# InterVA-5 User Guide

## 1. Introduction

This document describes how to use the InterVA-5 model for processing and interpreting verbal autopsy (VA) data in order to arrive at probable causes of death. InterVA-5 is designed to be applied to deaths at the whole community level, that is for all ages and causes (although it is perfectly acceptable to use it for datasets relating to population sub-groups). InterVA-5 supersedes InterVA-4, bringing the model in line with the WHO-2016 VA standard. WHO-2016 is described in more detail in Nichols et al., PLoS Med 2018; 15:e1002486.The WHO-2016 standard and materials are at
http://www.who.int/healthinfo/statistics/verbalautopsystandards/en/

WHO-2016 was deliberately designed to harmonise various approaches to VA, and InterVA-5 follows the same principle, being designed to process WHO-2016 format data, while also being compatible with WHO-2012 format data (which is a subset of WHO-2016, as previously processed by InterVA-4) and SmartVA format data (a different subset of WHO-2016, developed from previous work by the Population Health Metrics Research Consortium (PHMRC)).

InterVA-5 is a model specifically for determining cause of death from verbal autopsy data. It is not intended as a software package for death registration (details for which are also covered in the WHO-2016 instrument). This documentation relates to the PC version of InterVA-5 which runs in a batch-processing mode on any personal computer, and can be downloaded on a public-domain basis from www.interva.net

*Disclaimer*

*It is a condition of downloading and using the InterVA-5 software that users take complete responsibility for its use and for any consequences arising. In particular, it should be emphasised that the model is designed to enable the epidemiological interpretation of whole-community mortality data, and it is not intended for, and should not be applied to, investigations of individual deaths.*

InterVA-5 is released under the terms of the GPL version 3 open source licence, and includes the source code for the software.

InterVA-5 supersedes all previous versions, and is also recommended for handling WHO-2012 (InterVA-4) format data.

## 2. Download and installation

The InterVA-5 model is available as a zipped file of approximately 4 MB. It is designed to run on PCs under Windows. It is known to work satisfactorily under Windows XP, Vista and 7. Version 5.0 of InterVA-5 was released in February 2018. Although based on the basic design of the InterVA-4 software, the code has been re-engineered to be data driven, so that future minor modifications to the WHO-2016 standard should only require changes to InterVA-5's data files.

After downloading the zipped file from www.interva.net, the files should be unpacked into a convenient folder on your hard disk. There is no additional installation procedure required and no files are placed in other folders. It is probably a good idea to create a folder specifically for this application, for example C:\InterVA

The following files should be found after unpacking the download of InterVA-5:

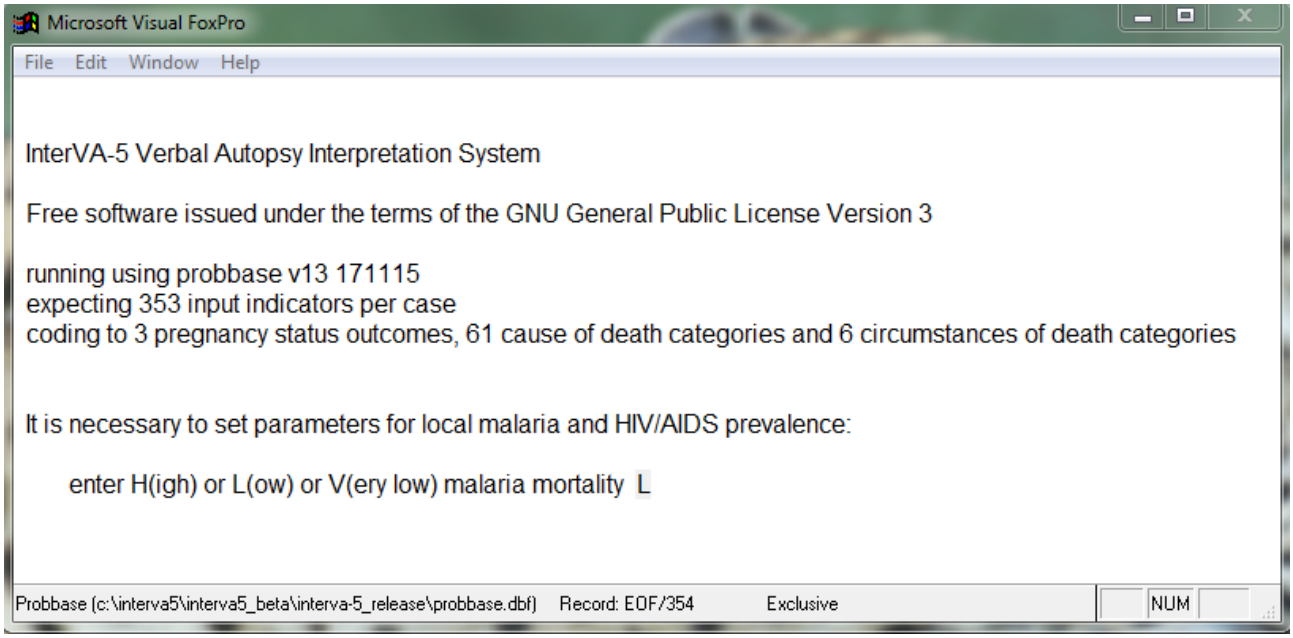
batchin1.dst
batchin2.dst
causetxt.dbf
dbstr.dst
GNU general public license v3.txt
interva5_0.bat
interva5_0.exe
interva-5 UG.pdf *(this document)*
interva5_0.prg.txt
iv5_sample.csv
memvars.dbf
msvcr71.dll
probbase.xls
readin.dbf
vfp9r.dll
vfp9enu.dll

