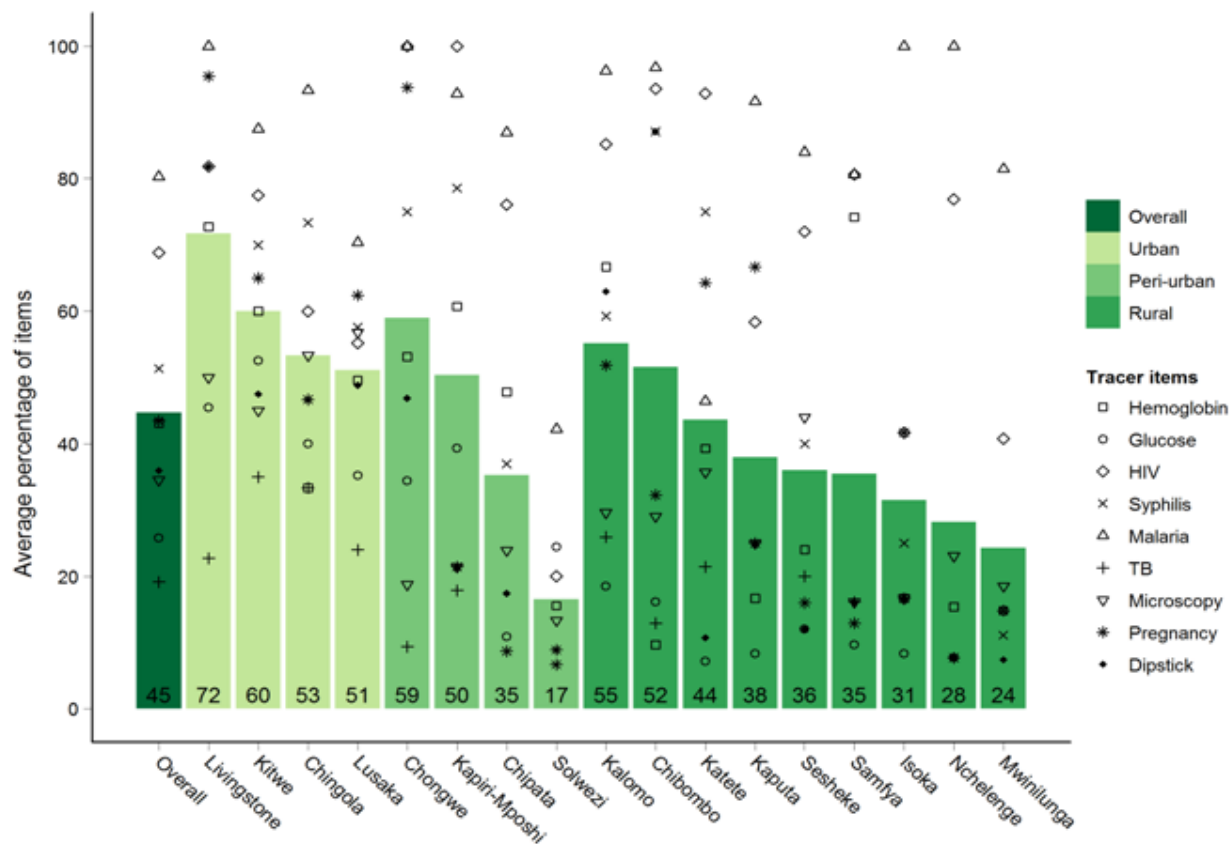
\* Laboratory tests consist of the following 9 items: hemoglobin, blood glucose, HIV RDT, syphilis RDT, malaria RDT or smear, TB microscopy, general microscopy, urine pregnancy test, urine dipstick.

# 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.

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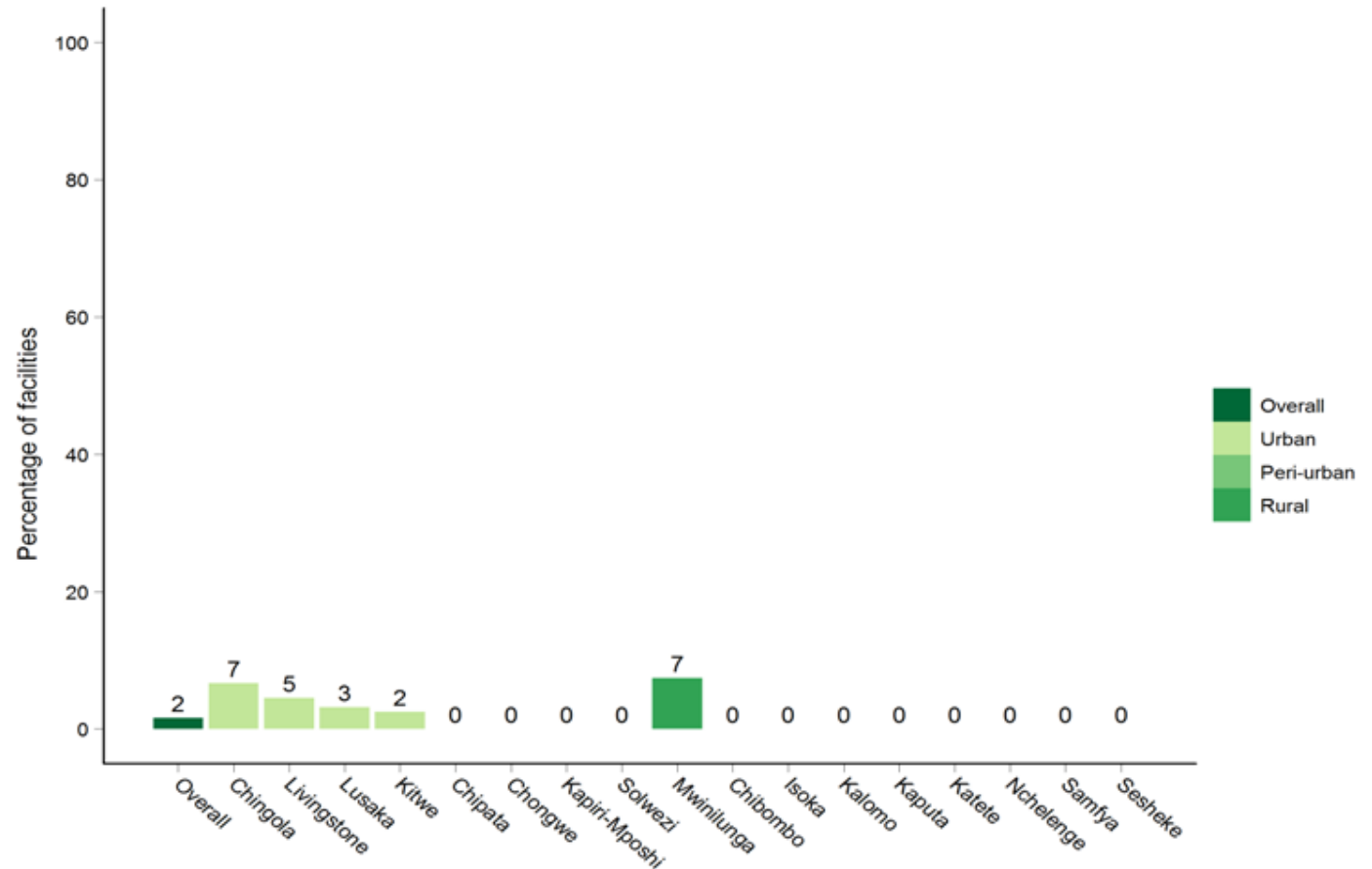
# Medicines & commodities



# Percentage of facilities with all 14 essential medicines\*

## 17 districts, Zambia 2010

• Very few facilities had all 14 essential medicines available.

