Module 3.1
Estimating service coverage

Trainer:.....

Module objectives

At the end of this module learners will be able to:

1. Describe the stages of the health services coverage cascade.
2. Distinguish between the concepts of service utilization, coverage and effective coverage.
3. Identify data sources for estimating service coverage measures and understand the associated pros and cons, challenges in using certain data sources.
4. Estimate population level denominators for service coverage measures.

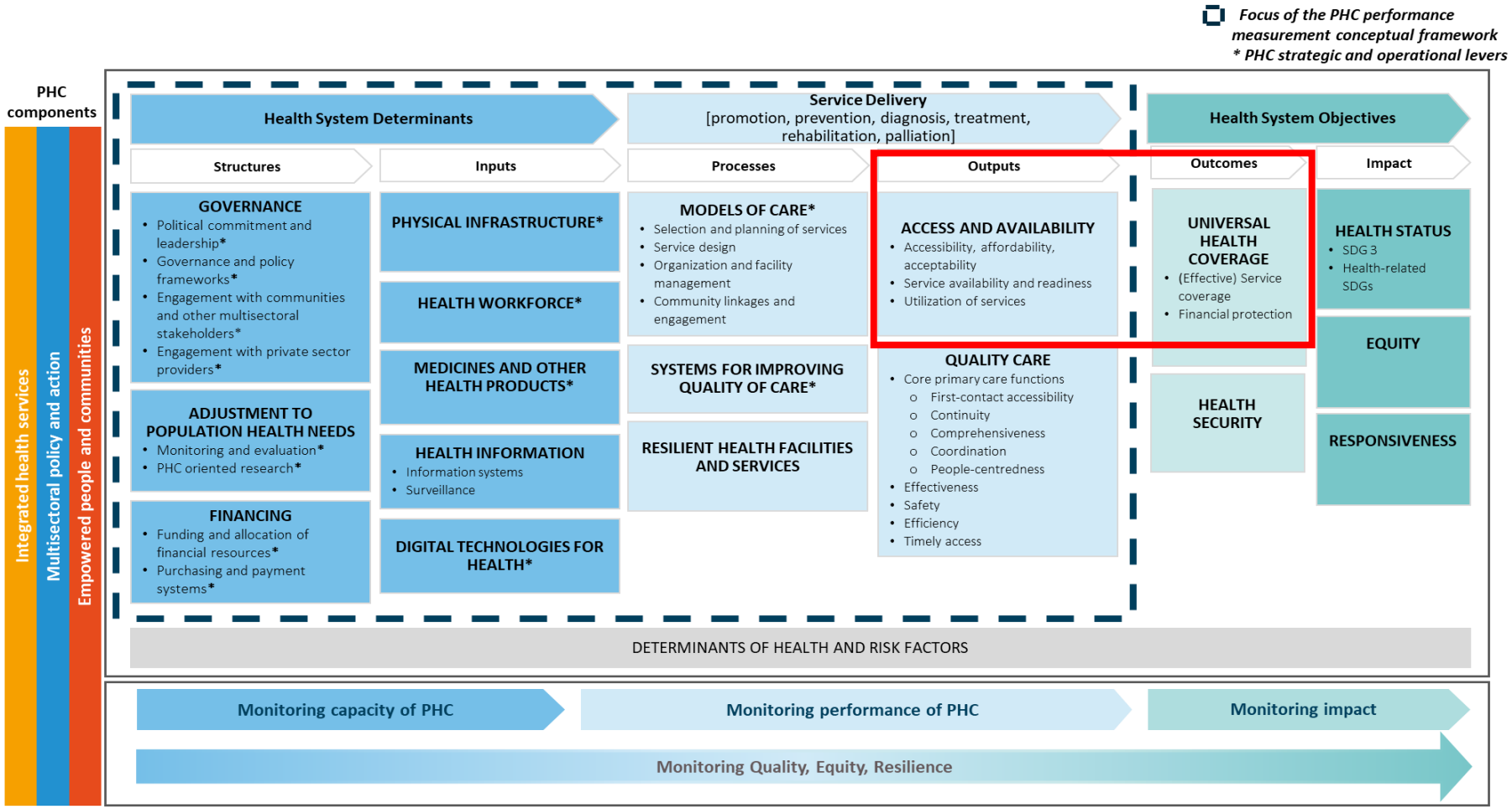
Module outline

Sr. No.	Session name	Session format	Time
1	The health service coverage cascade	Facilitator led presentation	40 min
2	Measuring service coverage	• Facilitator led presentation • Discussion based activity	40 min
3	Estimating service coverage using routine data	Group exercise	30 min

Session 1:
Health Service Coverage Cascade

Duration: 40 min

WHO-UNICEF Primary Health Care Performance Measurement Framework (2022)



Outputs: Direct products of program activities. E.g.-

- Availability of services
- Service utilization

Outcomes: Benefits or changes in the program's target population. E.g.-

- Immunization coverage
- Screening coverage for hypertension

Source: World Health Organization, & United Nations Children's Fund (UNICEF). (2022).

Service coverage

- The primary function of health systems is to provide health services to people.
- There are several key concerns related to delivery of health services:
  1. Are people receiving the health services they need?
  2. Are health services of good quality?
  3. Are health services affordable to people?

Service coverage

- For people to use health services several conditions need to be met (Adapted from Tanahashi 1978)
  - **Services need to be available**: Providing health services requires a variety of resources – infrastructure (e.g. health facilities, equipment), trained personnel, supplies, financing, and processes necessary to deliver health services.





Service coverage

- For people to use health services several conditions need to be met (Adapted from Tanahashi 1978)
  - **Services need physical accessibility**: Health services need to be within easy geographic reach of people. Health services will not be widely used if service delivery points are far away from where people live or take a lot of time, effort and expense to reach.



Service coverage

- For people to use health services several conditions need to be met (Adapted from Tanahashi 1978)
  - **Services need to be acceptable and affordable**: Having health service delivery points accessible to people does not automatically ensure use. People need to also find the services “acceptable” based on their preferences for cost, time, cultural beliefs, etc.



