

## Supplementary file – second round

### Measuring effective coverage of maternal and child health services in Cambodia: a retrospective analysis of Demographic and Health Surveys from 2005 to 2014

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**Supplemental table 1.** Indicator definitions and measurement strategy for crude coverage, effective coverage, and inequality, Cambodia Demographic Health Surveys

Indicators	Type	Measurement	DHS measurement
<b>OUTCOME VARIABLES</b>			
<b>1. Antenatal care (ANC)</b>			
<b>Crude coverage:</b> Women with a recent live birth within 5-years prior to each survey wave and received at least 4 times ANC services from skilled providers	Binary	0.No, < 4 visit(s) 1. Yes, ≥ 4 visits	Q412: How many times did you receive antenatal care during this pregnancy?
<b>Effective coverage:</b> Women with a recent live birth within 5-years prior to each survey wave and received at least 4 times ANC services and 5 key components of ANC from a health provider, which include: 1) blood pressure monitoring, 2) iron supplementation, 3) counsel about pregnancy complications, 4) urine testing, and 5) blood testing	Binary	0.No 1. Yes, received all the four services	Q413: As part of your antenatal care during this pregnancy, were any of the following done at least once? a) Was your blood pressure measured? b) Did you give a blood sample? c) Did you give a urine sample?  q421: During this pregnancy, were you given or did you buy any iron tablets or iron syrup?  Q414: During (any of) your antenatal care visit(s), were you told about things to look out for that might suggest problems with the pregnancy?

Indicators	Type	Measurement	DHS measurement
<b>2. Facility delivery</b>			
<b>Crude coverage:</b> Women with a recent live birth within 5-years prior to each survey wave and delivered their last baby at the health facilities	Binary	0. No 1. Yes, delivered at the facilities (excluding home and unspecified locations)  Skilled birth attendant includes general practitioner, obstetrician, nurse, midwife and village midwife	Q434: Where did you give birth to (NAME)?
<b>Effective coverage:</b> Women with a recent live birth within 5-years prior to each survey wave received postnatal care for their newborn before getting discharged	Binary	0. No 1. Yes	Q436: After you gave birth to (NAME), did anyone check on your baby health while you were still in the facility?
<b>3. Sick child - diarrhea</b>			
<b>Crude coverage:</b> All children under 5 years reported to have had symptoms in the 2 weeks before the survey and seek treatment from health facility	Binary	0. No 1. Yes, from health facility (excluding pharmacies)	Q611: Did you seek advice or treatment for the diarrhea from any source? Q612: Where did you seek advice or treatment?
<b>Effective coverage:</b> All children under 5 years reported to have had symptoms in the 2 weeks before the survey and seek treatment and received oral rehydration therapy (ORT)/increased fluids from health facility or provider	Binary	0. No 1. Yes, received ORS / a pre-packaged / ORS/homemade fluid	Q615: Was (NAME) given any of the following at any time since (NAME) started having the diarrhea: a) A fluid made from a special packet called [LOCAL NAME FOR ORS PACKET]? b) A pre-packaged ORS liquid? c) A government-recommended homemade fluid?
<b>4. Sick child – pneumonia</b>			
<b>Crude coverage:</b> All children under-5 years reported to have had symptoms in the 2 weeks before the survey and	Binary	0. No 1. Yes, from facility (excluding pharmacies)	Q620. Where did you seek advice or treatment for pneumonia? Q625. Where did you seek advice or treatment?

Indicators	Type	Measurement	DHS measurement
<p>were taken to a medical facility for treatment</p> <p><b>Effective coverage:</b> All children under-5 years reported to have had symptoms in the 2 weeks before the survey and received antibiotic pills, syrup, or injections</p>	Binary	<p>0. No</p> <p>1. Yes, antibiotic drugs / PILL/SYRUP (J) INJECTION/IV (K)</p>	Q630. What drugs did (NAME) take?
<b>5. Sick child – fever</b>			
<p><b>Crude coverage:</b> All children under 5-years reported to have had symptoms in the 2 weeks before the survey and were taken to a medical facility for treatment</p> <p><b>Effective coverage:</b> All children under 5-years reported to have had symptoms in the 2 weeks and had blood taken from finger or heel for testing</p>	Binary	<p>0. No</p> <p>1. Yes, from facility (excluding pharmacies)</p>	<p>Q618. Has (NAME) been ill with a fever at any time in the last 2 weeks?</p> <p>Q625. Where did you seek advice or treatment?</p>
	Binary	<p>0. No</p> <p>1. Yes</p>	[no question available in the DHS survey but the data are available]
<b>MEASURES OF SOCIOECONOMIC POSITION</b>			
Wealth index	Categorical ordinal	<p>0. Poorest / least wealthy</p> <p>1. Poor</p> <p>2. Middle</p> <p>3. Rich</p> <p>4. Richest / wealthiest</p>	<p>The wealth index is a composite measure of a household's cumulative living standard.</p> <p>The wealth index is calculated using easy-to-collect data on a household's ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. The wealth index is presented in the DHS Final Reports and survey datasets as a background characteristic.</p>
Education	Categorical ordinal	<p>0. Primary/lower</p> <p>1. Secondary</p> <p>2. Tertiary/higher</p>	<p>Q107: Have you ever attended school?</p> <p>Q108: What is the highest level of school you attended: primary, junior high, senior high, academy or university?</p>