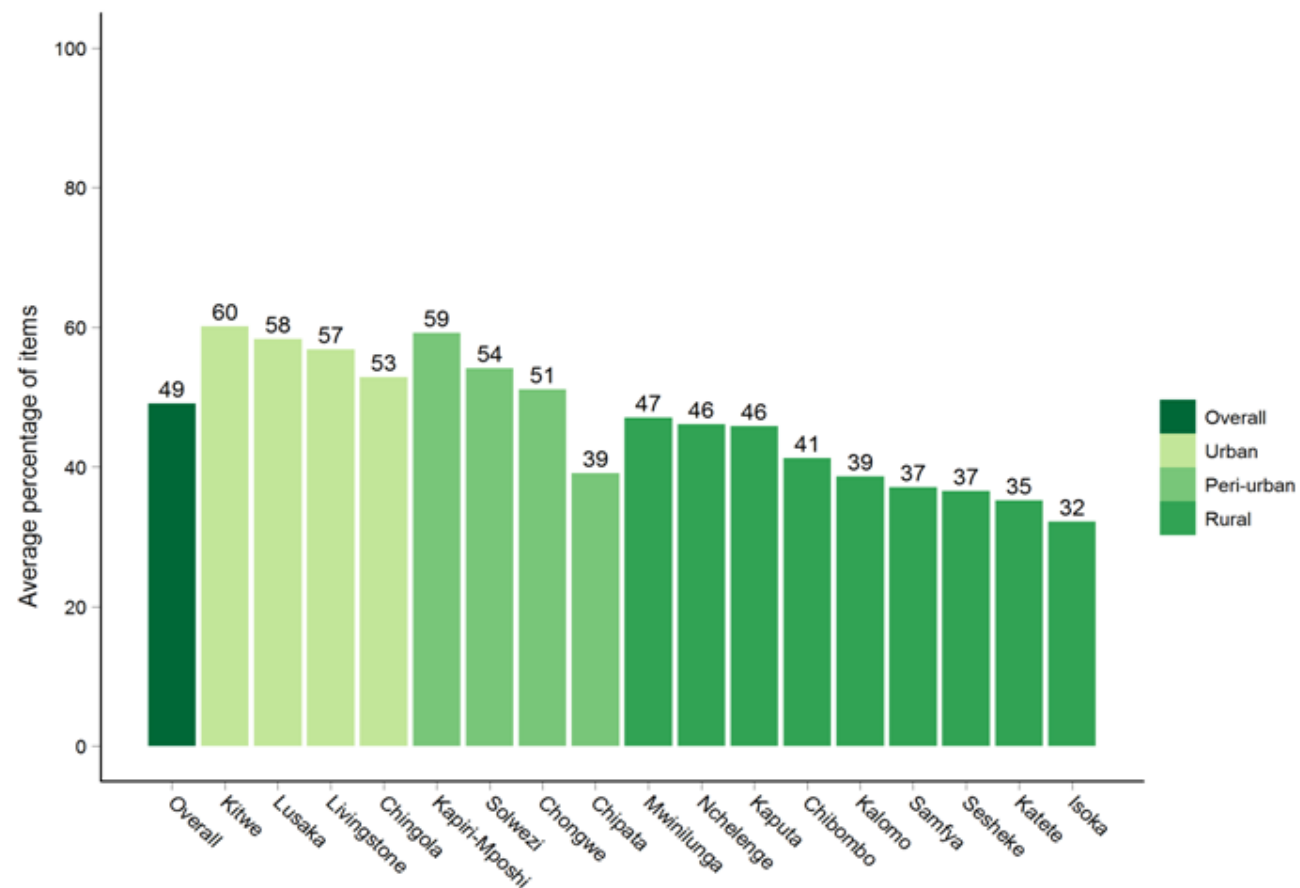


\* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.

# Mean percentage of essential medicines\* available in facilities

## 17 districts, Zambia 2010

• On average, facilities had about half of the 14 essential medicines available.

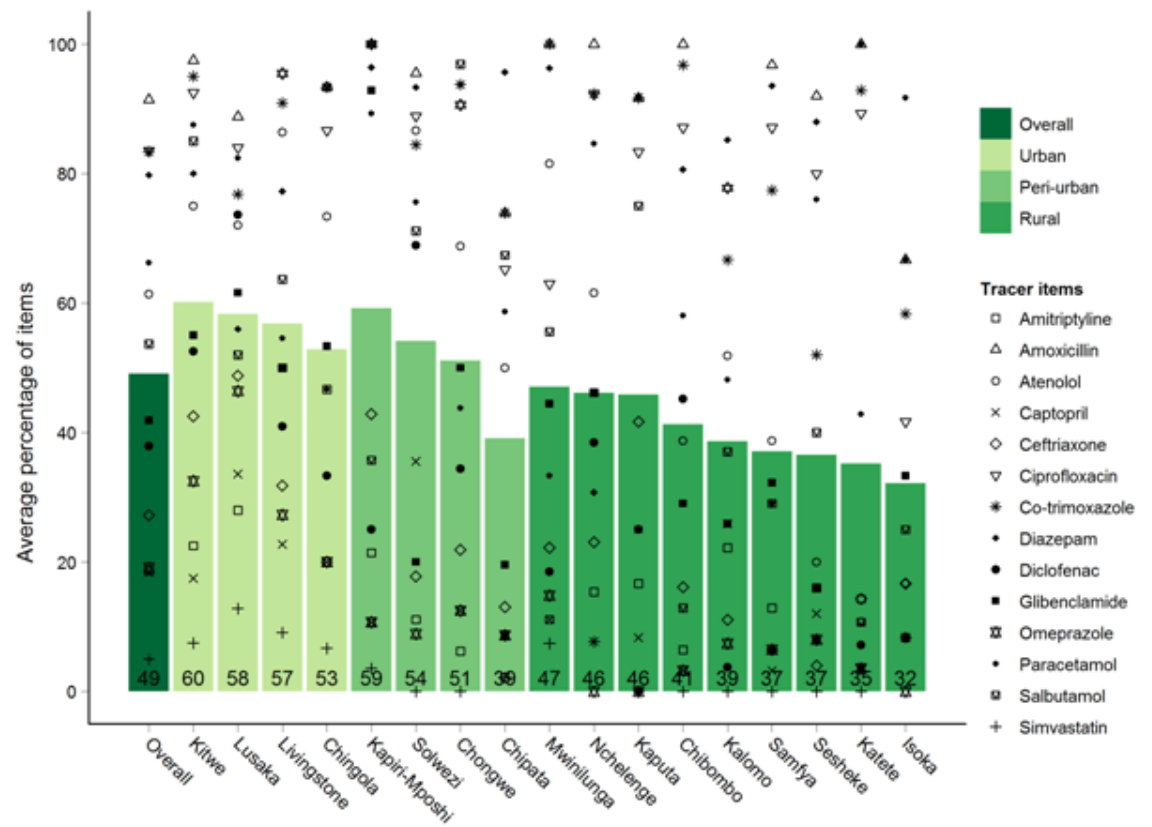


\* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.

# Mean percentage of essential medicines\* available in facilities

## 17 districts, Zambia 2010

• Amoxicillin was the most commonly available medicine, simvastatin the least available.

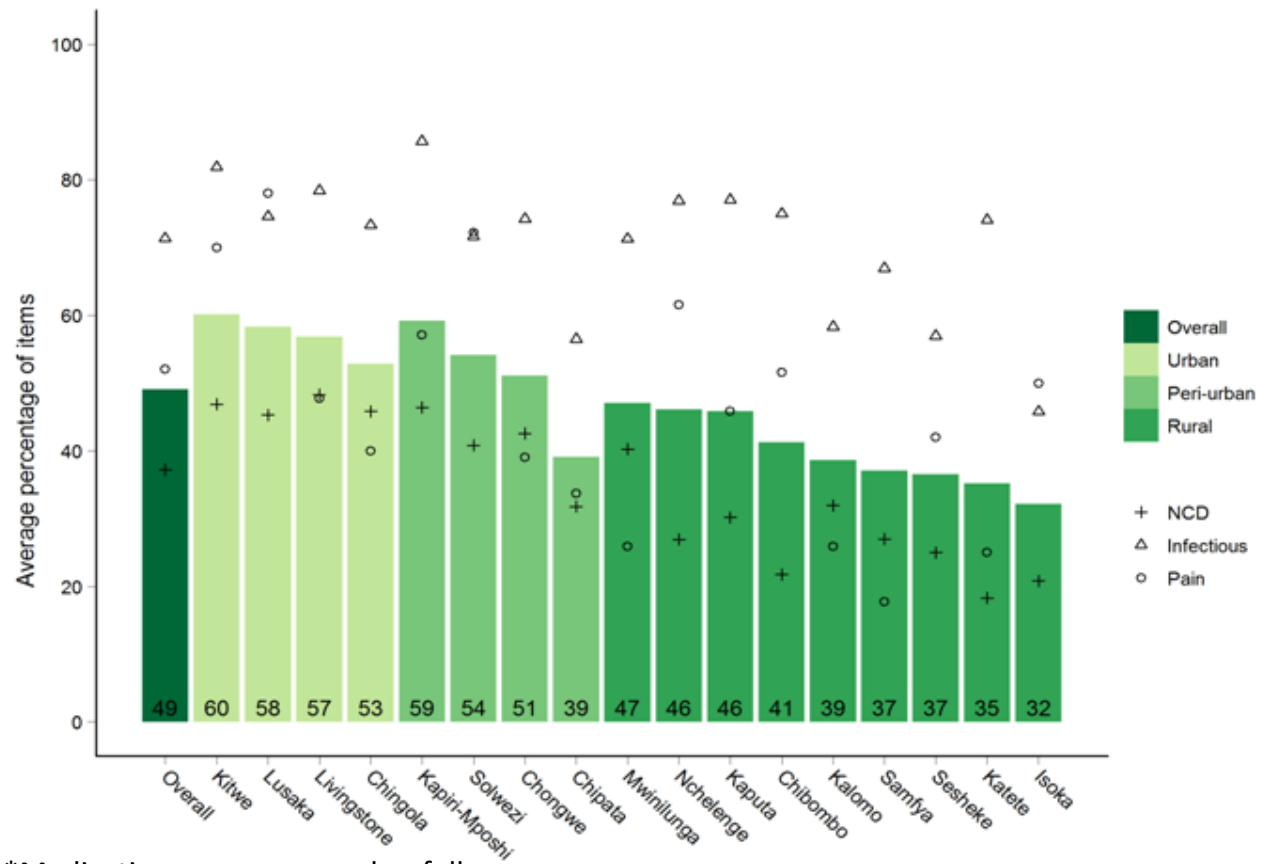


\* Essential medicines consist of the following 14 items: amitriptyline, amoxicillin, atenolol, captopril, ceftriazone, ciprofloxacin, co-trimoxazole, diazepam, diclofenac, glibenclamide, omeprazole, paracetamol, simvastatin, salbutamol.

# Mean percentage of essential medicines\* available in facilities

## 17 districts, Zambia 2010

- 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.