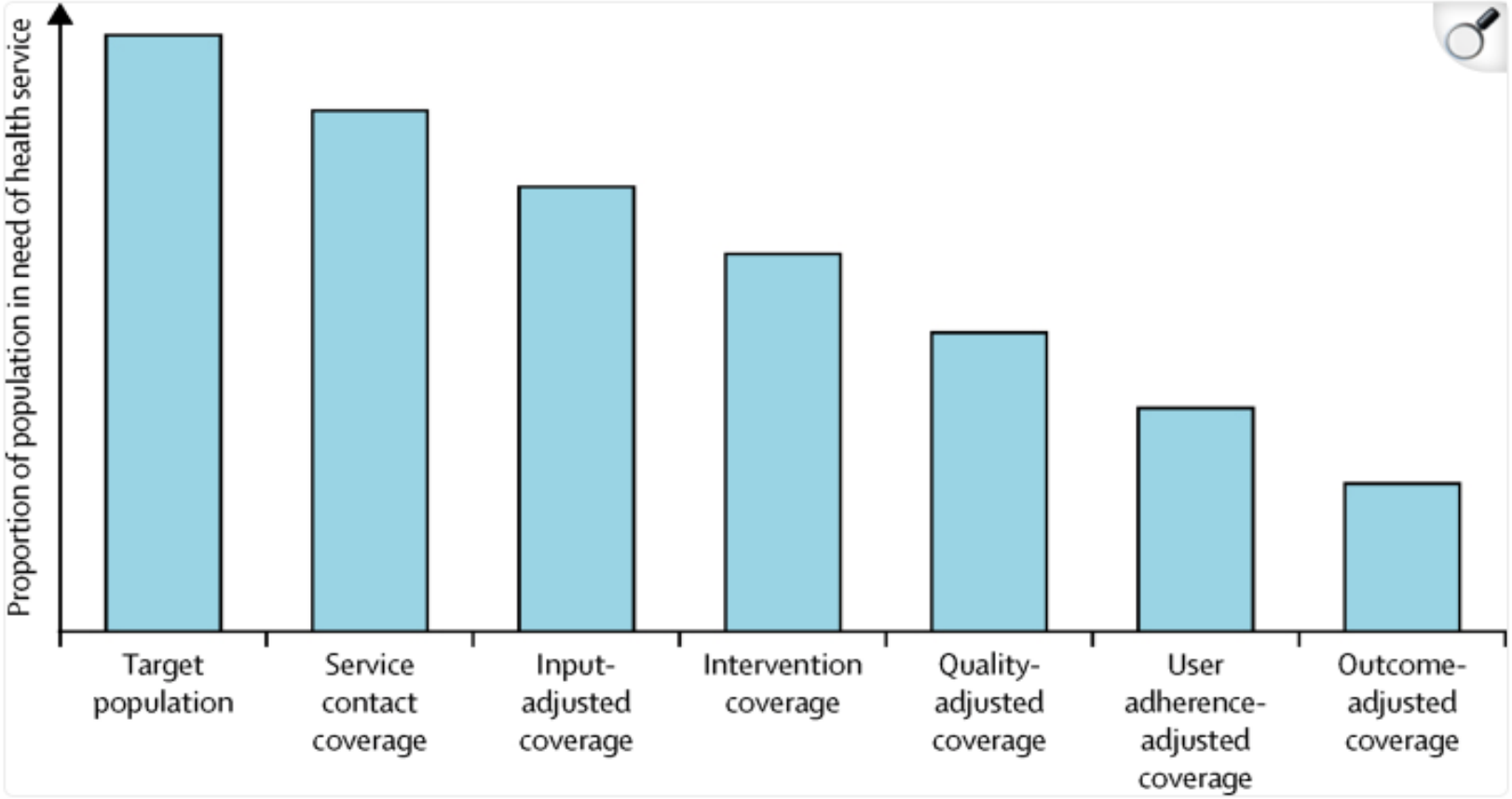
Service coverage cascade

- The health service coverage cascade details several steps between identifying a target population for a service and achieving a good health outcome.
- The cascade can help identify bottlenecks in service provision and for determining appropriate remedial actions.
- While it is helpful to know the entire cascade, in practice only a few key steps in the cascade are estimated.

Key concerns related to delivery of health services:

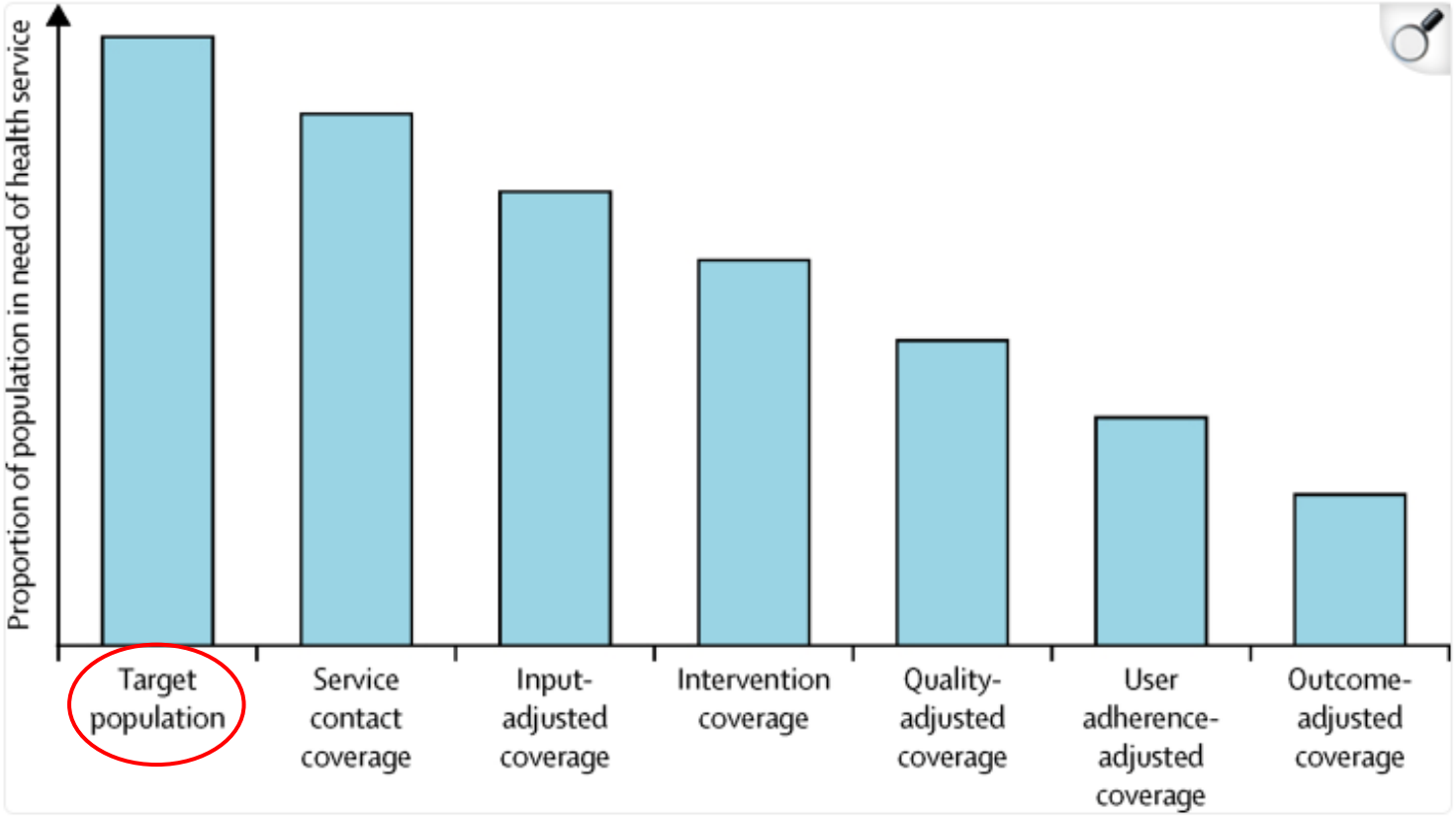
1. **Are people receiving the health services they need?**
2. **Are health services of good quality?**
3. Are health services affordable to people?

Standardized health service coverage cascade



From: Marsh AD, Muzigaba M, Diaz T, Requejo J, Jackson D, Chou D, Cresswell JA, Guthold R, Moran AC, Strong KL, Banerjee A, Soucat A; Effective Coverage Think Tank Group. Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems. Lancet Glob Health. 2020 May;8(5):e730-e736. doi: 10.1016/S2214-109X(20)30104-2. PMID: 32353320; PMCID: PMC7196884.