All the files needed to run the software are included in the download. Although the software is compiled under FoxPro, it is not necessary to have FoxPro software installed on your computer in order to run InterVA-5. The InterVA-5 program code, should you wish to see it, is included in the file interva5_0.prg.txt, but this file is not

required to run the software. This release of InterVA-5 is hereby made on a fully open-source basis.

The program should run by double-clicking on interva5_0.bat, giving an opening screen as shown below. It is possible when running InterVA-5 for the first time, that, depending on your system's security settings, you may get warning messages at this stage. You may need to accept running InterVA-5 as an unrecognised application.

To test that the software is operating successfully after installation, if all the default values are accepted (by pressing <ENTER> in response to all the prompts) then the four example cases contained in the iv5_sample.csv file provided in the download will be run. The program will close, and the readable output will be found in the file iv5_sample_out_<date>.csv which will contain 3 records, since one of the sample input records was incomplete and rejected – as documented in the file iv5_sample_warnings_<date>.txt




So, assuming the sample data run was successful, you have downloaded and installed InterVA-5 correctly.

## 3. Basic InterVA concepts

InterVA accepts a range of "indicators" relating to a particular death, processes them in a mathematical model based on Bayes' theorem, and produces as its output likely cause(s) of death. Further details of the approach used in InterVA models are

available in a range of peer-reviewed publications, which are listed on the InterVA website at www.interva.net

"Indicators" is the blanket term used by InterVA to describe the whole range of items of information from a VA interview about the circumstances of a death, including basic background characteristics, details of any illness (signs and symptoms) leading to death, previous medical history, etc. Indicators are posed as questions – and each indicator is defined as having either "yes" or "no" as its substantive response. No distinction is made by the InterVA-5 model between different non-substantive responses. Thus if other responses, such as "D" for "don't know", are included in the input data, they will be disregarded by InterVA-5. Items defined in the WHO-2016 VA standard which relate to determining cause of death have been reduced to InterVA-5 indicators as described above and are included in the InterVA-5 input data format. Datasets based on WHO-2012 or SmartVA data, both of which are different subsets of WHO-2016, can be converted into InterVA-5 format for processing, leaving the contents of the non-included indicators blank. Details of equivalence between InterVA-5, SmartVA and InterVA-4 indicators are shown in Appendix 1.

Although some indicators relate to WHO-2016 questions on durations of various symptoms, which might be asked as questions like "How long did (s)he have fever?", within InterVA-5 such parameters are categorised according to predefined limits, as detailed in Appendix 1.

It is not intended that a VA interview should consist of going through all the InterVA-5 indicators one-by-one. It may be that a set of indicators for a particular death can be compiled from historic questionnaire-based interviews, using both closed and open-ended questions. WHO-2016 also defines quite complex skip patterns through the overall set of items, depending on responses.

Alternatively it may be that reasonably experienced VA interviewers can construct the "interview" more as a conversation – starting from *"What happened when XXXX died?"* - and following the story as it unfolds, ticking relevant indicators as the conversation proceeds. This involves prompting the respondent and probing where needed, while having the sense not to ask questions that are clearly inappropriate or potentially insensitive. However, this approach risks missing important details and is not recommended as a means of achieving consistently high-quality interviews.

