**Template for Requests for Revisions to the DHS Model Questionnaires, Optional Modules, and Biomarkers for DHS-8 (2018-2023)**

# **Section I. Information about the requesting party**

1. **Is this request being submitted on behalf of a group? If so, please provide the name of the group and the participating parties.**

This submission is from a technical working group, supported by USAID’s Maternal and Child Survival Program (MCSP) and Save the Children, and co-chaired by Melinda Munos, Johns Hopkins University, Jennifer Requejo, UNICEF (Health and HIV team, Data & Analytics), and Liliana Carvajal, UNICEF (Maternal, Newborn, Child and Adolescent Health team, Data & Analytics). The working group included a broad list of technical experts in newborn health and measurement. The working group convened an expert consultation to ensure broad input and consensus in the community on the recommendations. The contributions of the Every Newborn – INDEPTH Study Collaborator Group was important in providing the review of the evidence and supplementary pre-publication findings from the study of a randomised comparison of DHS-7 Full Birth History+ and a pregnancy history approach for the capture of stillbirths.

The recommendations were then presented for vetting to the ENAP/EPMM metrics working group and to the World Health Organization’s MoNITOR and to the Core Stillbirth Estimation Group of the United Nations Interagency Group for Child Mortality Estimation (UN-IGME) who now also undertake global stillbirth estimates. Annex B lists the names of members of the technical working group, and participants in the technical consultation.

# **Section II. Indicator definition and rationale**

2. **Please define the indicator or indicators you are requesting The DHS Program to incorporate. *Multiple indicators derived from a single set of questions should be included in the same submission.* (Response required)**

|  |  |
| --- | --- |
| ***Indicator*** | ***Definition*** |
| *1. Stillbirth rate*  | *Stillbirths (fetal deaths in pregnancies lasting seven or more months) divided by the number of stillbirth of seven or more months' duration and livebirths, expressed per 1,000* |

Information on stillbirths are currently captured in the additional questions on non-livebirths (Q230 – Q238) that follow after the full birth history (Q211 – Q221). The number of stillbirths are presented in the tabulation plan in Table 8.4. They are also included in the calculation of the perinatal mortality rate in Table 8.4.

The group would like to request 3 changes to the way that information about stillbirths is captured and displayed in DHS surveys and reports.

1. **Replace full birth history and additional questions on non-livebirths with full pregnancy history**

As described above, information on stillbirths are currently captured in *Section 2: Reproduction* of the Women’s Questionnaire in the additional questions on non-livebirths (Q230 – Q238) that follow after the full birth history (Q211 – Q221). We would like to request replacing the (live) birth history and additional questions on non-livebirths with a full pregnancy history in the standard DHS model questionnaires.

1. **Inclusion of stillbirths in the pregnancy care section to capture data on health service utilization and maternal conditions and complications in pregnancy and childbirth**

The second revision we propose is to include all births, both stillbirths and live births in the pregnancy care section of the Women’s questionnaire (*Section 4: Pregnancy and Post-natal Care*). This will be possible if a full pregnancy history is included in the Reproduction section of the questionnaire as outlined for revision #1.

1. **Inclusion of the stillbirth rate indicator in the tabulation plan**

The number of stillbirths are presented in the tabulation plan in Table 8.4. They are also included in the calculation of the perinatal mortality rate in Table 8.4, but stillbirth rate is not shown separately. We would propose that the stillbirth rate be included in Table 8.4 tabulation plan (see [Annex C](#AnnexC)). The DHS-7 denominator for perinatal mortality as stated is not aligned with International Classification of Disease (ICD) definitions. We would propose to revise the definition to comply for ICD (and to be consistent with the actual denominator used for calculations).

3. **What is the rationale for measuring this indicator (each of these indicators) in DHS surveys? (Response required)**

1. **Replace full birth history and additional questions on non-livebirths with full pregnancy history**

The annual estimated number of stillbirths globally is large (2.6 million in 2015) and is similar to the estimated number of neonatal deaths (2.5 million in 2017). Many stillbirths are preventable. For families and from a public health perspective, preventing these deaths is important and this can only be done if adequate, quality data is available to drive investment and action.[[1]](#footnote-1),[[2]](#footnote-2) Until recently, stillbirths were not routinely reported or tracked in global targets or goals and have received less global attention. This is changing. Stillbirths are included in the Every Newborn Action Plan (ENAP), with 194 countries committing at the World Health Assembly in 2014 to reduce stillbirth to 12 per 1000 births by 2030.[[3]](#footnote-3) Stillbirth rate is now included as a core indicator in the monitoring for the Global Strategy for Women’s Children and Adolescent Health and UN-IGME have committed to undertake regular global, regional and national stillbirth rates alongside estimates of child mortality.