Standardized health service coverage cascade



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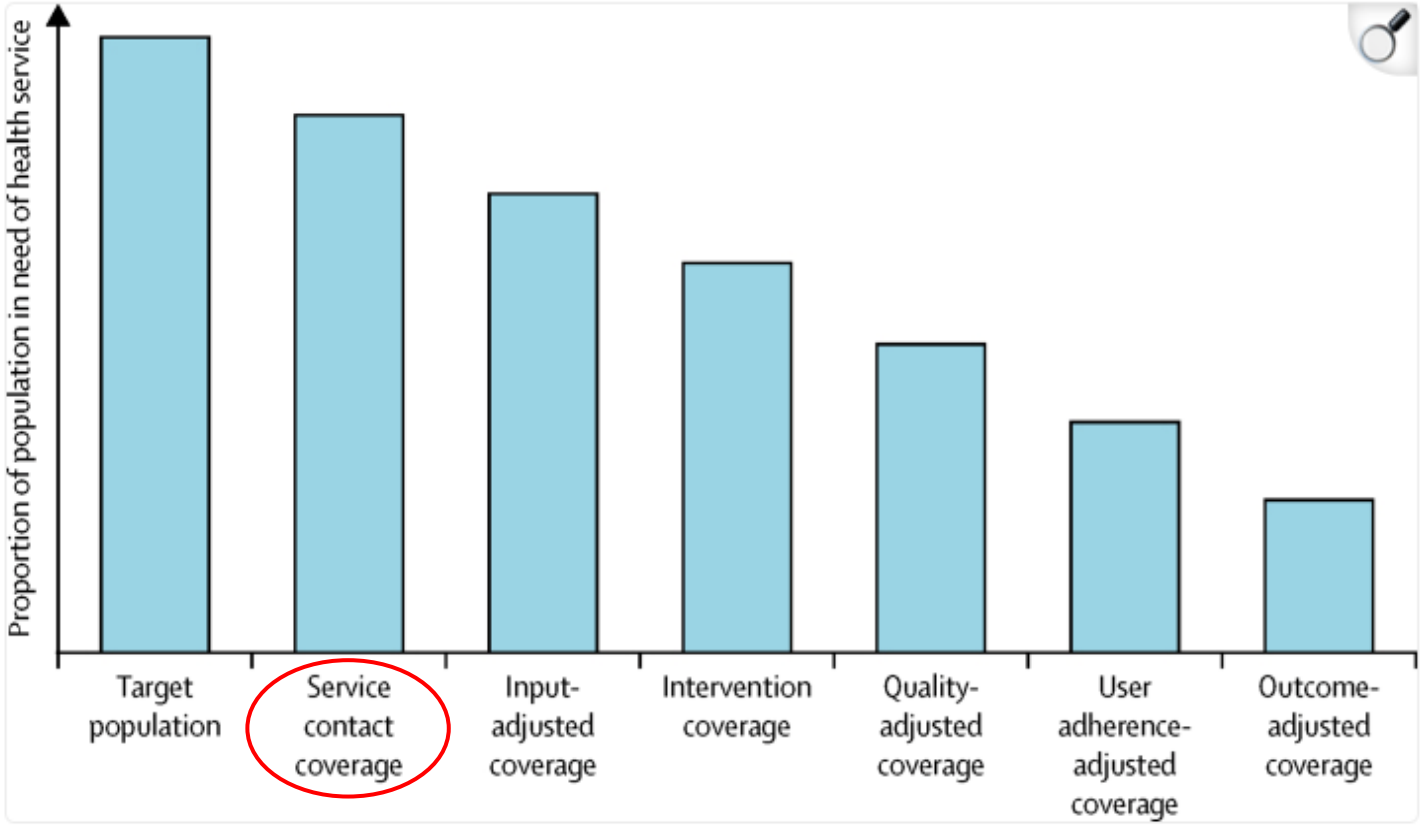
Step 1 – Identify the **Target Population,** with a specific health need.

The target population is specific to each specific service. For example:

- All adults above 30 years of age for hypertension screening.
- All pregnant women for antenatal care
- All people living in the health facility catchment area for general outpatient services.

Information on the target population is available from a variety of sources like surveys of the health facility catchment area, household surveys at the sub-national or national level.

Standardized health service coverage cascade



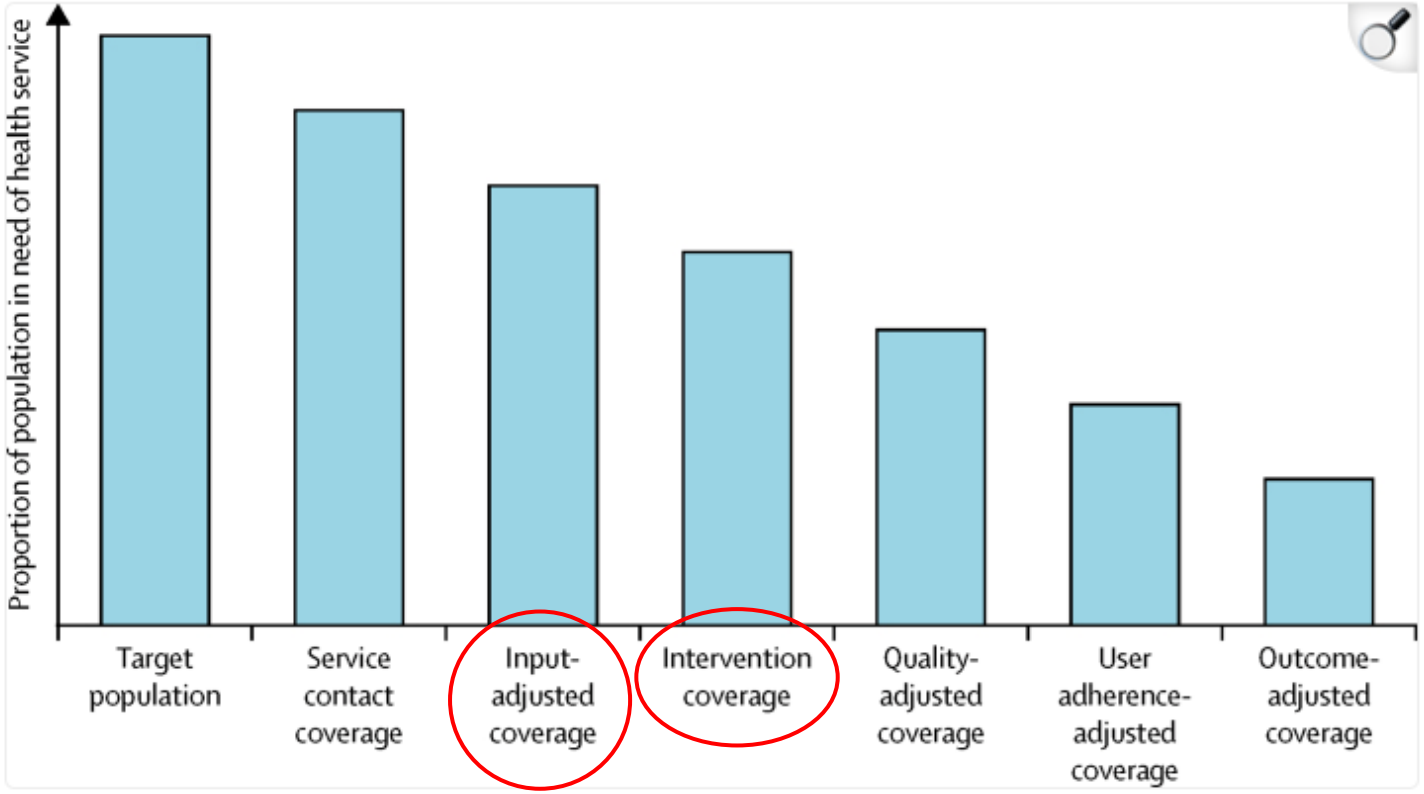
Step 2 – Identify the **Service Contact Coverage ("service coverage")** or the proportion of the population in need who have come into contact with the relevant health service.

- It captures access (physical, acceptability) to, and use of health services.
- Does not account for service quality or improvement in health.

Example: % of pregnant women attending at least one antenatal care (ANC) visit

From: Marsh AD, Muzigaba M, Diaz T, Requejo J, Jackson D, Chou D, Cresswell JA, Guthold R, Moran AC, Strong KL, Banerjee A, Soucat A; Effective Coverage Think Tank Group. Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems. Lancet Glob Health. 2020 May;8(5):e730-e736. doi: 10.1016/S2214-109X(20)30104-2. PMID: 32353320; PMCID: PMC7196884.