A complete list of all the indicators included in InterVA-5, together with those that are also included in WHO-2012/InterVA-4 and SmartVA, is given in Appendix 1. This table cross-references the indicators to the corresponding items in the WHO-2016

VA standard, details the question behind the indicator, give the substantive value, and shows the age-sex groups to which the indicators apply when the model runs.

A "cause" is one of a range of possible causes of death handled by the model. The causes handled by InterVA-5 follow the VA cause of death categories defined in the WHO-2016 VA standard, which are listed in Appendix 2, together with WHO cause codes and corresponding ICD-10 categories. These are almost identical to WHO-2012 cause categories, except that dengue fever is now separated from other haemorrhagic fevers. For tetanus and reproductive neoplasms, InterVA-5 output is determined irrespective of age or sex, and these can be split afterwards into WHO categories by age (neonatal tetanus (10.05) and other tetanus (01.08)), or by sex (female reproductive neoplasms (02.05) and male reproductive neoplasms (02.06)).

In addition, InterVA-5 calculates, for women of reproductive age who have died, the likelihood of being in one of the following three categories:

Not pregnant or recently delivered
Pregnancy ended within 6 weeks of death
Pregnant at death

For some deaths, more than one cause will be found to be probably relevant. Sometimes these may be alternatives, or in other cases they may be co-causes (for example, TB and HIV/AIDS). The interpretation of this is discussed further in section 6.

A new concept introduced into InterVA-5 is that, additionally to and independent of the medical cause of death assignment, a Circumstances Of Mortality CATegory (COMCAT) is computed separately for each case. The conceptual framework for this is described in D'Ambruoso et al., Global Health Research and Policy 2016; 1:2. The likelihood of the most probable circumstantial category associated with a death (culture, emergency, health systems, inevitability, knowledge, resources, or an indeterminate combination of multiple factors) are reported for each case. These outputs may be used monitor circumstances associated with mortality patterns, or ignored entirely. These COMCAT categories depend to a large extent on the availability of the last ten indicators (i450o to i459o) in the dataset, and should be interpreted cautiously if these indicators are not present.

## 4. Basic parameters for InterVA-5

The inputs and outputs for the InterVA-5 program involve text files in the comma separated variable (.csv) format. This has been chosen as the simplest possible format, not depending on any proprietary considerations, and which interface easily with other software such as common statistical packages. CSV files can be opened by many spreadsheet and statistical software packages.

When InterVA-5 runs, it prompts for the name of the input data file (with a default value of "iv5_sample.csv"). The name of the input data file can be changed on-screen.

There are two possible formats for the output file, which can be chosen interactively at the start of the run. Either a text file called "<input_file>_out_<date>.txt" can be produced, which gives a case-by-case report of input details and cause(s) of death, or alternatively a delimited (.csv) file which is suitable for reading into other software, called "<input_file>_out_<date>.csv"

Two other important outputs are also produced. A text file of warnings is generated called "<input_name>_warnings_<date>.txt", containing details of any input records that could not be processed, or problems with specific indicators in particular records. Another file "<input_file>_memvars_<date>.csv" contains a complete dump of the model's calculations for every possible cause of death for every processed record, intended mainly for troubleshooting purposes.

The next parameter on the opening screen specifies the location of the batch file containing the input data. The default is iv5_sample.csv, and in the download of InterVA-4 the file iv5_sample.csv contains four example records.

As the next step, consistency checks are automatically run on the input data and any warnings generated about consistency within specific records (for example "male" and "pregnant") will be stored in the file warnings.txt in order of ID. Any records which do not have any valid data for age and sex will be excluded from processing, as will any that contain no symptom data at all. Warnings do not prevent cases from being processed, and where possible errors will be adjusted in the working copy of the data (but not in the input file). For example, if a record relates to a young child, any responses to questions about pregnancy will be automatically ignored in processing the data, but this information is still recorded in the warnings log. However, since warnings indicate inconsistencies within input data, outputs from such data should be interpreted with care. Ideally a well-prepared data input file should not generate any warnings.

Next it is necessary to specify basic epidemiological parameters for two important diseases whose prevalence varies widely from place to place. These are malaria and HIV/AIDS. You can choose either "H" for "high", "L" for "low" or "V" for "very low"

separately for each of these diseases. These settings approximate to "high" being more than 1:100 of all deaths in a population, "low" being around 1:1000 and "very low" being under 1:10000. The default settings are "low". Examples of appropriate responses might be low malaria, low HIV for many Asian locations; high malaria, high HIV for many East African locations; high malaria, low HIV for some West African locations, etc. The "very low" setting should be used for locations where deaths from malaria or HIV are known to be extremely rare. The choices for these settings do not directly determine the cause of death, but conceptually they are similar to a physician knowing that (s)he is working in a high or low malaria or HIV population, irrespective of the details of a specific case currently under consideration.