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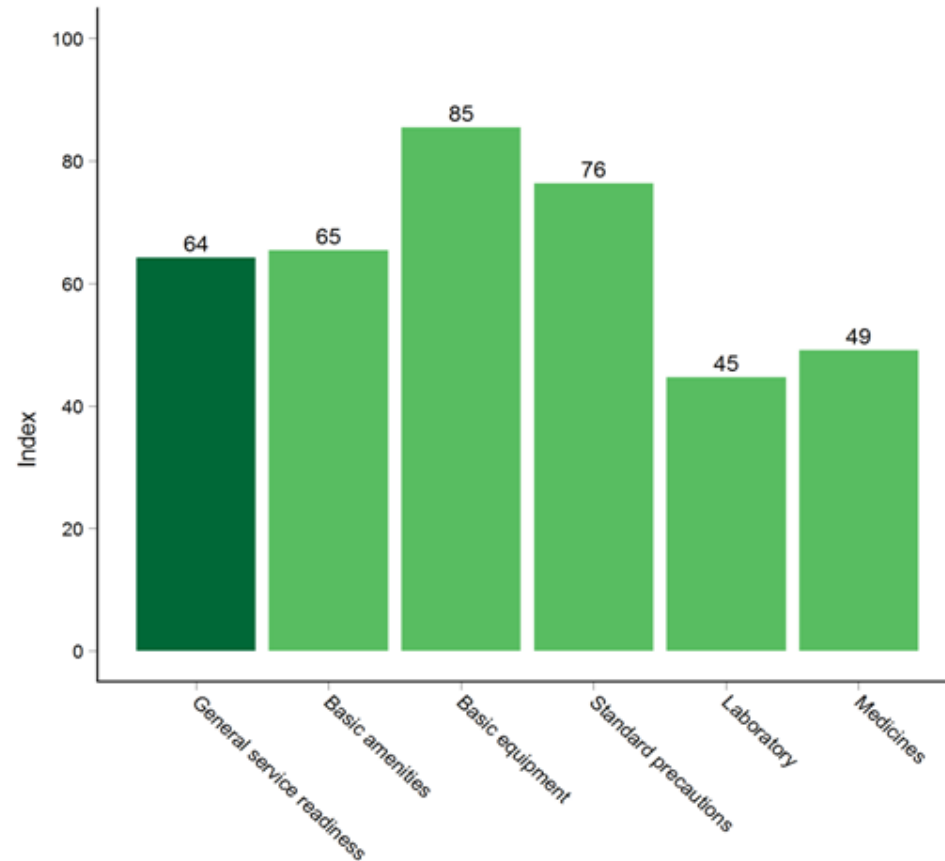
# Summary index of general service readiness



# 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



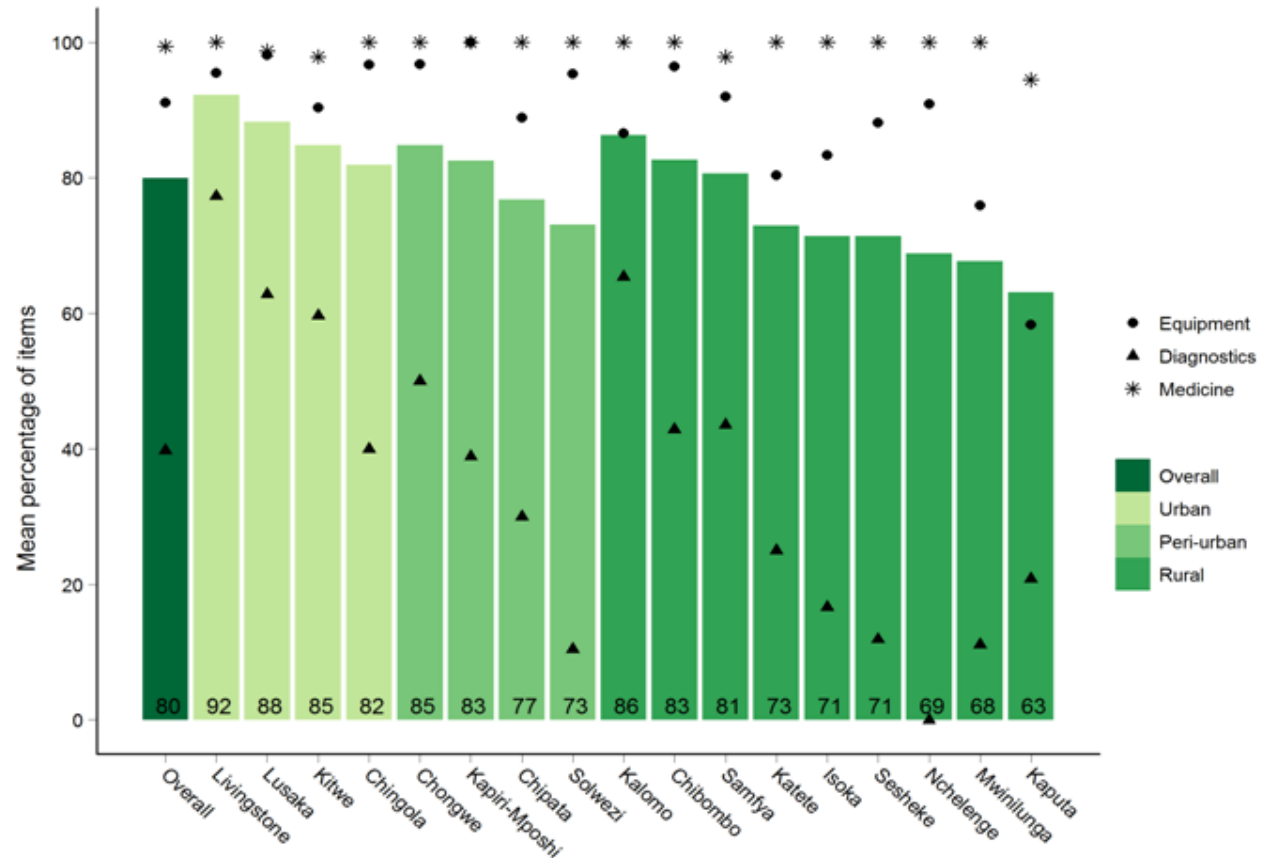
# Antenatal care readiness:

## 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%.



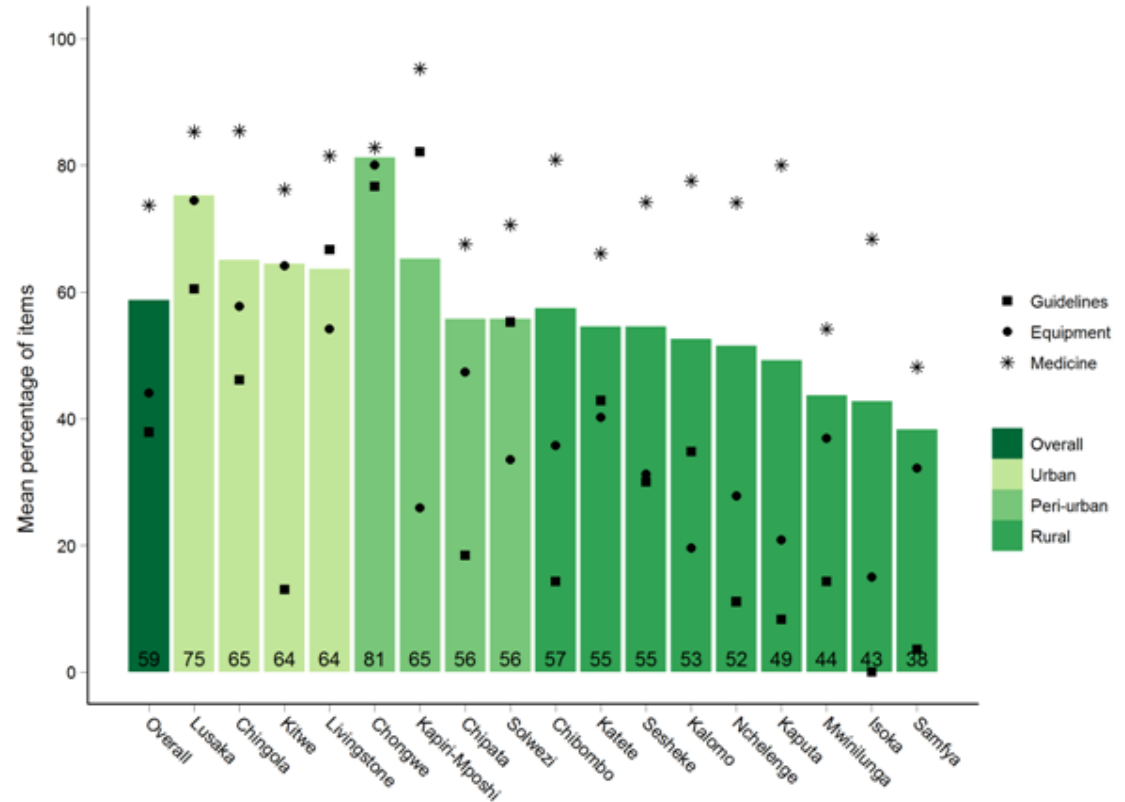
\*Tracer items for antenatal care include: blood pressure machine, stethoscope, hemoglobin test, urine protein test, iron tablets, folic acid tablets, tetanus toxoid.