Standardized health service coverage cascade



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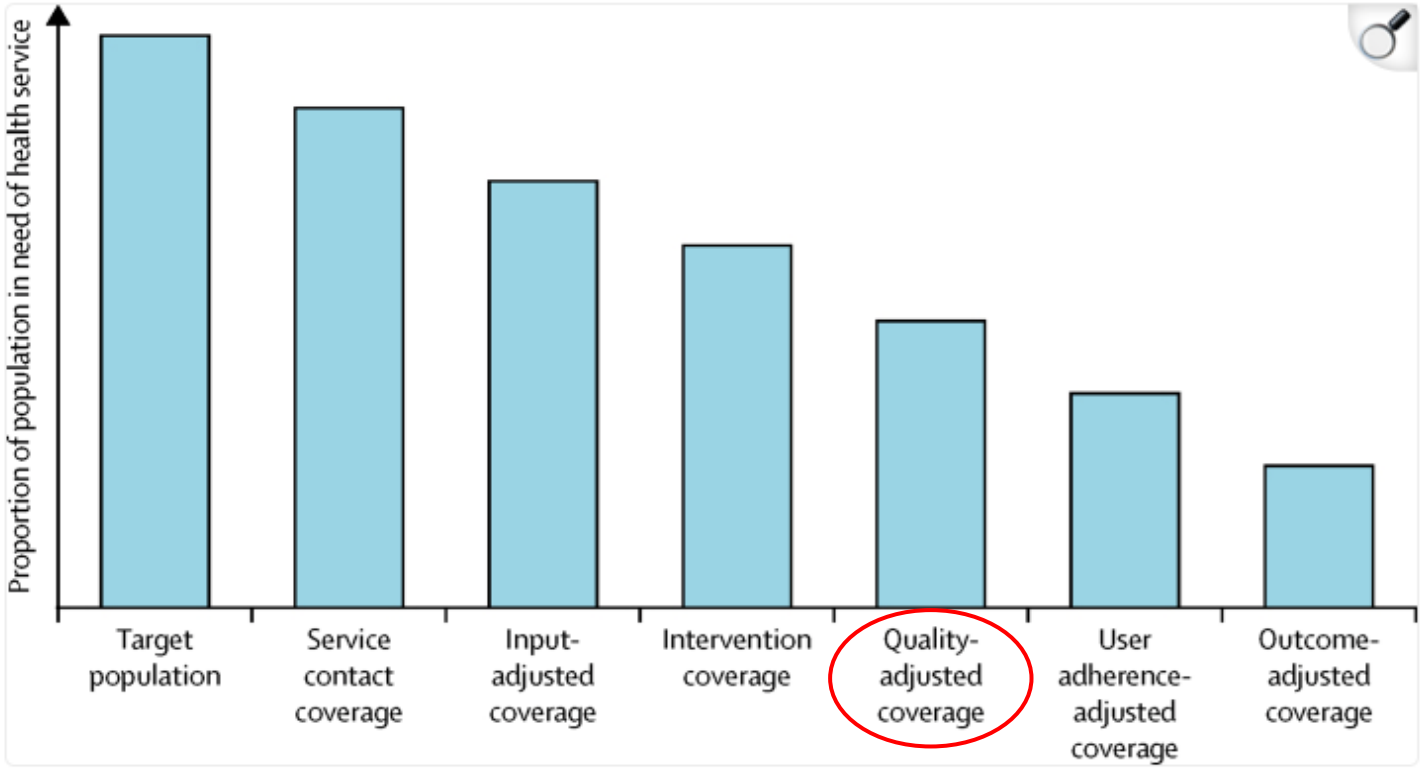
Step 3 - Identify the **Input-Adjusted Coverage**

- This includes people from Service Contact Coverage (from step two), who have come into contact with a provider that is ready to provide the service i.e has all required inputs (e.g. training, equipment) to provide care.

Step 4 - Identify the **Intervention Coverage**

- This includes the proportion of the population identified in the input-adjusted coverage (from step three), who receives the service with all the necessary inputs.

Standardized health service coverage cascade

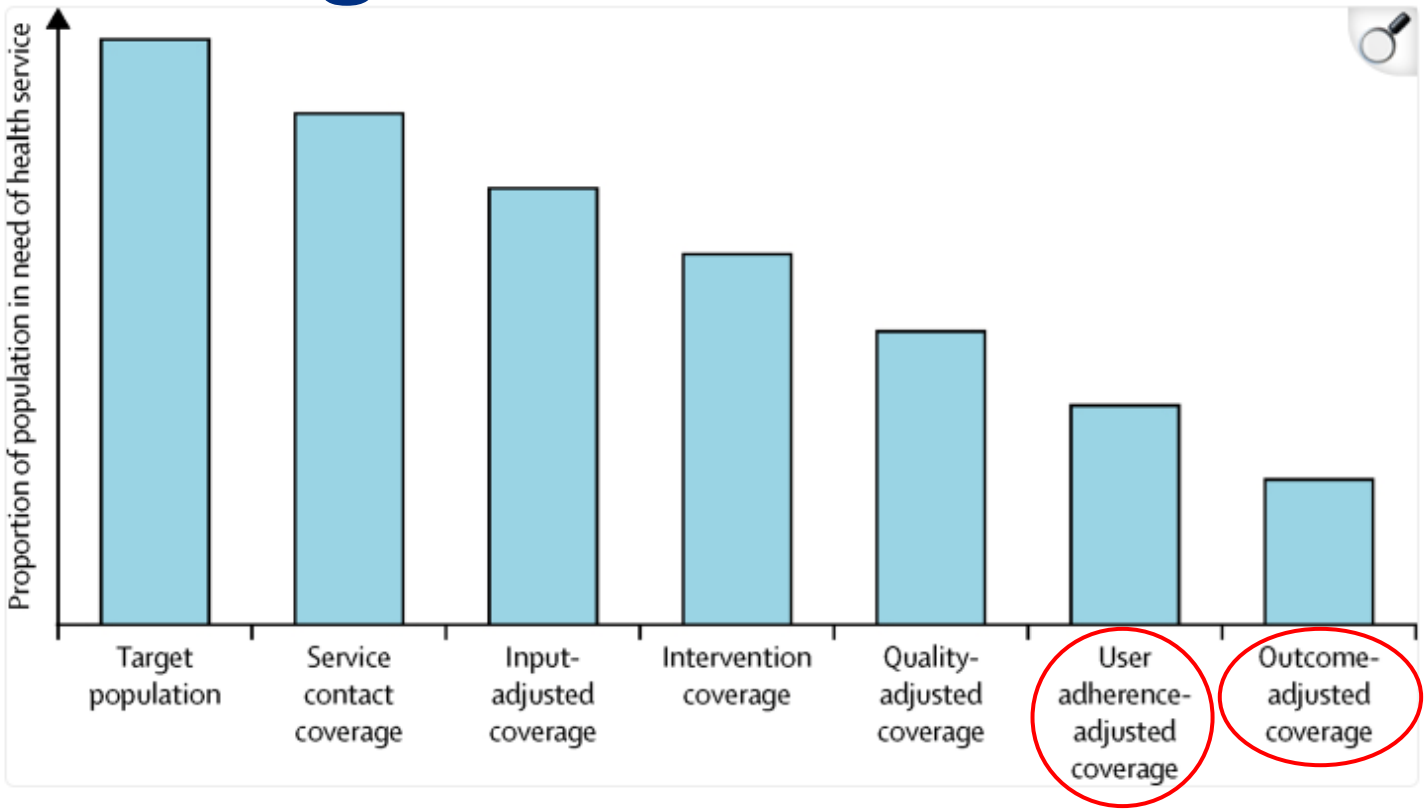


Step 5 - Identify the **Quality-adjusted Coverage**, the proportion of the population in need who have come into contact with a service that is ready and then receives the service according to quality-of-care standards.

- Typically used to measure "effective coverage"
- The concept of effective coverage adds the dimension of quality of care to the measurement of intervention coverage so that the potential health benefits of an intervention can be captured.

From: Marsh AD, Muzigaba M, Diaz T, Requejo J, Jackson D, Chou D, Cresswell JA, Guthold R, Moran AC, Strong KL, Banerjee A, Soucat A; Effective Coverage Think Tank Group. Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems. Lancet Glob Health. 2020 May;8(5):e730-e736. doi: 10.1016/S2214-109X(20)30104-2. PMID: 32353320; PMCID: PMC7196884.