The majority of low and middle income countries rely on household survey data (DHS) as inputs to models to estimate stillbirth rates. Data quality concerns have been raised regarding stillbirth data collected through standard DHS surveys, in particular around omission of events and misclassification with miscarriages and neonatal deaths. In early rounds DHS relied on use of a live birth history combined with the contraceptive calendar to record women’s births and pregnancy losses. In recognition of the remaining concerns with omission of stillbirth events DHS-6 and DHS-7 in addition to the livebirth history and calendar included additional questions on non-livebirths (Q230 – Q238). Despite this, concerns remain that stillbirths remain under-captured in surveys. There is evidence to indicate that a full pregnancy history may provide more accurate estimates of both stillbirth and neonatal deaths which is presented in the next section.

Existing questions on full pregnancy history have been implemented in some standard DHS surveys ([2016 Nepal DHS](https://www.dhsprogram.com/pubs/pdf/fr336/fr336.pdf); [2015-16 Armenia DHS](https://dhsprogram.com/pubs/pdf/FR325/FR325.pdf)) and in special surveys conducted by DHS (e.g. [2017 Ghana Maternal Health Survey](https://www.dhsprogram.com/publications/publication-FR340-Other-Final-Reports.cfm) (MHS)). This would require rephrasing of selected questions and format of responses in the birth/pregnancy history section, and also in some of the questions preceding this i.e. q201. We detail these in [Table 1](#Table_1) and sections below, using the questions from the 2017 Ghana MHS as an example.

1. **Inclusion of stillbirths in the pregnancy care section to capture data on health service utilization and maternal conditions and complications in pregnancy and childbirth**

Currently, the standard DHS women’s questionnaire excludes capture of maternal health service use data on women whose last pregnancy was a stillbirth and only includes live births in this section. Excluding births other than live births may introduce bias, for example, when this data is used to understand health service use or determinants of mortality as women that experience a loss are likely to have lower levels of health care utilisation. Another key reason for the inclusion of stillbirth in this section is to generate data to understand determinants and risk factors for stillbirth that are country specific. Coverage and quality of antenatal and delivery care received can have a substantial impact on pregnancy outcomes and it is important these are captured for stillbirth to identify where improved coverage of care is needed and who needs it. Due to the current exclusion of stillbirth from the pregnancy care section of the standard DHS women’s questionnaire it is currently not possible to examine these indicators. These limitations were highlighted in the last two Lancet Stillbirth Series[[4]](#footnote-4),[[5]](#footnote-5) and a recent publication which also outlined in detail the gaps in availability of stillbirth data in DHS surveys, particularly for risk factors, making recommendations for improvement.[[6]](#footnote-6)

There are no other national-level population-based data sources to explore the determinants of stillbirth for low- and middle-income countries and the DHS surveys provide an opportunity to fill this data gap if these changes could be incorporated.

1. **Inclusion of the stillbirth rate indicator in the tabulation plan**

Please see above under section 2.

# **Section III. Proposed additions/revisions to the questionnaires or biomarkers**

4. Please describe the requested addition or revision.

*If the requested change is the addition of new questions to the DHS questionnaires or modules, complete questions 4.1 and 4.1.1. If the requested change is a revision to existing questions, complete question 4.2. If the change relates to anthropometry or a biomarker, please complete question 4.3.*

4.1. **For additions**: If you have developed a question or set of questions to measure the indicator(s), please provide them in the space below or in a separate file attached with your submission.

*We are proposing revising the existing questions in the birth history to replace them with the pregnancy history questions and deletion of additional questions on non-livebirths from the reproductive module of the women’s questionnaire. We present the suggested wording of these questions below and in detail in Annex A.*

4.1.1 If requesting multiple questions, please specify the relative priority of each new question.

*We are recommending that the birth history questions in their entirety be replaced by the pregnancy history questions in the reproductive module of the women’s questionnaire.*

4.2. **For revisions to existing questions**: Please specify the DHS-7 question number, the proposed revision to the question, and the rationale.