# 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.

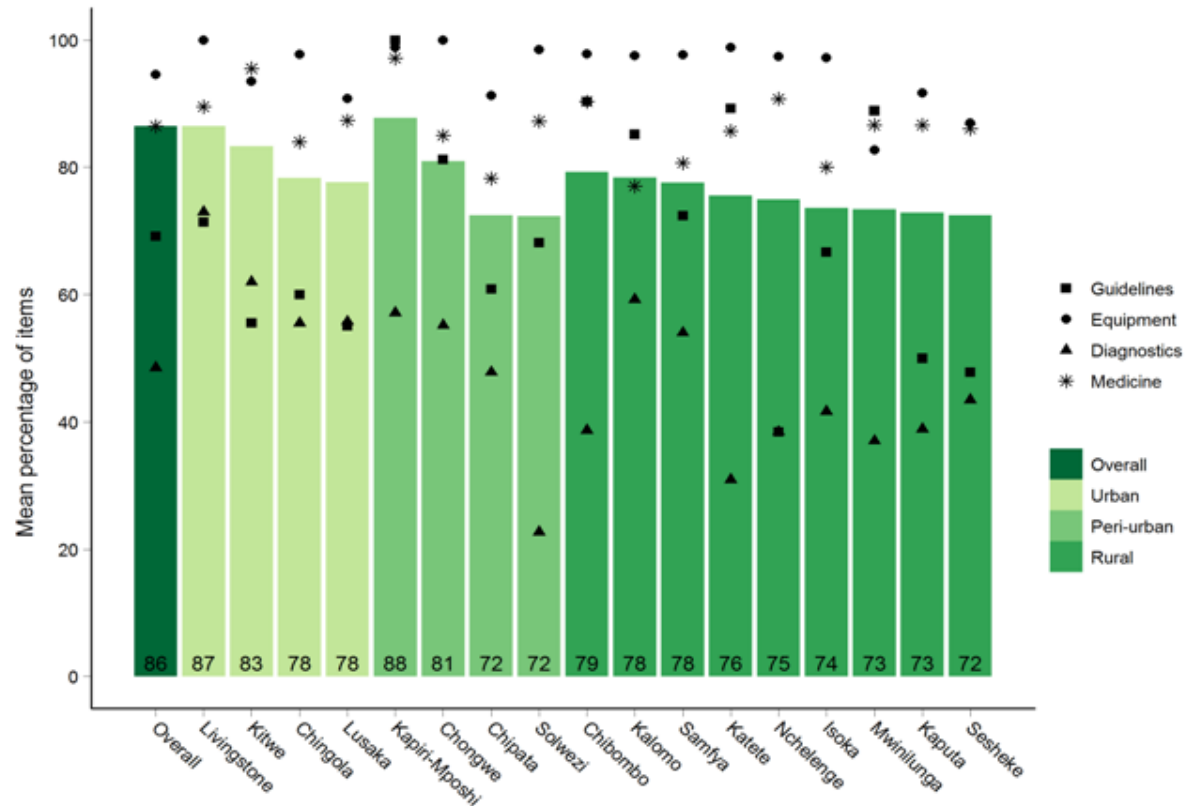


\* Tracer items for basic emergency obstetric care consist of the following 11 items: guidelines for BEmOC/IMPAC, emergency transport, examination light, suction apparatus, newborn bag and mask, partograph, gloves, eye prophylaxis, injectable uterotonic, magnesium sulphate, intravenous infusion kit.

# 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.



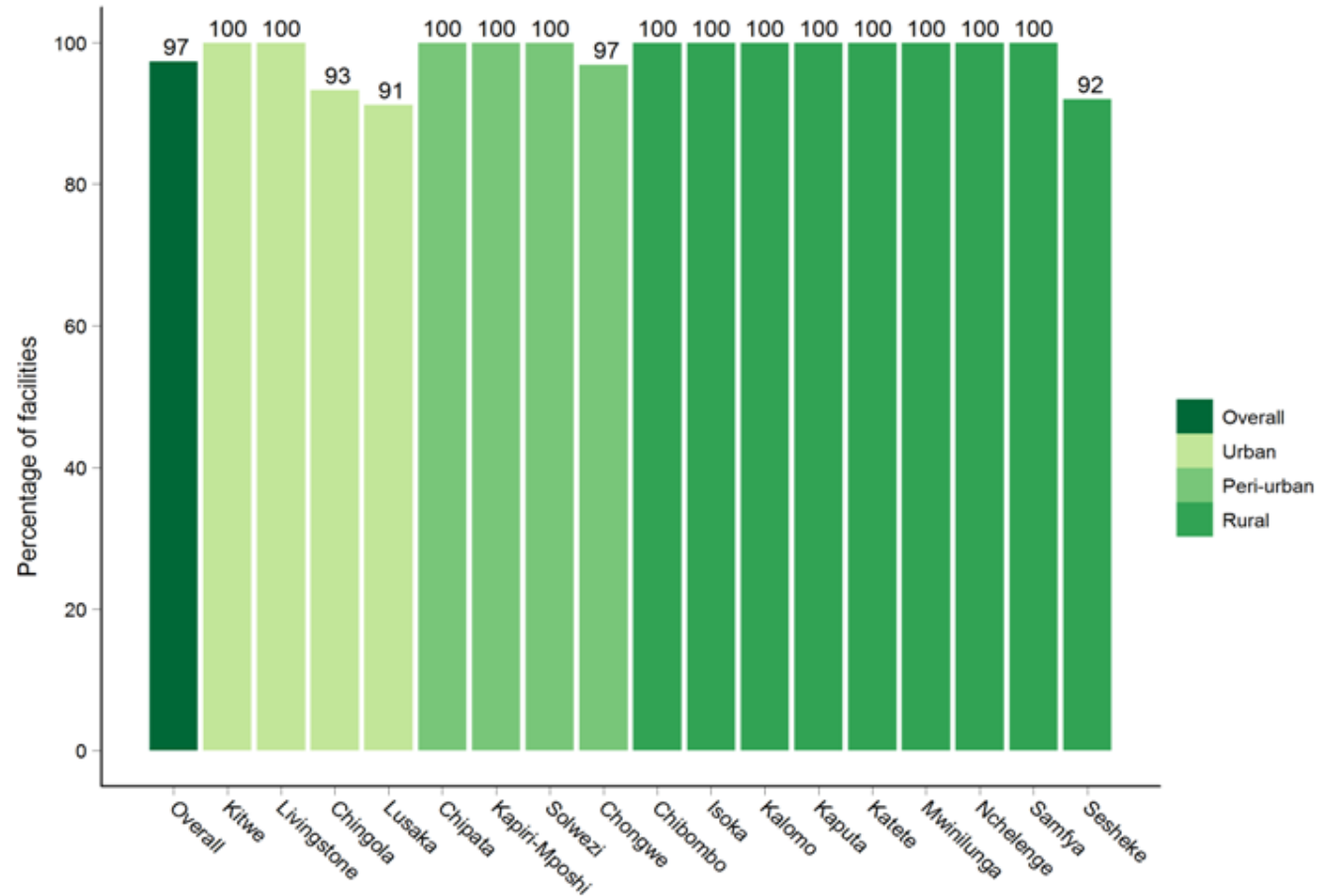
\* Tracer items for child health curative care include: guidelines for IMCI, child scale, thermometer, growth charts, hemoglobin test, test for parasite in stool, malaria blood test, oral rehydration solution packet, amoxicillin, co-trimoxazole, paracetamol, albendazole.