Standardized health service coverage cascade



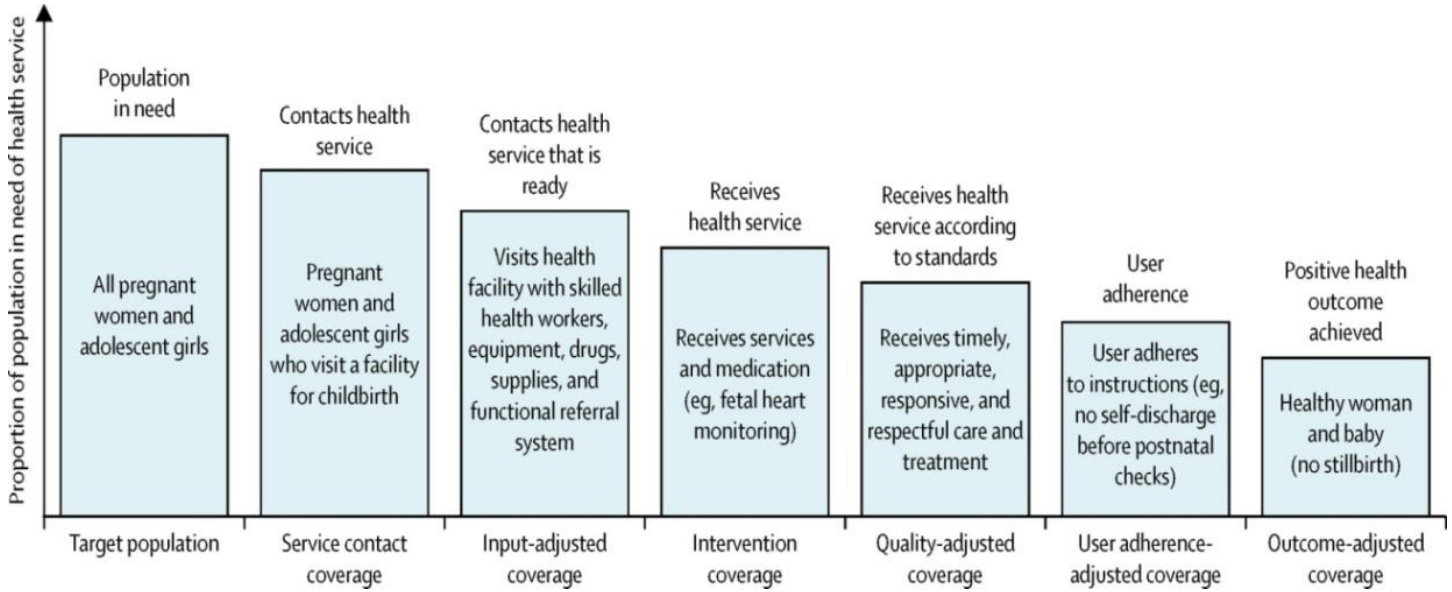
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Step 6 - Identify the **User Adherence-Adjusted coverage**, the proportion of the population in need who receives the service according to quality-of-care standards and that adheres to provider instructions.

Step 7 - Identify the **Outcome-adjusted Coverage**, the proportion of the population in need who receives the service according to quality-of-care standards, adheres to provider instructions, and has the expected health outcome

- This can also be used to measure effective coverage.

Example: Health-service coverage cascade for routine childbirth care



From: Marsh AD, Muzigaba M, Diaz T, Requejo J, Jackson D, Chou D, Cresswell JA, Guthold R, Moran AC, Strong KL, Banerjee A, Soucat A; Effective Coverage Think Tank Group. Effective coverage measurement in maternal, newborn, child, and adolescent health and nutrition: progress, future prospects, and implications for quality health systems. Lancet Glob Health. 2020 May;8(5):e730-e736. doi: 10.1016/S2214-109X(20)30104-2. PMID: 32353320; PMCID: PMC7196884.

This figure shows an example of the service coverage cascade for maternal and child health. Some key points:

- Note that the starting point is 'the population in need' i.e. pregnant women and adolescent girls.
- The 'service contact coverage' is the proportion of the population in need that visited a facility for childbirth.
- The 'quality adjusted coverage' is the proportion of the population in need that went to a health facility for giving birth and received services as per standard protocols.

Standardized health service coverage cascade

- Estimating the full cascade requires data from a variety of sources e.g. surveys of health facilities, health providers, community, patients; however, all this data may not be easily available.
- In practice “service coverage” and to a lesser extent “effective coverage” are the most commonly measured indicators.

Service coverage Vs Utilization

It is useful to distinguish between different measures of contact with health services. The use of health services can be measured from several perspectives:

- **Utilization of service delivery points/facilities**: Measures visit or use frequency of service delivery points from the provider's perspective.
  - Example: Total number of visits to a health facility in a month.
- **Utilization of services by individuals**: Measures health service use frequency of individuals
  - Example: Number of visits made by a patient to a health center in last month
- **Service Contact Coverage ('service coverage')**: Measures contact from the population's perspective.
  - Example: proportion of children with fever in the facility catchment area who visited the health facility.

Service coverage Vs Utilization

- In the table, column 2 shows the number of individuals over 30 years of age screened for hypertension in the last three months in a health facility catchment area.
    - It tells us about utilization i.e. how many contacts for screening were made at each facility.
- However, utilization doesn't tell us the extent to which the population is "covered" by hypertension screening.
- For example, you can have 2000 individuals screened in a quarter at a health facility (i.e. high utilization) but these screenings could be mostly of people living nearby the health facility while those farther away make few or no visits resulting in overall low coverage when the entire catchment population is considered.

	Number of individuals 30 years and above screened for hypertension in last quarter	Total population 30 years and above
Facility 1	11	1426
Facility 2	141	1804
Facility 3	1776	1776
Facility 4	553	2327
Facility 5	1038	1839
Facility 6	621	1795
Facility 7	1488	1682
Facility 8	1591	1763
Facility 9	196	1573
Facility 10	296	1436

Data source: NCD portal, Y district

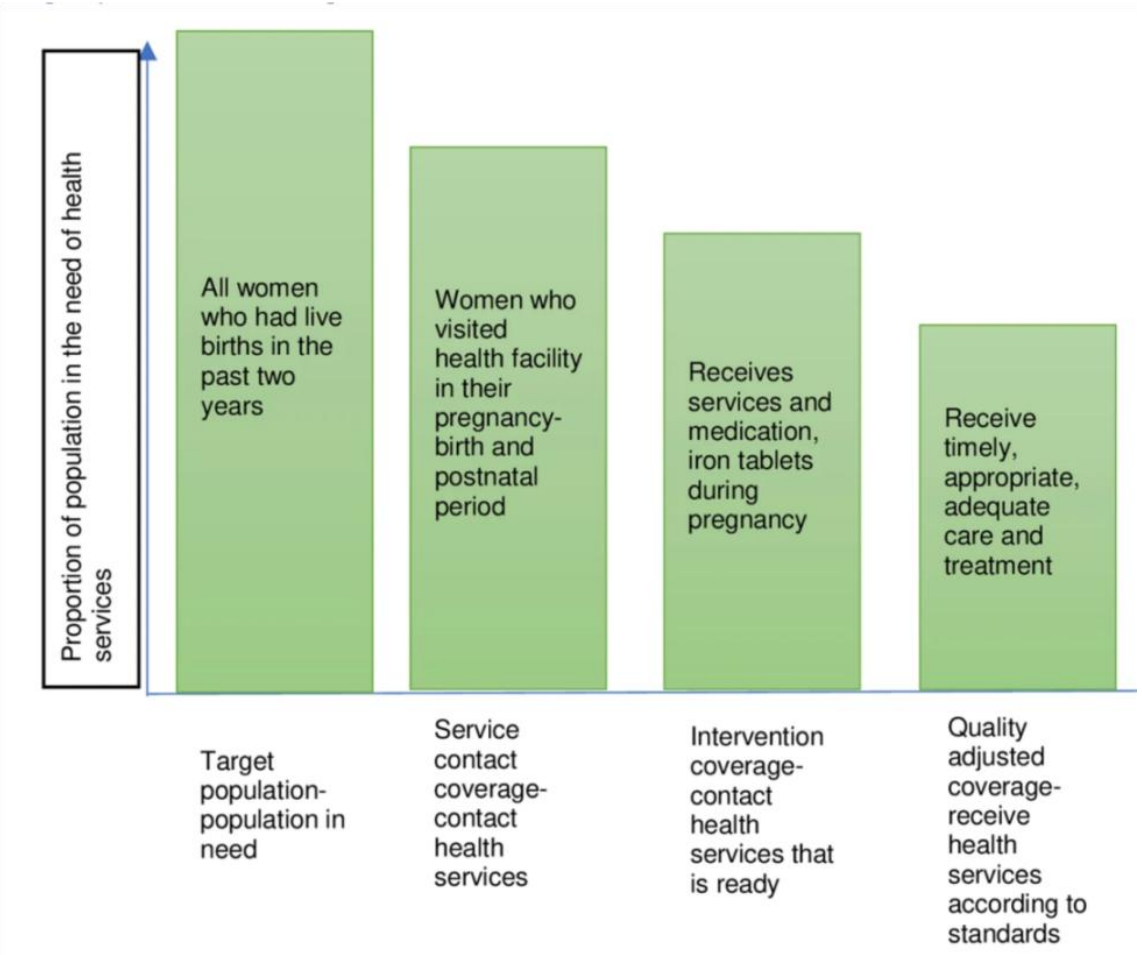
Service coverage Vs Utilization

- In the table, column 2 shows the number of individuals over 30 years of age who were screened for hypertension in the facility catchment area.
- Column 3 shows the total number of individuals over 30 years of age.
- Column 4 tells us about coverage of hypertension screening i.e. proportion of the eligible population in screened.
- Note the important role of denominators (see module 1.2) in estimating service coverage.