1. **Replace full birth history and additional questions on non-livebirths with full pregnancy history in the women’s questionnaire**

We request a revision in the standard DHS-7 Women’s questionnaire that replaces the birth history section with a full pregnancy history. This revision can use existing questions that have been implemented in some special surveys done by DHS (i.e. [2017 Ghana Maternal Health Survey](https://www.dhsprogram.com/publications/publication-FR340-Other-Final-Reports.cfm); [2010 Afghanistan Mortality Survey](https://dhsprogram.com/pubs/pdf/fr248/fr248.pdf)) and selected standard DHS surveys ([2016 Nepal DHS](https://www.dhsprogram.com/pubs/pdf/fr336/fr336.pdf); [2015-16 Armenia DHS](https://dhsprogram.com/pubs/pdf/FR325/FR325.pdf)).

This change would require rephrasing of selected questions and the format of responses in the pregnancy history but also in some of the questions preceding this i.e. 201 & 211. Suggested changes are provided in [Table 1](#Table_1) below, based on questions from the Nepal 2016 DHS and Ghana 2017 MHS as an example.

The pregnancy history in the women’s questionnaire in the 2016 Nepal DHS does not capture the sex of the stillborn or if the stillborn was a single or multiple pregnancy. These are only captured for live births but would be important to include for stillbirths as well a given that male babies are at increased risk of stillbirth. We would therefore suggest adding a question (*Was the baby a boy or a girl?*) after Q220AD in the pregnancy history (see [Annex A](#AnnexA) for snapshot of the pregnancy history module in this survey). The sex of the non-livebirth question was asked using this phrasing and placement in the EN-INDEPTH study, and was answered ‘boy’ or ‘girl’ for over 70% of all stillbirths in that survey in 5 HDSS sites

*Rationale:* The pregnancy history captures information on all of a woman’s pregnancies including the pregnancy losses. There is some evidence to suggest the full pregnancy history produces better quality estimates for stillbirth over a birth history (also described in Section IV).[[7]](#footnote-7),[[8]](#footnote-8) The pregnancy history could also potentially reduce misclassification between stillbirth and early neonatal deaths because of the inclusion of additional questions to determine if any signs of life were present at birth. Given the data quality concerns with current national estimates that use data from the contraceptive calendar even when supplemented with additional questions on non-livebirths (Q230 – Q238),[[9]](#footnote-9) efforts to improve this data are needed, switching to a full pregnancy history provides DHS an immediate opportunity to do so.

The second advantage of including a pregnancy history is that it would allow the capture of pregnancy care data and other maternal healthcare utilisation data and maternal complications for both stillbirth and live births in section 4 of the survey on pregnancy care (see proposed revision #2 below).

1. **Inclusion of stillbirths in Section IV: Pregnancy & Post-natal care (Women’s Questionnaire)**

The second revision we propose is to include stillbirths in Section 4 of the women’s questionnaire that collects information on women’s use of health services during her last pregnancy. This would mean ensuring Q402 specifically states, *Last live birth or stillbirth* (see [Table 1](#Table_1_2) and snapshot from 2017 Ghana MHS in [Annex A2](#AnnexA2)). This is currently only done with special surveys. The standard DHS surveys with a full pregnancy history (i.e. 2016 Nepal DHS, 2016 Armenia DHS) do not carry over the stillbirths to the pregnancy care section. In these surveys, this addition could be made quite easily to capture such data for stillbirth.

*Rationale:* Including stillbirth in this section would generate much needed data to understand factors that might be contributing to or increasing the risk of stillbirth. This is particularly important as health service utilisation as well as maternal conditions or complications during pregnancy and childbirth impact stillbirth risk. Currently, data to understand stillbirth in low- and middle-income countries is severely limited particularly around country-specific risk factors and causes.[[10]](#footnote-10) Making such data available would also assist countries to prioritise interventions for stillbirth reduction to achieve global targets agreed upon in the Every Newborn Action Plan. A recent publication using data from the 2010 Afghanistan Mortality Survey which included a pregnancy history, demonstrated how much more understanding and insight into stillbirths can be obtained when such data are available.[[11]](#footnote-11)