<b>Indicators</b>	<b>Type</b>	<b>Measurement</b>	<b>DHS measurement</b>
Residency	Binary	0. Rural 1. Urban	Q109: What is the highest (grade/year) you completed at that level? Q5: Urban/rural (identified by interviewers)

**Supplemental table 2.** Crude and effective coverage of maternal and child health in Cambodia from 2000 to 2014.

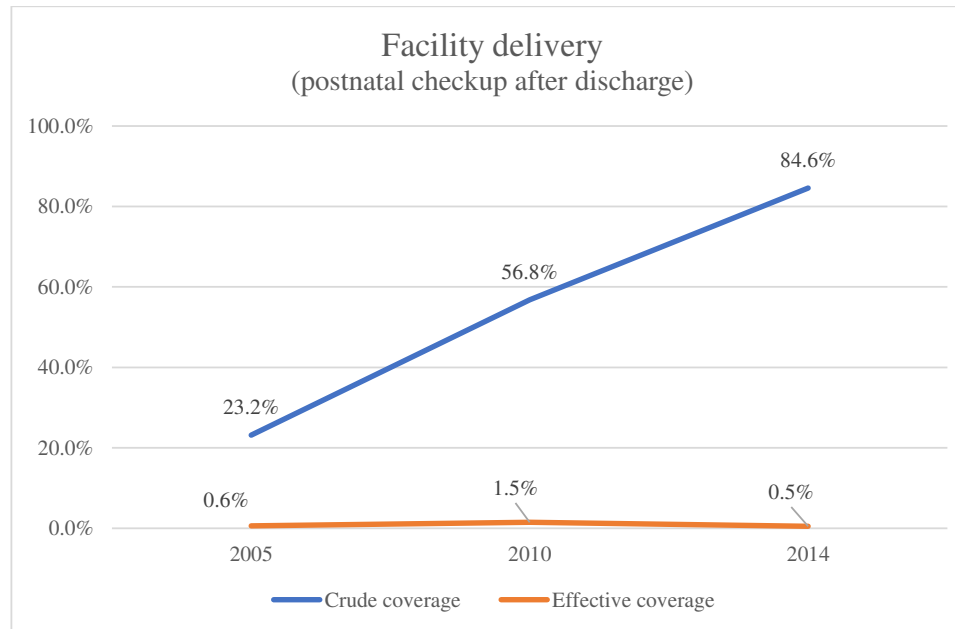
Survey, year	2000		2005		2010		2014	
	Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)
<b>Antenatal care</b>								
Crude coverage	8.9%	(7.8 - 10.3)	27.0%	(24.7 - 29.5)	59.4%	(57.0 - 61.7)	75.6%	(73.6 - 77.5)
Effective coverage	1.3%	(1.0 - 1.9)	4.7%	(3.7 - 6.0)	16.2%	(14.8 - 17.7)	32.8%	(30.8 - 34.9)
<b>Facility delivery</b>								
Crude coverage	11.0%	(9.3 - 13.8)	23.2%	(20.5 - 26.1)	56.8%	(54.1 - 59.4)	84.6%	(82.4 - 86.5)
Effective coverage	--	--	20.5%	(18.0 - 23.2)	51.1%	(48.53 - 53.7)	80.1%	(77.9 - 82.2)
<b>Diarrhea</b>								
Crude coverage	21.6%	(18.8 - 24.8)	41.1%	(37.5 - 44.8)	58.9%	(55.2 - 62.6)	55.5%	(50.9 - 60.0)
Effective coverage	7.8%	(6.8 - 9.7)	21.1%	(18.3 - 24.1)	27.7%	(24.3 - 31.3)	26.0%	(21.8 - 30.6)
<b>Pneumonia</b>								
Crude coverage	35.1%	(32.2 - 38.1)	46.9%	(43.7 - 50.2)	72.9%	(69.7 - 75.9)	61.3%	(57.4 - 65.0)
Effective coverage	30.4%	(27.7 - 33.2)	--	--	37.3%	(34.0 - 40.8)	51.5%	(47.5 - 55.5)
<b>Fever</b>								
Crude coverage	34.1%	(31.4 - 36.9)	47.8%	(44.6 - 51.1)	75.5%	(72.6 - 78.1)	60.6%	(57.3 - 63.8)
Effective coverage	--	--	2.3%	(1.7 - 3.1)	10.3%	(8.7 - 12.2)	11.5%	(9.5 - 13.9)

Note: -- Data are not available; effective coverage for facility delivery in 2000 and sick childcare for fever in 2000 and sick childcare for pneumonia in 2005.

**Supplemental table 3.** Crude and effective coverage of facility delivery (postnatal checkup after discharge) in Cambodia from 2005 to 2014

Survey, year	2005		2010		2014	
	Mean	(95% CI)	Mean	(95% CI)	Mean	(95% CI)
<b>Facility delivery</b>						
Crude coverage	23.2%	(20.5 - 26.1)	56.8%	(54.1 - 59.4)	84.6%	(82.4 - 86.5)
Effective coverage	0.6%	(0.4 - 0.9)	1.5%	(1.1 - 2.0)	0.5%	(0.3 - 0.8)

Note: Postnatal checkup after discharge is a question asked whether the mother was checked after getting discharge from the health facilities.



**Supplemental figure 1.** Crude and effective coverage of facility delivery (postnatal checkup after discharge) in Cambodia from 2005 to 2014.

Note: Effective coverage for facility delivery was defined as the proportion of women who delivered at a health facility and who reported that someone examined them or asked questions about their health after being discharged.