	Number of individuals 30 years and above screened for hypertension in last quarter	Total population 30 years and above	Proportion of individuals 30 years and above screened for hypertension in last quarter
Facility 1	11	1426	1%
Facility 2	141	1804	8%
Facility 3	1776	1776	100%
Facility 4	553	2327	24%
Facility 5	1038	1839	56%
Facility 6	621	1795	35%
Facility 7	1488	1682	88%
Facility 8	1591	1763	90%
Facility 9	196	1573	12%
Facility 10	296	1436	21%

Data source: NCD portal, Y district

Example: ANC Coverage in a District



This graph illustrates the service coverage cascade for maternal care.

- **Target population**: All women who had live births in the past two years represent those in need of services.
- **Service contact coverage**: Subset of the target population who visited a health facility during pregnancy, childbirth, or postnatal period.
- **Intervention coverage**: Among those who made contact, proportion who received specific services like iron supplementation.
- **Quality-adjusted coverage**: Final subset of women who received care that met quality standards.

Source: Khatri, R.B., Durham, J., Karkee, R. *et al.* High coverage but low quality of maternal and newborn health services in the coverage cascade: who is benefitted and left behind in accessing better quality health services in Nepal?. *Reprod Health* **19**, 163 (2022). https://doi.org/10.1186/s12978-022-01465-z

Example: ANC Coverage in a District

- In this example we will use a sample from the NFHS 2019-21 for a district to estimate the ANC coverage cascade.
- Information required:
  - Target population: Women aged 15–49 years who had a live birth in the 2 years preceding the survey in the district.
  - Target population who had at least four ANC visits from skilled providers
  - Quality definition and adjustment

Example: ANC Coverage in a District

1	2	3	4	5	6	7	8	9	10
Woman No.	ANC Visits	4+ ANC visit	ANC by skilled providers	During pregnancy - urine sample taken	During pregnancy - blood sample taken	Told about pregnancy complications at the time of last antenatal visit	Days tablets or syrup taken	Iron tablets or syrup taken for 180 days	Drugs for intestinal parasites
1	6	Yes	Yes	Yes	Yes	Yes	100	No	Yes
2	7	Yes	Yes	Yes	Yes	Yes	80	No	Yes
3	1	No	Yes	Yes	Yes	Yes	100	No	Yes
4	5	Yes	Yes	Yes	Yes	No	150	No	No
5	12	Yes	Yes	Yes	Yes	Yes	180	Yes	No
6	7	Yes	Yes	Yes	Yes	Yes	56	No	Yes
7	12	Yes	Yes	Yes	Yes	Yes	108	No	No
8	3	No	No	Yes	Yes	Yes	200	Yes	Yes
9	2	No	Yes	Yes	Yes	Yes	180	Yes	Yes
10	12	Yes	No	Yes	Yes	Yes	180	Yes	Yes

Sample: Women aged 15–49 years who had a live birth in the 2 years preceding the survey in the district.

- Column 1 ('target population'): The dataset contains10 women aged 15-49 years who live in the district and have had a live birth in the 2 years preceding the survey.
- Column 2: Shows the number of ANC visits the woman has had.
- Column 3: If woman had at least 4 ANC visits.
- Column 4: If any of these ANC visits were to a skilled provider.
- Column 5-10: Service/drugs received or consumed

Data source: NFHS-5, 2019-21

Example: ANC Coverage in a District

1	2	3	4	5	6	7	8	9	10
Woman No.	**ANC Visits**	**4+ ANC visit**	**ANC by skilled providers**	**During pregnancy - urine sample taken**	**During pregnancy - blood sample taken**	**Told about pregnancy complications at the time of last antenatal visit**	**Days tablets or syrup taken**	**Iron tablets or syrup taken for 180 days**	**Drugs for intestinal parasites**
1	6	Yes	Yes	Yes	Yes	Yes	100	No	Yes
2	7	Yes	Yes	Yes	Yes	Yes	80	No	Yes
3	1	No	Yes	Yes	Yes	Yes	100	No	Yes
4	5	Yes	Yes	Yes	Yes	No	150	No	No
5	12	Yes	Yes	Yes	Yes	Yes	180	Yes	No
6	7	Yes	Yes	Yes	Yes	Yes	56	No	Yes
7	12	Yes	Yes	Yes	Yes	Yes	108	No	No
8	3	No	No	Yes	Yes	Yes	200	Yes	Yes
9	2	No	Yes	Yes	Yes	Yes	180	Yes	Yes
10	12	Yes	No	Yes	Yes	Yes	180	Yes	Yes

Estimating 'service contact coverage'

Service coverage defined as: Among women in the target population (Column 1), those who had **at least four ANC visits from a skilled provider.**

- 7 out of the 10 pregnant women had at least 4 ANC visits.
- 6 of the 7 of women with 4 ANC visits were to a skilled provider.

Service coverage = 60% (6/10) ie. all pregnant women with 4+ ANC visits to a skilled provider.

- Indicates moderate coverage of ANC services i.e. only 60% of the women in need received 4+ ANC services.

Example: ANC Coverage in a District

1	2	3	4	5	6	7	8	9	10	11
Woman No.	**ANC Visits**	**4+ ANC visit**	**ANC by skilled providers**	**During pregnancy - urine sample taken**	**During pregnancy - blood sample taken**	**Told about pregnancy complications at the time of last antenatal visit**	**Days tablets or syrup taken**	**Iron tablets or syrup taken for 180 days**	**Drugs for intestinal parasites**	**Quality Score**
1	6	Yes	Yes	Yes	Yes	Yes	100	No	Yes	0.8
2	7	Yes	Yes	Yes	Yes	Yes	80	No	Yes	0.8
3	1	No	Yes	Yes	Yes	Yes	100	No	Yes	0.8
4	5	Yes	Yes	Yes	Yes	No	150	No	No	0.4
5	12	Yes	Yes	Yes	Yes	Yes	180	Yes	No	0.8
6	7	Yes	Yes	Yes	Yes	Yes	56	No	Yes	0.8
7	12	Yes	Yes	Yes	Yes	Yes	108	No	No	0.6
8	3	No	No	Yes	Yes	Yes	200	Yes	Yes	1
9	2	No	Yes	Yes	Yes	Yes	180	Yes	Yes	1
10	12	Yes	No	Yes	Yes	Yes	180	Yes	Yes	1

Adjust coverage for quality to estimate 'effective coverage'

Among women who had at least four ANC visits, the coverage of key components of ANC.

Define service quality

Quality here defined as receiving the following services during an ANC visit:

1) Urine test in pregnancy
2) Blood test in pregnancy
3) Told to look for possible problems on pregnancies
4) Iron taken for at least 180 days
5) Drugs for intestinal parasites

- Example – The woman in row 2 received a quality score of 0.8 because she received 4 out of 5 services/inputs during ANC visits
- Note that the quality adjustment can vary depending on how quality is defined.