**Table 1. Proposed changes to DHS-7 questions**

| **DHS-7 question number** | **DHS-7 question text** | **Proposed new question** | **Rationale** |
| --- | --- | --- | --- |
| 1. **Replace birth history with a full pregnancy history in the women’s questionnaire**
 |
| **201** | Now I would like to ask about all the births you have had during your life. Have you ever given birth?  | *We propose using the question modified from the* [*2017 Ghana MHS*](https://www.dhsprogram.com/pubs/pdf/FR340/FR340.pdf) *for this question and include this below:*Now I would like to ask you about all the pregnancies that you have had during your life. By this I mean all the children born to you whether they were born alive or dead, whether they are still living or not, whether they live with you or somewhere else, and all the pregnancies that you have had that did not result in a live birth. I will ask about pregnancies that resulted in a stillbirth, or that ended spontaneously in miscarriage, or that you may have had to end early in abortion. I understand that it is not easy to talk about children who have died, or pregnancies that ended before full term, but it is important that you tell us about all of them, so that the government can develop programs to improve maternal *and child* health. Now I would like to ask about all the births you have had during your life. Have you ever given birth? | The phrasing of this question from 2017 Ghana MHS is more explicit to ensure the capture of every outcome in every pregnancy a woman has ever had. Given the sensitivity of pregnancy loss in some settings the additional explanation is to ensure that the woman feels comfortable to disclose all pregnancies regardless of how they ended. A minor edit is made in italics ‘*and child’* based on qualitative work done as part of Every Newborn INDEPTH study(see rational in text above for detail) |
| **211** | Now I would like to record the names of all your births, whether still alive or not, starting with the first one you had. | Now I would like to record all your pregnancies, whether born alive, born dead, or lost before full term, starting with the first one you had. (Source: 2016 Nepal DHS, 2017 Ghana Maternal Health Survey Women’s Questionnaire) | Inclusion of pregnancy history would generate more accurate estimates of stillbirth and potentially reduce misclassification between stillbirth and early neonatal deaths.This would also allow the capture of pregnancy care data for pregnancies that ended in livebirth and stillbirths (see rationale for more detail) |
| **212-221 (DHS-7)** | Birth history questions | We suggest replacing the current birth history questions with pregnancy history questions (Q212-221 adapted from the 2016 Nepal DHS and as used in the Every Newborn INDEPTH study). See Annex A1.We recommend revision of Q212B using the 2017 Ghana Maternal Health survey language:‘Was the baby born alive, born dead, or did you have a miscarriage or abortion?’We recommend the inclusion of two additional questions:Q215A - about gestational age in months of livebirths to make this comparable with question Q220AC on gestational age for non-livebirths ‘How many months did your pregnancy with [NAME] last?’Q220AD\_A –about sex of baby for non-livebirths Was the baby a boy or a girl? (to make this comparable with Q213 ‘Is (NAME) a boy or a girl?)We include a snapshot of these questions in [**Annex A**](#AnnexA) | Please see rationale in the text above. |
| 1. **Inclusion of stillbirths in Section IV: Pregnancy & Post-natal care (Women’s Questionnaire)**
 |
| **402** | CHECK 215. RECORD THE PREGNANCY HISTORY NUMBER IN 403 AND THE NAME AND SURVIVAL STATUS IN 404 FOR EACH BIRTH IN XXXX - XXXX. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH.IF THERE ARE MORE THAN 2 BIRTHS, USE LAST COLUMN OF ADDITIONAL QUESTIONNAIRE(S). Now I would like to ask some questions about your children born in the last five years. (We will talk about each separately.)  | CHECK 215, 220AB, 220AC, AND 220AD. RECORD THE PREGNANCY HISTORY NUMBER IN 403 AND THE NAME AND SURVIVAL STATUS IN 404 FOR THE MOST RECENT LIVE BIRTH OR STILLBIRTH AT 7 MONTHS OR MORE IN 2012-2017. IF THERE WAS MORE THAN ONE BIRTH OR STILLBIRTH SINCE 2012, ASK ONLY ABOUT THE LAST (MOST RECENT) BIRTH OR STILLBIRTH.(Source: 2017 Ghana Maternal Health Survey, Women’s Questionnaire – adapted to specify definition of stillbirth in months)In addition to the above – some minor changes are required in the skip patterns to not ask questions on newborn care for stillbirths. These skip patterns are available in Ghana Maternal Health Survey 2017, Afghanistan 2010 MHS and in the EN-INDEPTH study. | See rationale in the text above. |

4.3. **For anthropometry and biomarkers**: Please describe the measurement procedures or specimen collection procedures, point-of-care or laboratory testing procedures (as relevant), and any recommendations for return of results.