## 5. InterVA-4 batch files

An example of the file needed for batch data, iv5_sample.csv, is provided in the initial download. This is a file in which each record represents one case, ending with a field representing the record identifier (up to 20 characters). The first 353 fields are the answers to all the indicators listed in Appendix 1, and must be strictly in the specified order. It is not allowed to change the order of the indicators or leave any out of the input file. Although WHO recommends that VA interviews record responses as Yes or No or Unknown, for the purposes of InterVA-5 processing the only relevant responses are those corresponding to the substantive value for each indicator. In the input data file, "Yes" answers can be recorded as "Y" or "y", "No" as "N" or "n" – and anything else is regarded with any particular significance.

All the records in the batch file will be processed sequentially and the output stored in the output file. The on-screen display shows the progress through the records. This is normally quite a rapid process, depending of course on the hardware in use, but usually over 100 cases per minute.

It is important to realise that any deviation from the specified input file format will either cause the software to reject the whole file, or possibly give wrong output. In particular, the order of the variables in the file cannot be changed. The first row of the file contains the variable names – the actual names can be different, but must relate to the same set of 353 variables in the pre-defined order.

It is easiest, for any substantial quantity of data, to prepare the input data file within another software application. At the www.interva.net website, under "additional resources", there is template for a Stata .do file script to achieve this. Basically this consists of setting up the variables required by InterVA-5, inserting values into them from other variables, deleting all but the InterVA-5 variables and

then saving the required .csv file. Similar approaches can readily be implemented using other software.

## 6. Managing and interpreting InterVA-5 output

If the readable output file option is used, then the output is a text file setting out details case-by-case in the following format:

```
InterVA-5 Verbal Autopsy Interpretation System

Malaria prevalence set to LOW
HIV/AIDS prevalence set to LOW


run at 02/06/18 07:43:39

ID: 10010481

data input

Was she female? = yes
Was s(he) aged 1 to 4 years at death? = yes
Did the final illness last less than 3 weeks? = yes
Did (s)he die suddenly? = yes
During the illness that led to death, did (s)he have a fever? = yes
Did the fever last less than a week before death? = yes
During the illness that led to death, did (s)he have a cough? = yes
During the illness that led to death, did (s)he have any difficulty breathing? =
yes
Did you see the lower chest wall/ribs being pulled in as the child breathed? = yes
Did (s)he receive appropriate immunizations? = no
In the final days before death, did s/he travel to a hospital or health facility?
= no
Over the course of illness, did the total costs of care and treatment prohibit
other household payments? = yes

Pregnancy status: n/a

Most likely cause: 01.02 Acute resp infect incl pneumonia, likelihood  99 %

Indeterminate component:   1 %

Circumstances of mortality category: Culture, likelihood  99 %
```

This output can be used in whatever way is most convenient. Up to 3 likely causes may be given for a particular case, each with its own likelihood. If the model is unable to reach a conclusion, usually for lack of sufficient input, or contradictory indicators, then it will record the outcome as 100% "indeterminate".

If the delimited text output format is chosen, then a delimited text file will be produced with the following structure:

| | | | | |
|---|---|---|---|---|
| 1 | IV5_ID | Character | 20 | *identifier from batch file* |
| 2 | MALPREV | Character | 1 | *selected malaria prevalence* |
| 3 | HIVPREV | Character | 1 | *selected HIV prevalence* |

| | | | | |
|---|---|---|---|---|
| 4 | PREGSTAT | Character | 5 | *most likely pregnancy status* |
| 5 | PREGLIK | Numeric | 3 | *likelihood of PREGSTAT* |
| 6 | CAUSE1 | Character | 25 | *most likely cause* |
| 7 | LIK1 | Numeric | 3 | *likelihood of 1st cause* |
| 8 | CAUSE2 | Character | 25 | *second likely cause* |
| 9 | LIK2 | Numeric | 3 | *likelihood of 2nd cause* |
| 10 | CAUSE3 | Character | 25 | *third likely cause* |
| 11 | LIK3 | Numeric | 3 | *likelihood of 3rd cause* |
| 12 | INDET | Numeric | 3 | *indeterminate likelihood* |
| 13 | COMCAT | Character | 25 | *most likely circumstantial category* |
| 14 | COMNUM | Numeric | 3 | *likelihood of COMCAT* |

The interpretation of the output from InterVA depends to some extent on users' needs. We have discussed some of the issues in scientific publications, and suggest that VA findings are most suitable for determining cause-specific mortality fractions (CSMFs). In this case, it may well be reasonable to attribute deaths having multiple causes as fractional deaths for particular causes, proportional to likelihoods. In addition the concept of a residual indeterminate component (100% - lik1 – lik2 – lik3) for each case is a useful way of discounting less certain cause attributions and preserving the total likelihood as the overall number of deaths. Optimal ways of handling InterVA outputs are matters for further investigation and debate. Examples of templates for handling InterVA-5 output are available at www.interva.net under "additional resources".