Example: ANC Coverage in a District

1	2	3	4	5	6	7	8	9	10	11
Woman No.	**ANC Visits**	**4+ ANC visit**	**ANC by skilled providers**	**During pregnancy - urine sample taken**	**During pregnancy - blood sample taken**	**Told about pregnancy complications at the time of last antenatal visit**	**Days tablets or syrup taken**	**Iron tablets or syrup taken for 180 days**	**Drugs for intestinal parasites**	**Quality Score**
1	6	Yes	Yes	Yes	Yes	Yes	100	No	Yes	0.8
2	7	Yes	Yes	Yes	Yes	Yes	80	No	Yes	0.8
3	1	No	Yes	Yes	Yes	Yes	100	No	Yes	0.8
4	5	Yes	Yes	Yes	Yes	No	150	No	No	0.4
5	12	Yes	Yes	Yes	Yes	Yes	180	Yes	No	0.8
6	7	Yes	Yes	Yes	Yes	Yes	56	No	Yes	0.8
7	12	Yes	Yes	Yes	Yes	Yes	108	No	No	0.6
8	3	No	No	Yes	Yes	Yes	200	Yes	Yes	1
9	2	No	Yes	Yes	Yes	Yes	180	Yes	Yes	1
10	12	Yes	No	Yes	Yes	Yes	180	Yes	Yes	1
								Average Quality score:		0.8

Estimate the Quality-adjusted coverage ('effective coverage'):
Received quality-adjusted coverage of 4+ ANC visits = average score of quality of 4+ ANC visits (Q) × proportion of 4+ ANC visits.

- Average quality score= 0.8

The effective coverage score is 0.48
(0.6X0.8)

Interpretation:

- Low quality-adjusted coverage score.
- Indicates that there is a "gap" in coverage of quality services i.e. 60% of pregnant women received ANC but in effect quality services was only available to 48%.

Summary: Service coverage cascade

- The number of contacts individuals make with a service delivery point doesn't tell us the extent to which the population is "covered" by the service
  - To estimate service coverage both numerators (i.e. number of contacts) and denominators (i.e. the population in need) are required.
- The health service coverage cascade details several steps between identifying a target population for a service and achieving a good health outcome.
  - The cascade can help identify bottlenecks (i.e. gaps between the different coverage indicators) in service provision and for determining appropriate remedial actions.
- In practice only a few key steps in the cascade are estimated:
  - The 'service contact coverage' is the proportion of the population in need that received a service
  - The 'quality adjusted coverage' is the proportion of the population in need that received services as per standard protocols.

Estimating service coverage using routine data

Duration: 40 min

Common data sources for estimating service coverage

1. **Population surveys**
   - Typically conducted at national or sub-national level
   - Representative of the population
   - Typically conducted once in 3 or 5 years.
   - Example: National Family Health Survey, National Sample Survey, UNICEF Multiple Indicator Cluster Survey (MICS).

2. **Routine facility or administrative data**
   - Routine facility or administrative data is typically reported on an ongoing basis
   - Example: NCD app, AAM portal, RCH portal, HMIS.

Advantages of routine data sources

Why are routine data sources used so routinely for program monitoring and evaluation in the district?

a. Data is available to everyone in the district and state
b. Enables timely decision making at different levels
c. Can track progress of a program over time
d. Helps identify gaps in a timely way
e. Helps identify where resources should be allocated
f. All of the above

Steps in estimating service coverage

1. Identify the service coverage indicator: define the numerator and denominator
2. Obtain the numerator data
3. Obtain the denominator data

Defining Numerators and Denominators: Service vs. Effective Coverage

	Service Coverage	Effective Coverage
Numerator:	Individuals in need who **received** the service	Individuals in need who **received** the service **according to standard treatment protocols** (i.e., quality care leading to potential health gain)
Denominator:	Individuals **in need** of the service	Individuals **in need** of the intervention
Example:	% of adults with abnormal blood pressure screened for hypertension who visited a health facility	% of adults with abnormal blood pressure screened for hypertension who visited a health facility and were treated as per standard treatment guidelines

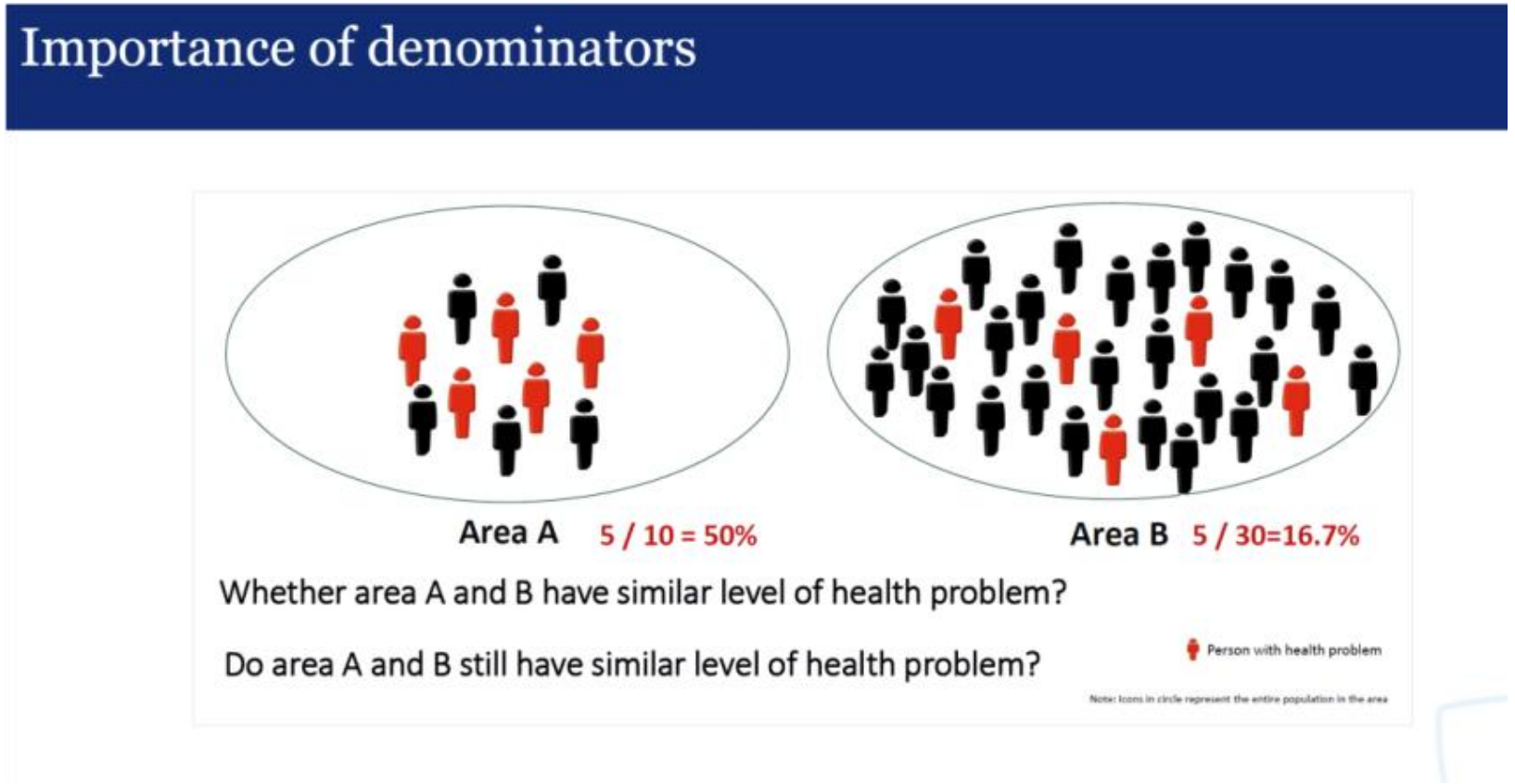
Sources of numerator data

Some examples:

- NCD app (no. of people screened for hypertension, diabetes)
- HMIS (no. of OPD)
- AAM portal (no. of footfalls, no. of teleconsultations)
- RCH portal (no. of children vaccinated, no. of ANCs)
- Others?

Sources of denominator data

- Recall module 1.2: Importance of denominators
- Estimate from census, ASHA survey.
- Estimate from population-based survey such as NFHS.
- Use facility line listing of patients.
- Others?