N/A

5. **Can any related questions be deleted from the questionnaire to make room for the proposed new content? If so please specify which questions using the DHS-7 question numbers.**

Yes, as we are proposing to replace the birth history with the pregnancy history this would replace (Q211 – Q221). It would also mean that Q230-238 will no longer be needed and could be deleted.

6. **What are the implications of these requested changes on measurement of trends using DHS data?**

If a full pregnancy history was implemented over a birth history this would likely replace stillbirth numbers obtained through the contraceptive calendar from where the total number of stillbirths a woman has ever had are usually documented and also those collected through the truncated pregnancy history (Q230 – Q238). The questions used to elicit pregnancy outcomes differ in the pregnancy history because they include additional confirmatory questions (i.e. *Did the baby cry, move or breathe after birth?*). Although this may improve the accuracy of numbers of stillbirths and early newborn deaths and reduce misclassification; because of the different methods to what was previously used it may affect the comparability of stillbirth numbers.

Regarding the other proposed revision to include stillbirths in Section 4 on pregnancy care these would not have prior data to compare with as they have not been routinely collected before. Some countries which have done special surveys such as 2007 and 2017 Ghana MHS, 2010 Afghanistan Mortality Survey, and 2001 Bangladesh Maternal Mortality Survey, may have some comparable data to examine trends.

# **Section IV. Indicator calculation**

7. **Indicate how to calculate the indicator(s). Include detailed definitions of the numerator and denominator of each individual indicator. If you have developed a tabulation plan for the indicator(s), please attach a file including the suggested table(s) with your submission.**

**(3) Inclusion of the stillbirth rate indicator in the tabulation plan**

Numerator: Number of fetal deaths in pregnancies lasting seven or more months

Denominator: Number of fetal deaths in pregnancies lasting seven or more months and all livebirths

Expressed per 1,000

This definition is a suggested revision of the current definition used for perinatal mortality to align with International Classification of Diseases (ICD) – that all livebirths, regardless of gestation should be included as livebirths in the denominator – but only stillbirth>= 7 months.

8. **Is the indicator useful when measured at the national level, or is it useful only when disaggregated to specific subnational areas, such as endemicity zones or project intervention regions?**

For all proposed revisions, these would be useful at the national and sub-national level.

*For each indicator, select one of the three options by clicking in the appropriate box.*

|  |  |  |  |
| --- | --- | --- | --- |
| Indicator | Useful only for subnational endemicity zones or project intervention regions. A single estimate at the national level is not meaningful. | Useful at both national and subnational regions, as sample size allows. | Useful only at the national level. Subnational estimates are not needed. |
|  |[ ] [x] [ ]

# **Section V. Prior testing of the proposed question(s)**

9. **Have the proposed questions undergone any formal validation; i.e., have the questions been tested against a “gold standard” to assess their accuracy? If yes, please describe how well or poorly the questions performed and/or provide a publication or report of the validation exercise (or a link).**

Most of the revisions or additions of questions proposed are already in use by DHS in several special surveys or verbal autopsy questionnaires.

One study has reported a formal validation comparing a birth history and a pregnancy history approach to high quality Health Demographic Surveillance data in Matlab, Bangladesh. This study found that pregnancy histories were better for estimating infant mortality.[[12]](#footnote-12) Among non-surviving children, birth histories had a higher proportion omitted cases compared to the pregnancy history (7% vs 4%; p=0.07). Pregnancy history was also better at placing births and deaths in time. The study did not include stillbirth outcomes.

10. **Have the questions undergone any other kind of testing; e.g., cognitive testing, pilot testing. If so, please describe the results of the testing and/or provide a publication or report of the findings (or a link).**

Pregnancy histories have been implemented by the DHS although much less frequently than birth histories. Existing evidence suggests they produce better quality stillbirth estimates. A DHS methodological report by Bradley and Winfrey (2015) examined 168 DHS and RHS surveys comparing the different instruments to capture pregnancy outcomes birth history and pregnancy history used to measure perinatal mortality in the DHS and assessed the quality of stillbirth estimates using stillbirth to early neonatal death (SB: END) ratio.[[13]](#footnote-13) In settings with early neonatal mortality rate (ENMR)>20 per 1,000 surveys with a pregnancy history the stillbirth rate was 50% higher than those with birth history (26 vs 16 per 1,000), however the ENMR exactly the same in both pregnancy and birth histories at 26. Overall the SBR:ENMR was 0.9 for surveys with a pregnancy history and 0.6 for those with a birth history. This analysis suggests that pregnancy histories were superior in identifying more stillbirths, producing SBR:ENMR ratios closer to 1:2 – the expected ratio for low-income countries. However, most birth histories in this analysis used reproductive calendars and did not include additional questions on non-livebirths (Q230 – Q238) as in DHS-7.