# 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

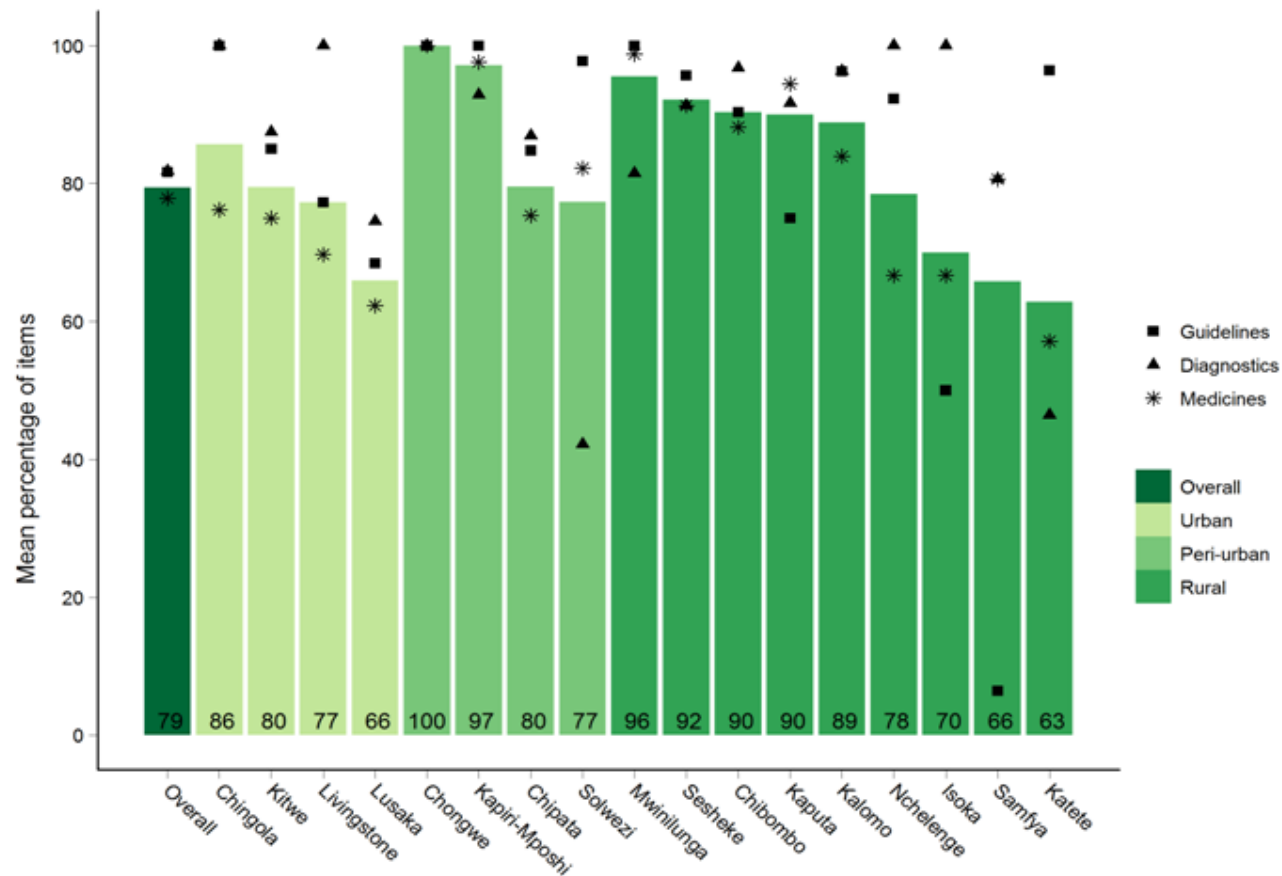


# Malaria readiness:

## Mean percent of tracer items available\*

17 districts, Zambia 2010

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

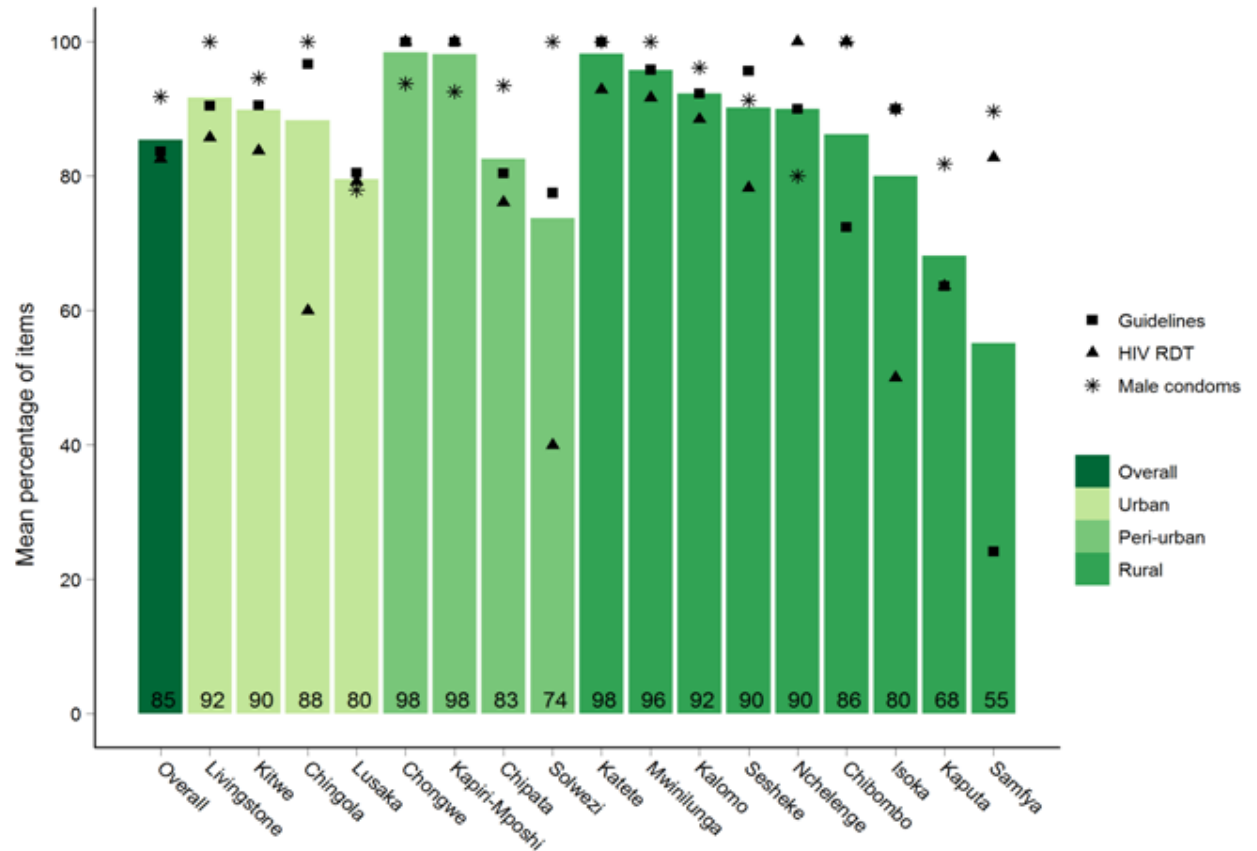


\* Tracer items for malaria include: guidelines, malaria RDT or smear, ACT, fansidar, ITN bednets

# 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.

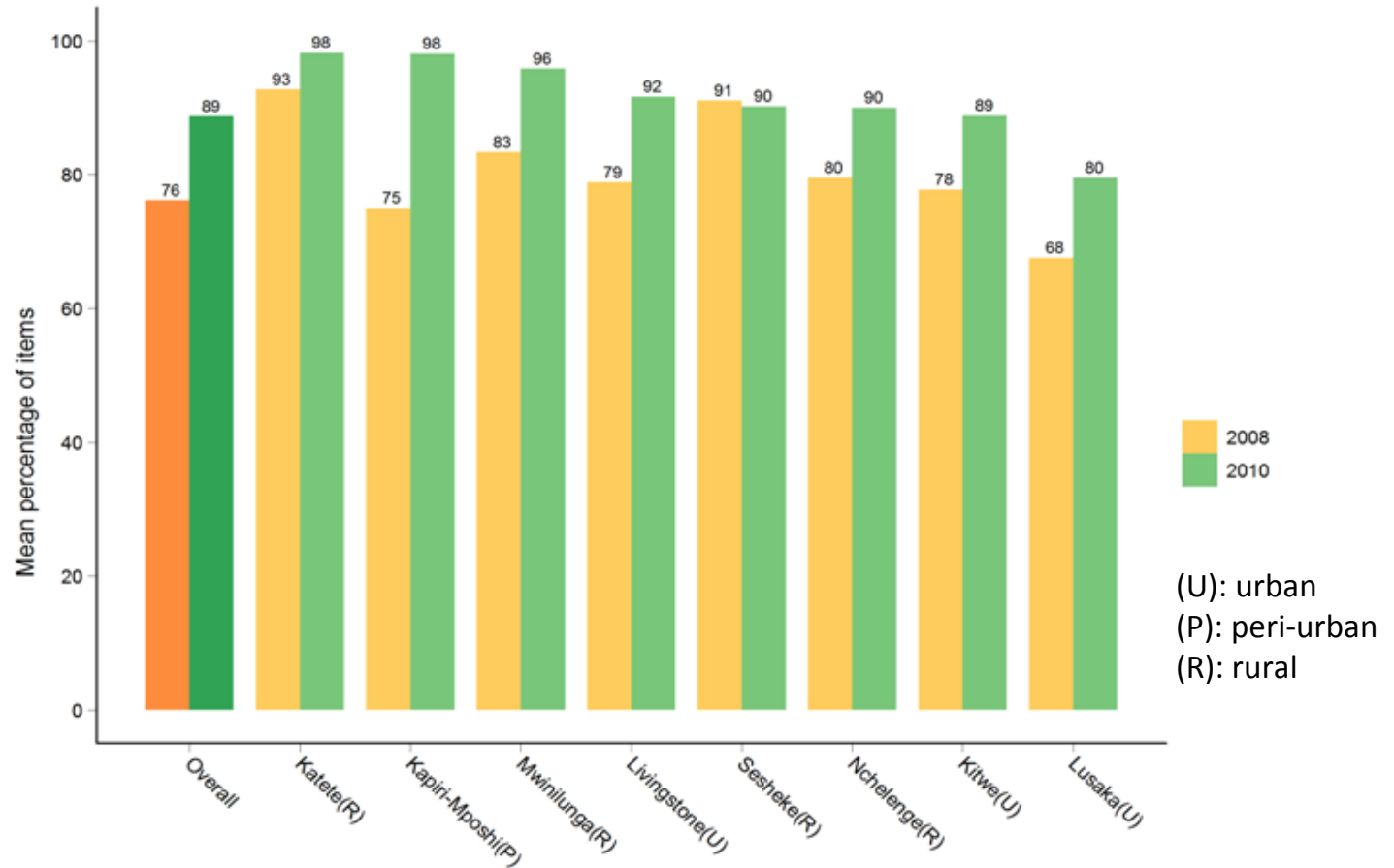


\* Tracer indicators for HIV testing and counselling include: guidelines on HIV testing, guidelines on HIV/AIDS counselling, HIV rapid diagnostic test, and male condoms.

# 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.



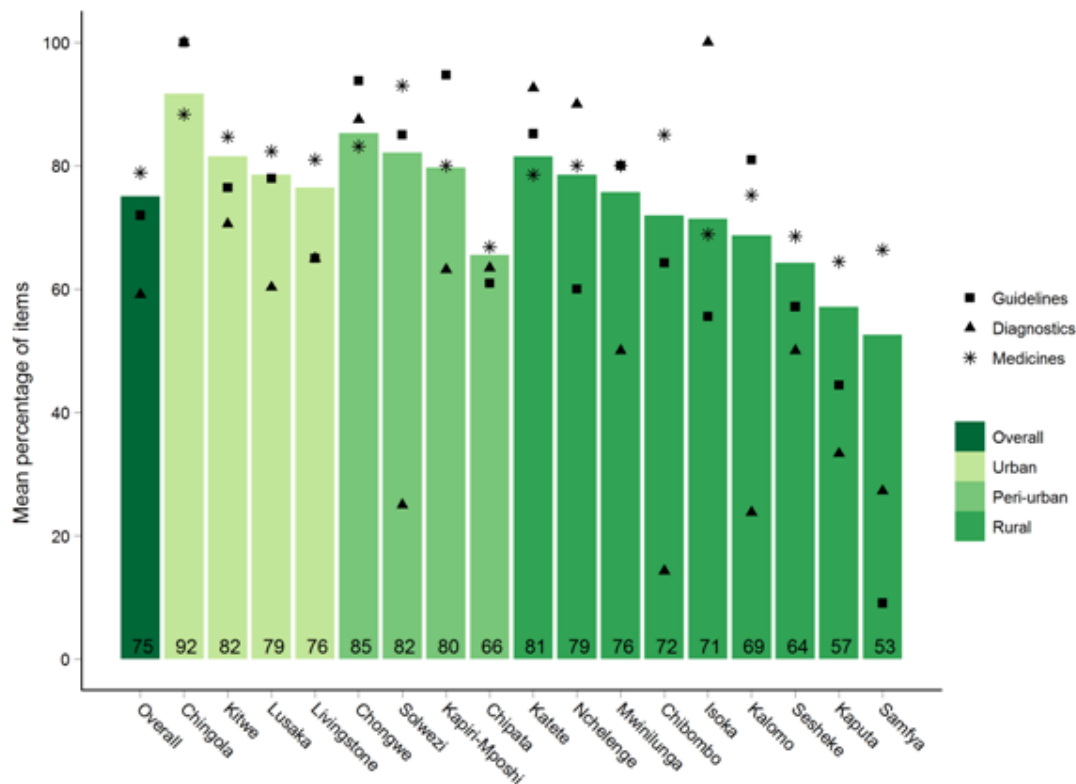
\* Tracer indicators for HIV testing and counselling include: guidelines on HIV testing, guidelines on HIV/AIDS counselling, HIV rapid diagnostic test, and male condoms.