Estimating denominators for commonly used service coverage indicators (facility level)

Identify facility level indicator, define numerator and denominator

Service coverage indicator	Numerator	Denominator
Proportion of adults aged over 30 years of age screened for hypertension	Number of adults over 30 years of age who were screened for hypertension	Number of adults over 30 years of age
Proportion of children under one year received DPT-3 immunization	Number of children under one year of age who received DPT-3 immunization	Number of children under one year of age
Proportion of pregnant women aged receiving at least 4 ANC visits in the given period	Number of pregnant women who received at least 4 ANC visits in the given period	Number of pregnant women in the given period
Proportion of population making OPD visits	Number of OPD visits	Number of people

Estimate indicator denominator #1: Adults aged >30years

Service coverage indicator	Numerator	Denominator	Denominator estimation method(s)
Proportion of adults aged over 30 years of age screened for hypertension	Number of adults over 30 years of age who were screened for hypertension	Number of adults over 30 years of age	1. Obtain total catchment population from ASHA survey 2. 37% of the total catchment population is estimated to be >30 years of age (as per 2011 national census)

Exercise 1: Facility A has a total catchment population of 40,000. In FY 2022-23, the staff at Facility A screened 400 adults over the age of 30 years for hypertension. What is the service coverage for hypertension screening for Facility A in FY 2022-23?

Discussion question: What are the drawbacks of estimating the denominator using this method?

Estimate indicator denominator #2: Children under one year of age

Service coverage indicator	Numerator	Denominator	Denominator estimation method
Proportion of children under one year received DPT-3 immunization	Number of children under one year of age who received DPT-3 immunization	Number of children under one year of age	1. ASHA survey of children under one year of age 2. Projected population of children under 1 year of age based on census 3. Using birth rate and infant mortality rate estimates based on SRS

Exercise 2: In FY 2020-21, Facility B vaccinated 30 children under 1 year of age with DPT-3. Facility B has a total catchment population of 8000. What is the DPT-3 service coverage rate of Facility B for FY 2020-21? [Hint: From your district/state's census projections for year 2021, estimate % of children that are under one year out of total population.]
Discussion question: What are the drawbacks of estimating the denominator using this method?

Estimate indicator denominator #3: Number of pregnant women

Service coverage indicator	Numerator	Denominator	Denominator estimation method
Proportion of pregnant women receiving at least 4 ANC visits in the given period	Number of pregnant women who received at least 4 ANC visits in the given period	Number of pregnant women in the given period	1. Pregnant women registered at the facility 2. Estimate number of pregnant women based on recent NFHS findings on proportion of currently pregnant woman for district/state

Exercise 3: In FY 2023-24, Facility X rendered minimum 4 ANC visits to 50 pregnant women. There are total 4000 women in the facility's catchment population who are of child-bearing age (approximately 15-49 years). What is Facility X's service coverage for at least 4 ANC visits in FY 2023-24? [Hint: use the NFHS figure for % of women currently pregnant to estimate number of pregnant women]

Discussion question: (1) What are the drawbacks of estimating the denominator using this method? (2) What are the drawbacks of using "registered pregnant women" as the denominator?

Estimate indicator denominator #4: Number of catchment population

Service coverage indicator	Numerator	Denominator	Denominator estimation method
Proportion of population attending OPD visits.	Number of OPD visits	Number of people	ASHA survey of catchment population

Exercise 4: Facility G has an OPD load of 60 in January 2023 and has a total catchment population of 5000. Facility H has an OPD load of 50 during the same time and has a total catchment population of 3000. Which facility has a higher service OPD service coverage?

Discussion: If we had compared performance of Facility G vs Facility H based on only number of OPD visits, which facility would have appeared to perform better?

Other considerations in estimating service coverage

Limitations of routine data sources

- Data are limited to what's collected at the facility or reported by the facility team.
- Data from patients who use services in the private sector are generally not captured.
- Data about community members who do not use services at all are not captured. Often represent most vulnerable groups in the community.
- Issues with data quality are more likely (incomplete data, inaccurate data etc.).

Validating information form routine data sources

Validate service coverage measures through:

- population-based household surveys
- facility registers or across routine data sources
- Other solutions?

ANC Registration Status 24-25 (01-04-24 to 31-12-24)

Sl No	Block	ANC Regd. HMIS	ANC Regd. RCH	%
1	Bhawanipatna	2087	2118	101.5
2	Kalampur	682	691	101.3
3	Kesinga	1413	1417	100.3
4	Karlamunda	627	627	100.0
5	Kokasara	1625	1625	100.0
6	UPHC	647	639	98.8
7	Golamunda	1736	1701	98.0
8	Narla	1368	1323	96.7
9	Junagarh	2272	2169	95.5
10	Dharamagarh	1733	1639	94.6
11	Thuamul RamPur	1538	1453	94.5
12	SDH	142	134	94.4
13	Madanpur Rampur	1111	1043	93.9
14	Jayapatna	1697	1589	93.6
15	Lanjigarh	1920	1735	90.4
KALAHANDI		20598	19903	96.6

- Validating indicators across data sources: HMIS, RCH
- Color coding: based on how much larger or smaller RCH reported value is from HMIS reported value.

Source: District level orientation cum review meeting of block data managers, Kalahandi. 30th January 2025.

Interpretation of service coverage
When can service coverage be….

Underestimated?

- Low numerator (facilities don't report, facilities do the work but don't enter data…)
- High denominator (people migrate out of the district and there is no updated census, adults over 18y included instead of adults over 30y for NCD screening rate….)

Overestimated?

- High numerator (facilities inflate numbers to receive TBI…)
- Low denominator (use facility registered denominator instead of population denominator, use old census data, don't have accurate birth registry data…)

Q: How many of you have seen service coverage measures of >100%?
Important to understand reasons behind it!

Interpretation of service coverage: ethical considerations and caveats

- Service coverage estimates guide critical decisions—but misinterpretation or misuse can lead to harmful consequences.
- Common Ethical and Interpretation Issues:
  - Overreporting to meet performance targets: *Incentive-linked programs may result in inflated numerators (e.g., number of ANC visits).*
  - Excluding marginalized populations: *Routine data may not capture migrants, private sector users, or remote rural populations.*
  - Using outdated or biased denominators: *Reliance on old census data may undercount fast-growing or mobile populations.*
  - Confusing utilization with population-based coverage: *Number of services delivered ≠ proportion of population covered.*
- Ethical Best Practices:
  - Always document data limitations and assumptions
  - Present confidence intervals or ranges when possible
  - Avoid comparing estimates across time or place without consistent methods
  - Train local stakeholders on interpreting service coverage responsibly

Equity and disaggregated service coverage measures

Universal Health Coverage means reaching *everyone*—not just increasing the average. Disaggregated service coverage helps identify *who* is being left behind.

Common Disaggregation Dimensions:

- Sex/gender
- Age
- Geographic area (district, urban/rural)
- Socioeconomic status (wealth quintiles)
- Education
- Disability status
- Caste

Data Sources for Disaggregated Estimates:

- **Population Surveys**: e.g., NFHS, MICS, DHS (support equity breakdowns)
- **Routine HMIS**: Often lacks complete disaggregation, but improving (e.g., gender, age disaggregation)

Summary: Estimating service coverage using routine data

- Routine data systems are an important source of service coverage data
- Associated with a set of challenges: important to be aware and account for them to the extent possible
- Census and non-census-based methods exist to estimate denominators for service coverage
- Judging performance of a facility/ block/ district without estimating service coverage (with denominators) can be misleading.

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Group Exercise: Estimating Service Coverage from Routine Data

Open the Dataset Module 3.1: Exercise 1

Refer to Instruction sheet Module 3.1: Exercise 1

Summary: Estimating service coverage using routine data

- Routine data systems are an important source of service coverage data
- Associated with a set of challenges: important to be aware and account for them to the extent possible
- Census and non-census-based methods exist to estimate denominators for service coverage
- Judging performance of a facility/ block/ district without estimating service coverage (with denominators) can be misleading.

What have we learnt in the module?

Module objectives:

1. Describe the stages of the health services coverage cascade.
2. Distinguish between the concepts of service utilization, coverage and effective coverage.
3. Identify data sources for estimating service coverage measures.
4. Describe pros and cons, challenges in estimating service coverage from routine health management information systems.
5. Estimate population level denominators for service coverage measures.

- This module clarifies the concepts of service utilization, service coverage and effective coverage that you can apply in reporting.
- You will be able to use this knowledge and skill to use appropriate service coverage indicators in routine program monitoring, using data from routine data sources such as HMIS, NCD, RCH portal, etc.

Thank You