Ghana has undertaken a series of DHS and Maternal Health surveys which have varied in their approach between a birth history and a pregnancy. The Ghana DHS 2008 which used a birth history reported SBR 35% lower than 2007 Ghana Maternal Health Survey which used a pregnancy history. SBR:ENMR in Ghana surveys have consistently been higher for surveys using a pregnancy history approach (1993DHS - 0.9, 2007MHS – 0.9, 2017MHS – 1.14) when compared to surveys using a birth history (2003DHS – 0.3, 2008DHS – 0.5, 2014DHS-0.57) .

A randomised comparison of the DHS-7 full birth history plus additional questions on non-livebirths (FBH+) to a full pregnancy history (FPH) approach has recently been undertaken in approximately 70,000 women in 5 HDSS sites in Africa and Asia.[[14]](#footnote-14) Preliminary results from this study have shown that the shown that the FPH approach took a median of 1 minute longer than the FBH+ approach, but the stillbirth rate was 21% higher (95%CI -10 – 62%) with a FPH approach (unpublished, but further details are available on request or through Trevor Croft who is a member of the study expert advisory group).

# **Section VI. Other considerations**

11**. Please provide information relevant to the kinds of questions below, and/or anything else you wish to share with us about this indicator (these indicators).**

* **Describe how the data for this indicator are being used (or will be used).**
	+ **Are the data produced by this indicator actionable?**
	+ **Who will use the data?**
	+ **What kinds of decisions will be made using these data?**
* **For what kinds of countries would the indicator(s) be most useful?**
* **Does the DHS survey offer any particular advantage over other available data sources for measuring this indicator? If so, what?**

This data would be useful for all low- and middle-income countries that do not have or have inadequate civil and vital registration systems for reporting stillbirths and which currently rely on the DHS for stillbirth data. These changes would improve the capture of pregnancy outcomes and the calculation of stillbirth rates and make internationally comparable data available. The data would be extremely useful for tracking stillbirth reductions and achievement of the agreed upon goal of a stillbirth rate 12 per 1000 births by 2030.

DHS survey data are increasingly utilised to understand risk factors for maternal, child, and neonatal mortality with results disseminated through peer-reviewed publications which ensures greater access to information and evidence for policy and programme decision makers. The data will be used by countries to make decisions and prioritise programs and develop policies to facilitate stillbirth prevention. If risk factor data were available, it would be possible to quantify the contribution coverage of care would be making towards this reduction and for targeting interventions.

DHS surveys provide some of the only nationally-representative, population-based data on stillbirth for the majority of countries where the surveys are done. This is currently the only opportunity to improve data on stillbirth in the short-term. It would assist in raising attention to stillbirth at the national level in countries where stillbirth have little visibility because of the lack of quality data and availability of country-specific understanding of risk factors.

**Annex A**

**A1 - Pregnancy history questions from the 2016 Nepal DHS**





**A2 – Section 4 Pregnancy and Postnatal Care questions from the 2017 Ghana Maternal Health Survey**



Annex B. Technical Working Group and Consultation Participant Lists

We thank Aliki Christou for the preparation of the first draft of these recommendations on behalf of the wider group.

