



The Lives  
Saved  
Tool

#### Lives Saved Tool Technical Note

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For more information, please contact  
[info@livesavedtool.org](mailto:info@livesavedtool.org)

## Estimating Coverage using utilization and quality/readiness

In the most recent versions of LiST (v.5.90), we now use a new approach to estimate coverage of interventions during antenatal care and birth care. During antenatal care there are 12 interventions. Of these only three (intermittent prophylactic treatment for malaria, tetanus vaccine and iron supplementation) are routinely measured in household surveys and we use the estimates of coverage from the household surveys. Three nutrient supplementations (e.g. calcium, multiple micronutrient) are set at 0 for baseline. For the other interventions (e.g., management of hypertension, management of malaria), there are no data on coverage from household surveys. For these interventions we instead estimate coverage by multiplying utilization (based on antenatal clinic attendance) by quality/readiness of clinics to provide that service. This same general approach is also used for 15 of the 16 interventions around childbirth, with the only exception being C-section which is based on corrected values from household surveys. Below we describe in detail how these estimates of coverage are made.

In order to estimate coverage based on utilization and readiness we need data both from household surveys and facility surveys. The major household surveys (DHS, MICS) ask women to report on number and timing of antenatal care visits in their last birth that occurred in the last 2-5 years (different periods are used by different surveys). This provides a measure of utilization of services. The DHS survey also records where the mother received this care (e.g., hospital, clinic, or health post). From this household survey we can then determine of all births during this period, what percentage of pregnant women did not have antenatal care, and of those who did receive care we know how many visits they made and at what level of facility. For example, in one country 15% of women reported no antenatal visits, 40% reported at least one visit to a health post, 30% had at least one antenatal visit at a clinic and the remaining 15% had an antenatal visit at a hospital.

To estimate quality or readiness we need data from a facility survey. This type of survey (two major facility-survey programs are Service Provision Assessments [SPA] and Service Availability and Readiness Assessment [SARA]) collect information about what services different types of health facilities can provide. To do this they check on drugs, supplies equipment and tests available at the clinic. In addition, they check on training and supervision of service providers. For each of the interventions in antenatal care and for birth we first used WHO guidance on recommended standards for testing and drugs. Then at each level of facilities we identified the percentage of those facilities which had all the necessary components to provide the service. For example, for syphilis detection and treatment, the facility would need to have a test for syphilis and the drug for treatment. For our analyses, a facility had to have at least one valid test (RDT, RPR or VDRL) and at least one unexpired unit of injectable penicillin.

We did the calculation of readiness for interventions during antenatal care and around birth for each facility in the survey. We then calculated the percentage of facilities in each level that had the necessary supplies, equipment and tests available to provide the service. Using our syphilis example, we could say

that only 15% of health posts had both a test and injectable penicillin, while 20% of clinics had both and 80% of hospitals were able to provide this service.

To estimate coverage, we simply multiplied utilization rate by readiness at each level and summed this to get overall coverage of syphilis detection and treatment during antenatal care. Using the above example, coverage for syphilis detection and treatment would equal:

$$(.15 * 0) + (.40*.15) + (.30*.2) + (.15*.8) \text{ or } 24\%.$$

For LiST, we would use this value as our estimate of coverage of syphilis detection and treatment.

For this intervention we used all pregnant women as our estimate as all women who should be tested for syphilis and if infected, treated. Also, for this intervention we used at least one antenatal care (ANC) visit as our measure of utilization because testing and treatment could be done in a single visit. Other interventions, such as management of hypertensive disorder would use a different measure of utilization (4 or more ANC visits) as it is a monitoring process. Also, here the number of pregnant women who need this service would only be a percentage of all pregnant women, but for coverage it is simply the estimate of the percent of pregnant women who had four or more ANC visits and readiness for providing this service at the clinics they attended.

For estimating coverage of birth care intervention, we follow the same general procedure for all but one (C-section) interventions around birth care. For these interventions we use institutional delivery as our utilization measure. For institutional delivery we also divide women into three levels of facilities. Again, readiness is based on availability of drugs, equipment and supplies and for each level of facility we have the percent that are ready to provide that service if needed.

Overall, we think this approach to estimating coverage is an improvement on simply assuming that women who go to antenatal care or give birth in a facility have access to (or receive) appropriate care. The coverage values generated in this method are by definition no higher than the utilization values and in many cases much lower. For an example of this see the analysis of syphilis detection and treatment (Kanyangarara, 2018). These estimate, while lower than what were used in LiST before, can also be an over-estimate of coverage, as a facility having the necessary supplies, equipment and drugs to provide a service does not mean that women who need that service get it.

This approach to estimating coverage could also underestimate coverage for some services if women who are at risk or need more services select better facilities to attend or if they are referred to better facilities. Our approach to estimating coverage assumes there is no selection, and this may not be the case. This is not an issue for many services that are for all women during antenatal and birth care. However, for care like case management of hypertensive disorders, women ill or at risk maybe referred to clinics that can provide these services and our approach would not capture this.

### **References and further readings**

Kanyangarara M, Walker N, Boerma T. Gaps in the implementation of antenatal syphilis detection and treatment in health facilities across sub-Saharan Africa. *PLoS One* 2018; **13** (6): e0198622

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Kanyangarara M, Chou VB, Creanga AA, Walker N. Linking household and health facility surveys to assess obstetric service availability, readiness and coverage: evidence from 17 low-and middle-income countries. *Journal of global health* 2018; **8** (1)

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