# 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.



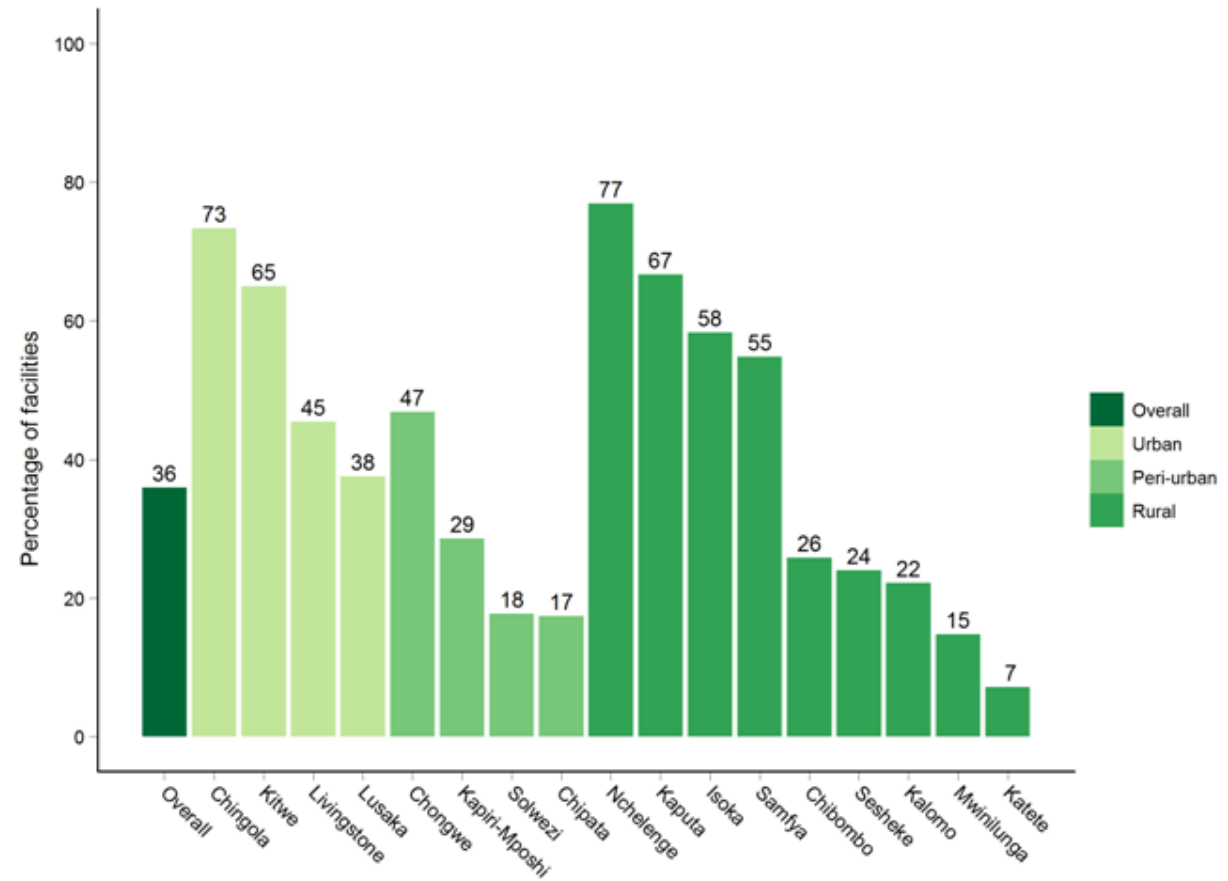
\* Tracer items for HIV/AIDS care and support consist of the following 7 items: guidelines for HIV/AIDS opportunistic infection treatment and care, TB test, intravenous infusion kit, co-trimoxazole, first-line TB medications, diclofenac, and condoms.

# Antiretroviral therapy

## % facilities offering ART services

17 districts, Zambia 2010

•ART is offered in only 1 out of 3 facilities.



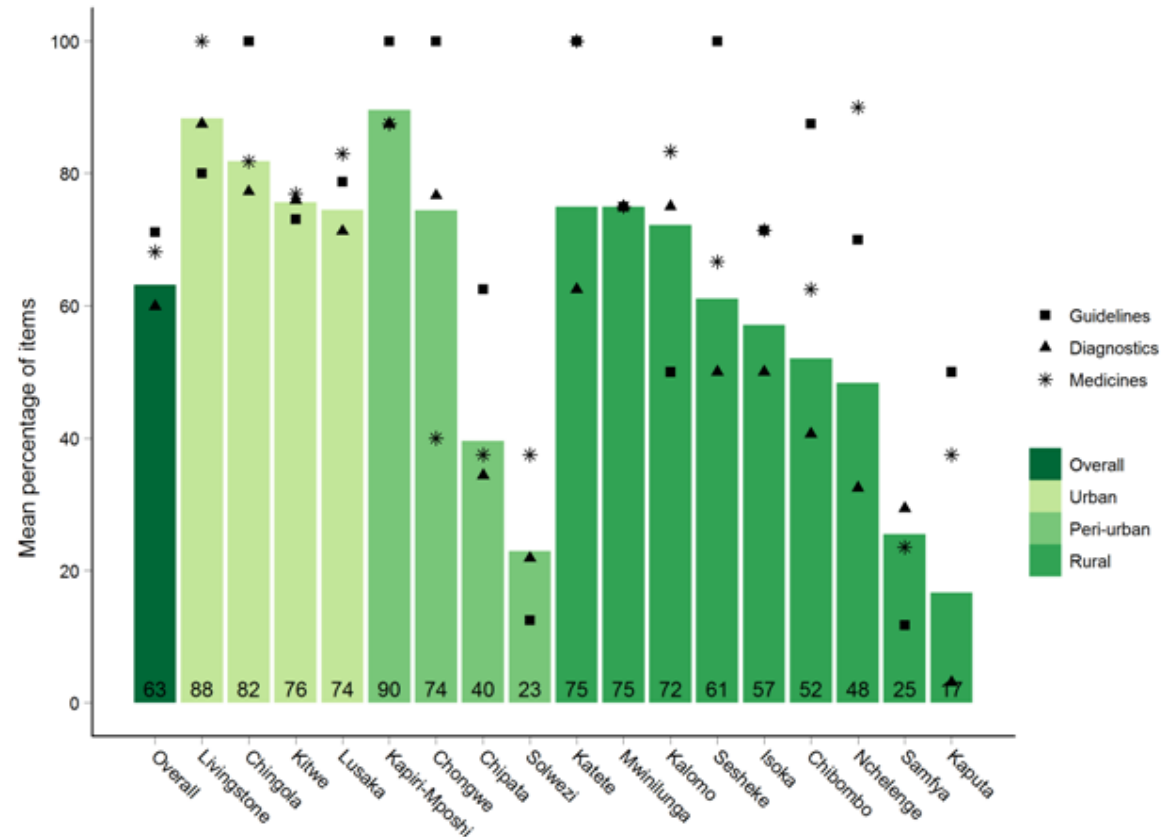
# ART Readiness:

## 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).

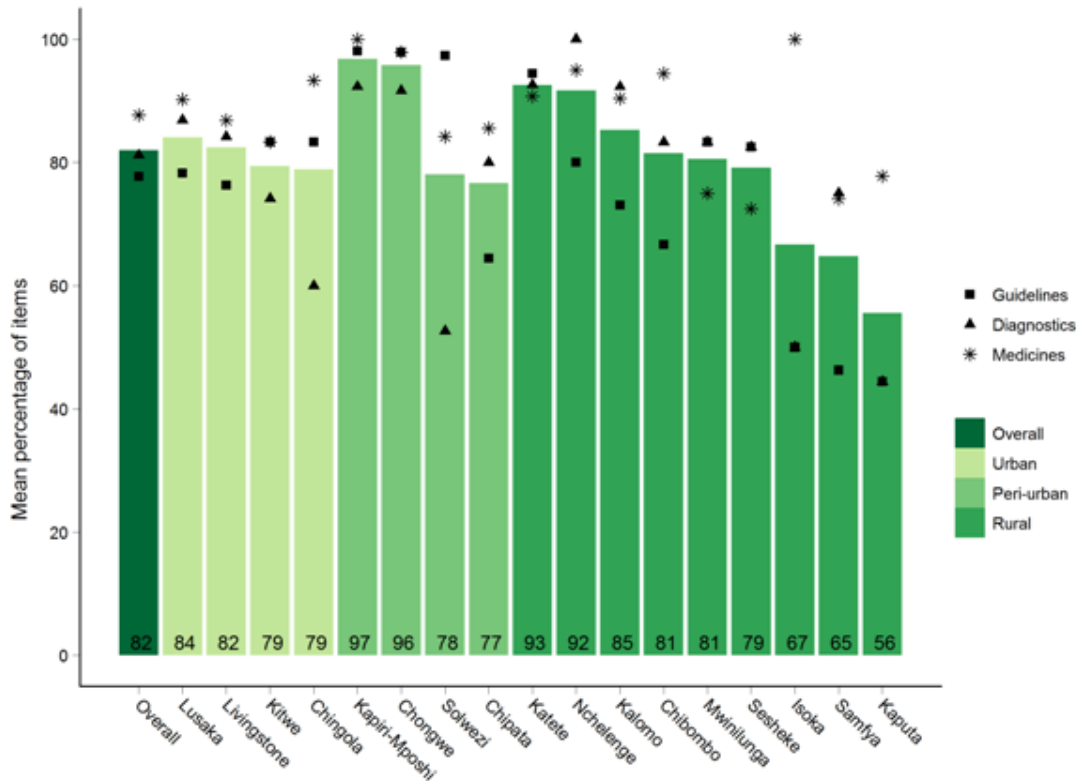
# PMTCT Readiness

## 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.

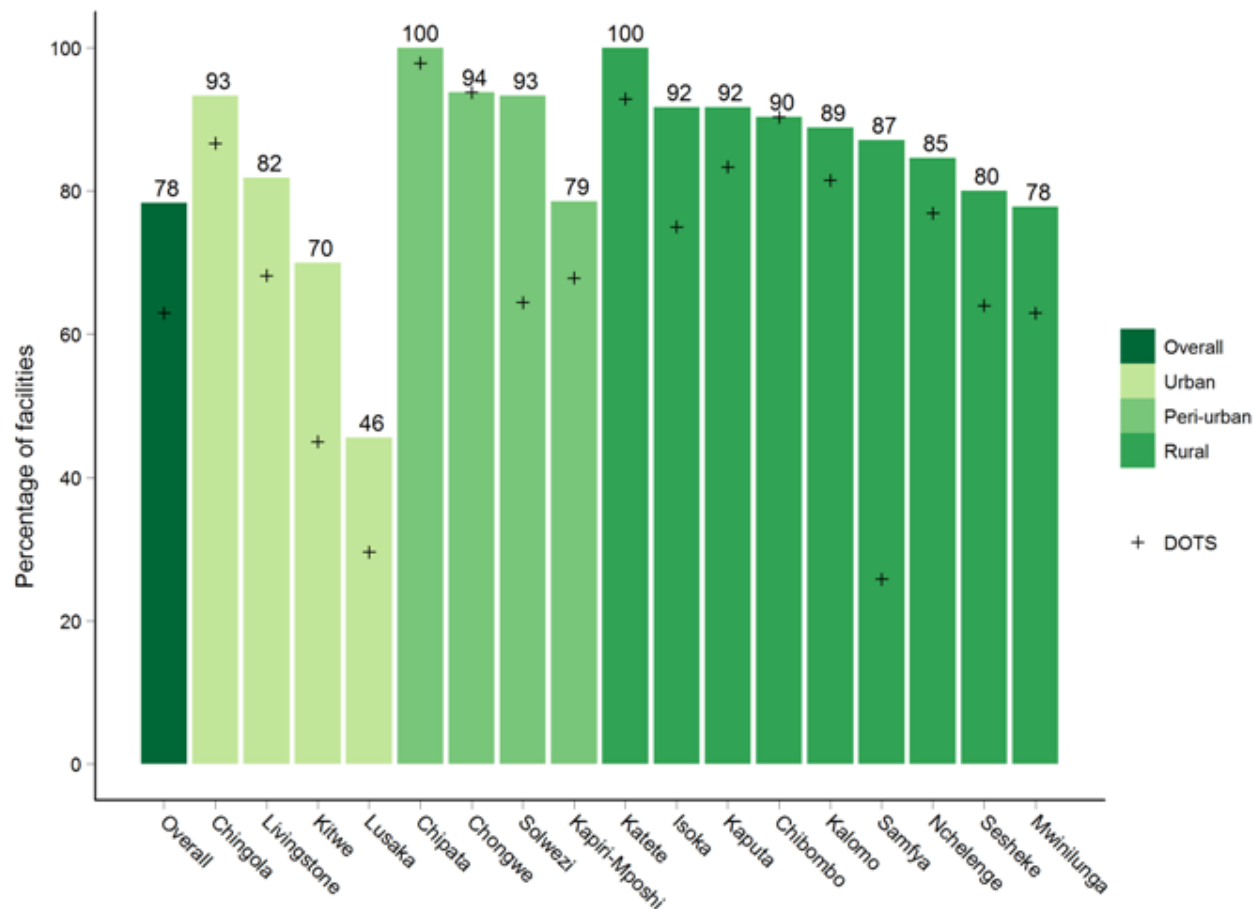
# Tuberculosis

## % 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.



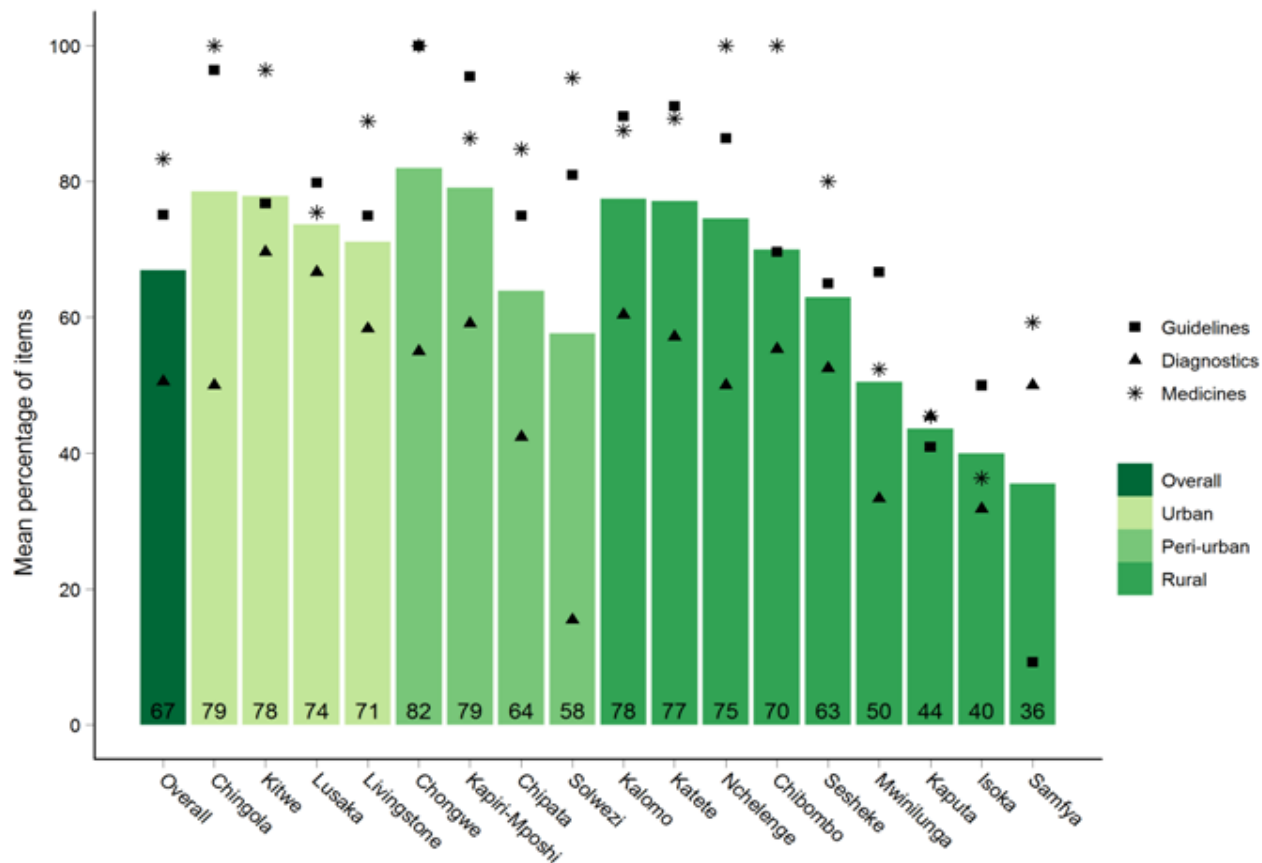
# Tuberculosis readiness:

## 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.



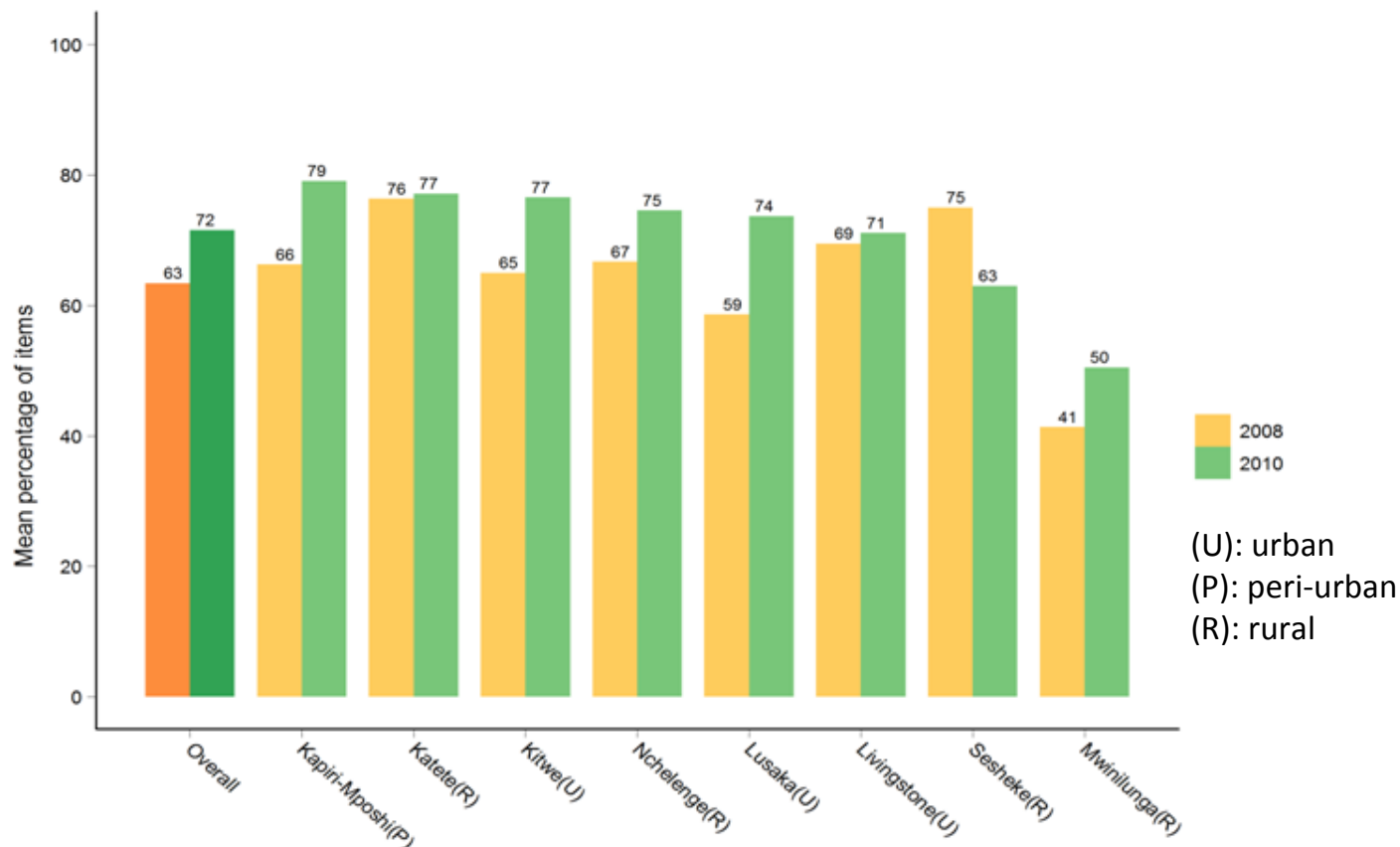
\* Tracer items for TB include: guidelines on diagnosis and treatment of TB, guidelines on management of HIV/TB co-infection, TB smear microscopy, HIV diagnostic test, and first-line TB medications (isoniazid, pyrazinamide, rifampicin, and ethambutol as separate drugs or in any fixed dosed combinations).

# 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).

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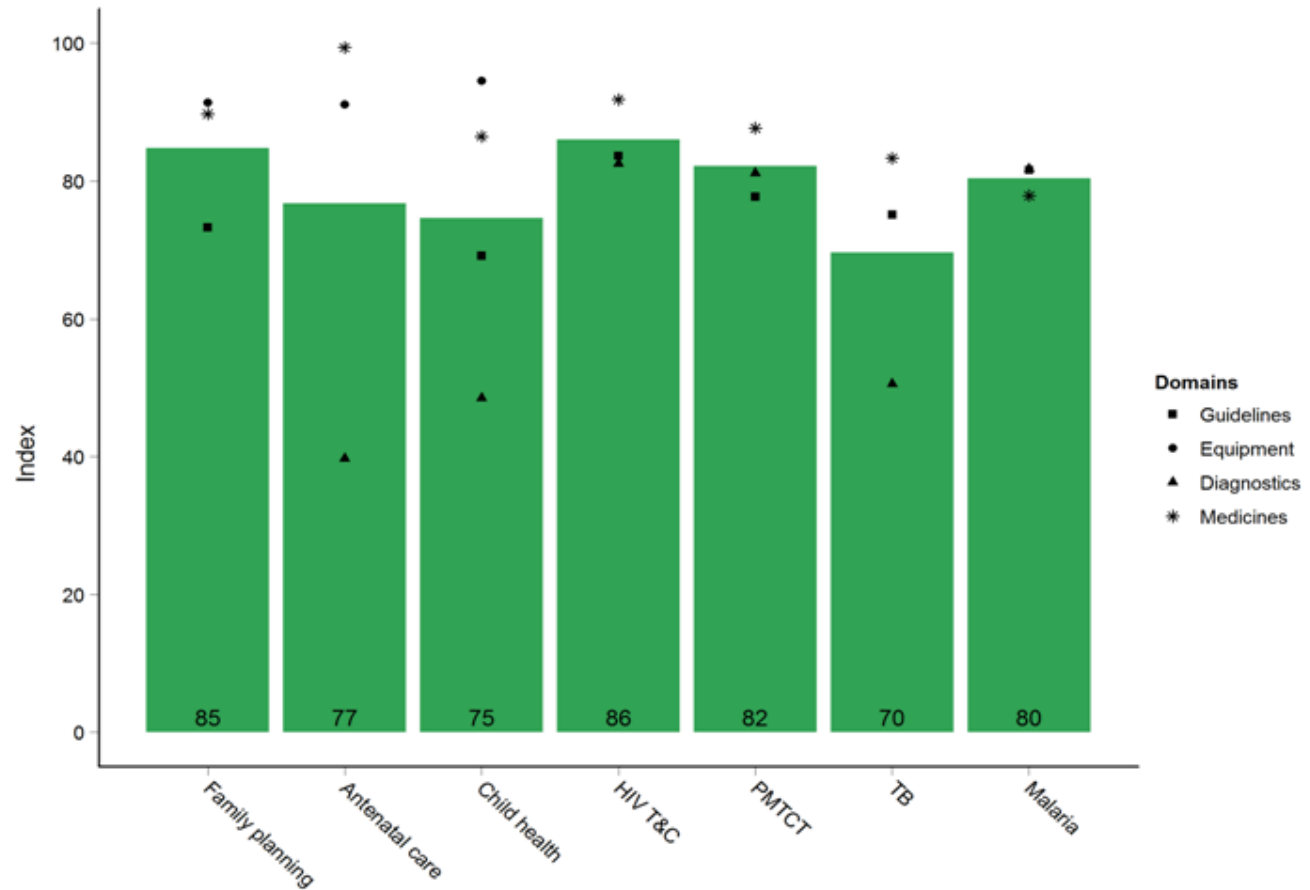
# Summary index of service-specific readiness



# Index of service specific readiness\*

## 17 districts, Zambia 2010

TB has a mean service readiness score of 70% (70% of tracer items are available)



\* Mean percentage of tracer items available

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# Methodology

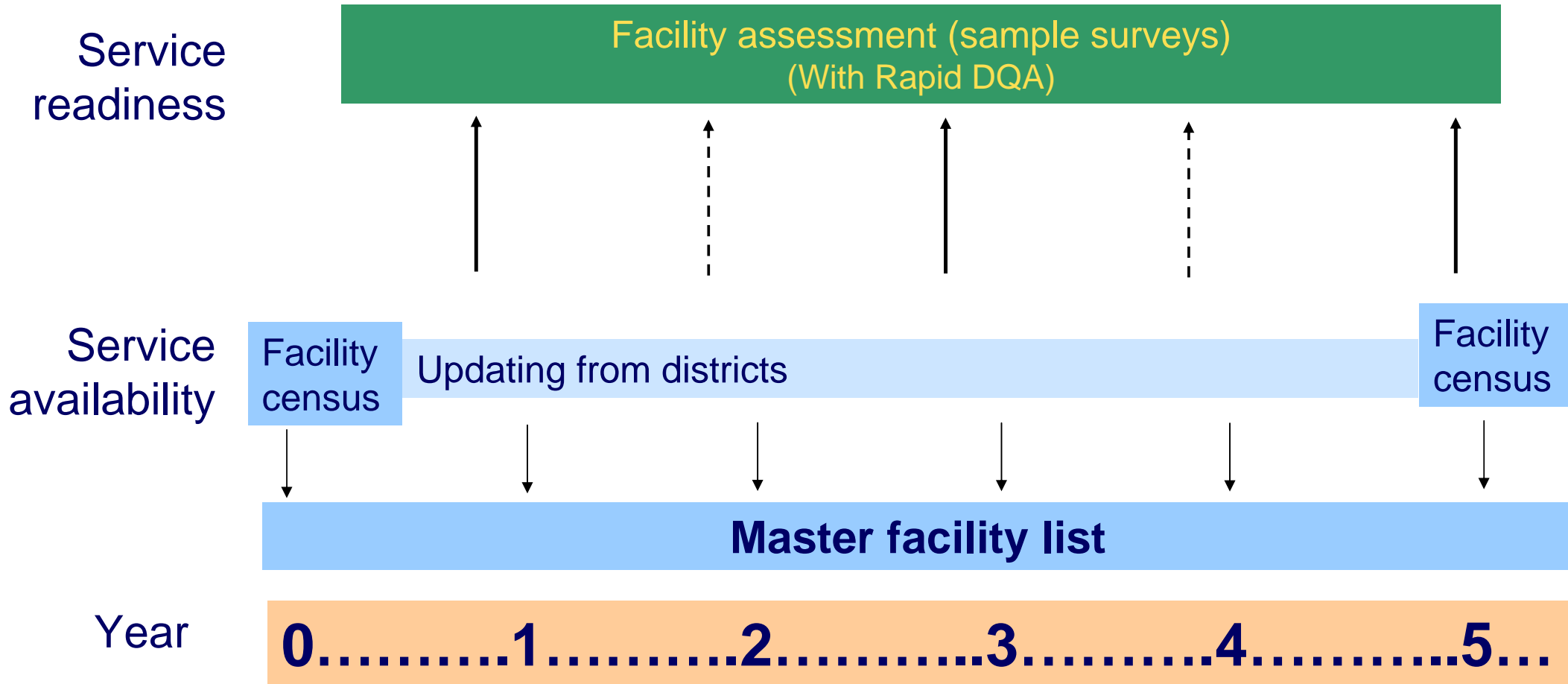


# Service availability and readiness for health sector reviews: Methodology

- 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



# 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. CSPPro) 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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