Technical Working Group Participant List

|  |  |  |
| --- | --- | --- |
|  | **Name** | **Organization** |
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| 9 | Fatima Gohar | UNICEF ESARO |
| 10 | George Little | AAP |
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| 12 | Indira Narayanan | Georgetown University Medical Center |
| 13 | Jeniece Alvey | USAID |
| 14 | Jim Litch | PATH/GAPPS |
| 15 | Joanne Thomas | MCSP/Save the Children |
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| 31 | Alex Manu | Kintampo Health Research Centre |
| 32 | Seeba Amenga Etego | Kintampo Health Research Centre |
| 33 | Kwaku Poku Asante | Kintampo Health Research Centre |
| 34 | Seth Owusu-Agyei | Kintampo Health Research Centre |
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| 41 | Simon Cousens | London School of Hygiene and Tropical Medicine |
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| 44 | Angela Baschieri | London School of Hygiene and Tropical Medicine |
| 45 | Vladimir Gordeev | London School of Hygiene and Tropical Medicine |
| 46 | Joseph Akuze | Makerere University School of Public Health |
| 47 | Peter Waiswa | Makerere University School of Public Health |
| 48 | Doris Kwesiga | Makerere University School of Public Health |

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| **Annex C – tabulation plan change recommendations [shown in red and bolded]**The final column suggestion is a quality criteria for stillbirth rate data. Ratios of around 1.2 are expected, lower ratios may suggest data quality concerns. If this column is not included in the report, it could be helpful to include this in the survey quality assessment for those undertaking/ interpreting the data. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Table 8.4 Perinatal mortality** |  |  |  |
|  | Number of stillbirths and early neonatal deaths, and the perinatal mortality rate for the 5-year period preceding the survey, according to background characteristics, [Country Survey Year] |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Background characteristic | Number of livebirths | Number of stillbirths1 | Number of early neonatal deaths2 | ~~Perinatal mortality rate~~~~3~~ | Stillbirth rate5 | ~~Number of pregnancies of 7+ months duration~~ | Early neonatal mortality rate6 | Stillbirth to Early neonatal death ratio7 |
| **Mother's age at birth** |  |  |  |  |  |  |  |  |
|  <20  |  |  |  |  |  |  |  |  |
|  20-29  |  |  |  |  |  |  |  |  |
|  30-39  |  |  |  |  |  |  |  |  |
|  40-49  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Previous pregnancy interval in months4** |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  First pregnancy  |  |  |  |  |  |  |  |  |
|  <15  |  |  |  |  |  |  |  |  |
|  15-26  |  |  |  |  |  |  |  |  |
|  27-38  |  |  |  |  |  |  |  |  |
|  39+ |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Residence** |  |  |  |  |  |  |  |  |
|  Urban |  |  |  |  |  |  |  |  |
|  Rural |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Region** |  |  |  |  |  |  |  |  |
|  Region 1 |  |  |  |  |  |  |  |  |
|  Region 2 |  |  |  |  |  |  |  |  |
|  Region 3 |  |  |  |  |  |  |  |  |
|  Region 4 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Mother’s education** |  |  |  |  |  |  |  |  |
|  No education |  |  |  |  |  |  |  |  |
|  Primary |  |  |  |  |  |  |  |  |
|  Secondary |  |  |  |  |  |  |  |  |
|  More than secondary |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **Wealth quintile** |  |  |  |  |  |  |  |  |
|  Lowest  |  |  |  |  |  |  |  |  |
|  Second  |  |  |  |  |  |  |  |  |
|  Middle  |  |  |  |  |  |  |  |  |
|  Fourth  |  |  |  |  |  |  |  |  |
|  Highest  |  |  |  |  |  |  |  |  |
|   |  |  |  |  |  |  |  |  |
| Total |  |   |   |   |   |  |  |  |
|  |  |  |  |  |
|  | 1 Stillbirths are fetal deaths in pregnancies lasting seven or more months |  |  |  |
|  | 2 Early neonatal deaths are deaths at age 0-6 days among live-born children |  |  |  |
|  | ~~3~~ ~~The sum of the number of stillbirths and early neonatal deaths divided by the number of pregnancies of seven or more months' duration, expressed per 1,000~~ |  |  |  |
|  |  |  |  |
|  | 4 Category cutoffs correspond to birth intervals of <24 months, 24-35 months, 36-47 months, and 48+ months assuming a pregnancy duration of 9 months5 Stillbirths (fetal deaths in pregnancies lasting seven or more months) divided by the number of stillbirth of seven or more months' duration and livebirths, expressed per 1,0006 Early neonatal deaths divided by livebirths, expressed by 1,0007 Ratio of stillbirth rate to early neonatal mortality rate. This is a quality criteria for stillbirth rate data. Ratios of around 1.2 are expected, lower ratios may suggest data quality concerns. |  |  |  |
|  |  |  |  |
|  |   |  |  |  |

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