

APPENDIX 2

Demographic & Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) are nationally representative population-based surveys that collect information about households and women of reproductive age (15-49 years), including information on pregnancies, deliveries and reproductive and maternal healthcare use. We analysed data from countries with a DHS or MICS from 2015 or later and data available for download as of February 2018. Twenty-three country surveys met the inclusion criteria. In each survey women were asked to report the location of the delivery (categorised during analysis into home vs. facility) and the person(s) assisting with the delivery for all live births in the five-year survey recall period (DHS) and the most recent live birth in the two year recall period (MICS).

Delivery with doctor, nurse or midwife

We examined the response options for delivery attendant for each of the 23 surveys and calculated the proportion of all live births in the recall periods and all facility-based births that were assisted by three key cadres of interest: doctors, nurses or midwives. In countries where the response option included more than one cadre, we included the category in our estimates, provided one of the three key cadres was also listed (i.e. “nurse/assistant nurse”). Women could report more than one type of attendant, but only assistance by a doctor, nurse or midwife was included in our estimates.

We additionally examined the percentage of facility-based births assisted by 1) other personnel and 2) with no skilled assistance. We defined other personnel as all cadres or categories not including doctor, nurse or midwife (as defined above), regardless as to the cadre skill level, and not including women who reported that their highest listed person assisting was the category ‘friend or relative’. We defined no skilled assistance as a combined group of women who reported their delivery attendant as the category ‘friend or relative’ or women who reported that ‘no one’ assisted with the delivery.

Delivery with more than one (>1) attendant

DHS and MICS enumerators are instructed to probe for all persons assisting with the delivery. We examined the proportion of all facility-based deliveries where women reported more than one category of attendant, regardless as to the skill level, cadre or type of person. For a selection of countries we further disaggregated the analysis to show the proportions of all facility-based deliveries by all possible combinations of single and multiple delivery attendant categories/cadres.

All analyses accounted for women’s individual sampling weights and the stratified, clustered sample design.

Finally, we extracted the proportion of live births assisted by skilled health personnel (SBA coverage) from DHS¹ and MICS² reports for each country included. We also noted which cadres were designated as “skilled” or “qualified” health personnel in the report and included in the reported SBA coverage estimates (Table S2). No attempt was made to verify the skill level of individual cadres listed.

¹ All country reports available for download at <https://dhsprogram.com/>

² All country reports available for download at <http://mics.unicef.org/>

Table S2. Countries, surveys and cadres included in DHS/MICS reported SBA coverage estimates

<i>Country and survey</i>	<i>Categories of attendant included in SBA coverage estimate, as defined in DHS/MICS report</i>
<i>Afghanistan DHS 2015</i>	Doctor, nurse, midwife, and auxiliary nurse/midwife.
<i>Angola DHS 2015</i>	Doctor, nurse, and midwife.
<i>Armenia DHS 2016</i>	Doctor, nurse, midwife, and feldsher.
<i>Burundi DHS 2016</i>	Doctor, nurse, and midwife.
<i>Colombia DHS 2015</i>	<i>[not defined in report but % SBA coverage matches DHS report estimates of attendance by doctor, nurse, and auxiliary nurse.]</i>
<i>Ethiopia DHS 2016</i>	Doctor, nurse, midwife, health officer, and health extension worker (HEW).
<i>Guatemala DHS 2015</i>	Doctor and nurse.
<i>India DHS 2015</i>	Doctor, auxiliary nurse midwife, nurse, midwife, lady health visitor, and "other health personnel".
<i>Kazakhstan MICS 2015</i>	Doctor, nurse/midwife, and feldsher.
<i>Malawi DHS 2016</i>	Doctor, clinical officer, medical assistant, nurse, and midwife.
<i>Mali MICS 2015</i>	Doctor, midwife, and nurse.
<i>Mexico MICS 2015</i>	Doctor and nurse.
<i>Myanmar DHS 2015</i>	Doctor, nurse, midwife, and lady health visitor (LHV).
<i>Nepal DHS 2016</i>	Doctor, nurse, and auxiliary nurse midwife.
<i>Nigeria MICS 2016</i>	Doctor and nurse/midwife.
<i>Paraguay MICS 2016</i>	Physician and nurse/professional obstetrician.
<i>Rwanda DHS 2014-15</i>	Doctor, nurse/medical assistant, and midwife.
<i>Senegal DHS 2015</i>	Doctor, nurse, and midwife.
<i>Tanzania DHS 2015</i>	Doctor/assistant medical officer, clinical officer, assistant clinical officer, nurse/midwife, assistant nurse, and MCH aide.
<i>Timor-Leste DHS 2015</i>	Doctor, nurse, midwife, and assistant nurse.
<i>Turkmenistan MICS 2015</i>	Doctor, nurse/midwife, and feldsher.
<i>Uganda DHS 2016</i>	Doctor, nurse/midwife, and medical assistant/clinical officer.
<i>Zimbabwe DHS 2015</i>	Doctor, nurse, and nurse midwife.