Whatever approach is taken to handling InterVA-5 output, it is certainly the case that the model will deliver exactly the same conclusions every time it is presented with exactly the same set of indicators. This consistency of interpretation over time and between locations is a major advantage.

As happens with any suite of software, InterVA has developed through various versions since 2003. InterVA-5 is a major step forward, integrating previous versions and moving into line with new WHO-2016 recommendations. However, it is important for users to carefully document the version of InterVA used for any particular analysis. This document relates to version 5.0, which is functionally equivalent to the WHO-2016 VA standard.

## 7. Acknowledgements and support

The development of InterVA general model originated at the Umeå Centre for Global Health Research, Umeå, Sweden, with support from Forte, and continued in partnership with the Immpact project at the University of Aberdeen, Scotland (where the specific interest was in characterising pregnancy-related deaths). Further details and website links are available at the www.interva.net website.

We would be grateful if anyone making use of this model would make clear in any publication or other communication that *"the InterVA-4 model (version 5.0) was used for the interpretation of VA material"*. For the purposes of scientific citations, we suggest you refer to our latest publications, which can be found under the "more info" section of the www.interva.net website.

Although we have limited resources for technical support, we will be pleased to hear about both good and frustrating experiences of using this InterVA-5 model, and give advice if possible. Please contact us via global.health@epiph.umu.se

## APPENDIX 1: InterVA-5 indicators

The following pages specify the details of the InterVA-5 input indicators, in the order in which they appear in the data input file. The columns are as follows:

| **InterVA-5 indicators** | |
|---|---|
| iv5_indic | reference number for the InterVA-5 indicator (also used as column headings in the input data file). The suffix letter is "o" where the indicator is identical to the corresponding WHO-2016 indicator, or "a", "b", "c"… where multiple indicators cover one WHO-2016 item. |
| iv5_question | question from which the indicator derives, based on WHO-2016 source questions (but categorised as necessary e.g. for open-ended duration items in WHO-2016) |
| **derived from corresponding items** | |
| who_2016 | reference number of the source item in WHO-2016 (the last three digits of which are the same as the middle three digits of iv5_indic). |
| interva_4 | for the sake of backwards compatibility with InterVA-4, these are the names of the corresponding InterVA-4 indicators (which are also the column headings in InterVA-4 input data). |
| sva_adult | for the sake of compatibility with SmartVA data, these are the column headings in SmartVA input data that relate to adult deaths (12 years and over). |
| sva_child | for the sake of compatibility with SmartVA data, these are the column headings in SmartVA input data that relate to child deaths (1 month up to <12 years). |
| sva_neonate | for the sake of compatibility with SmartVA data, these are the column headings in SmartVA input data that relate to neonatal deaths (first month of life). |
| **specification** | |
| subst_val | the substantive value for the iv5_indic (the value which InterVA-5 notices as the non-missing important answer to the indicator) |
| male | indicator required by InterVA-5 if deceased is male |
| female | indicator required by InterVA-5 if deceased is female |
| neonate | indicator required by InterVA-5 if deceased died <= 28 days |
| infant | indicator required by InterVA-5 if deceased died 29 d – 11 mths |
| under5 | indicator required by InterVA-5 if deceased died 1 – 4 years |
| child | indicator required by InterVA-5 if deceased died 5 – 14 years |
| adult | indicator required by InterVA-5 if deceased died 15 - 49 years |
| midage | indicator required by InterVA-5 if deceased died 50 - 64 years |
| elder | indicator required by InterVA-5 if deceased died >= 65 years |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i004a | Did s(he) die during the wet season? | id10004 | wet_seas | | | | y | y | y | y | y | y | y | y | y | y |
| i004b | Did s(he) die during the dry season? | id10004 | dry_seas | | | | y | y | y | y | y | y | y | y | y | y |
| i019a | Was he male? | id10019 | male | g1_05 | g1_05 | g1_05 | y | y | y | y | y | y | y | y | y | y |
| i019b | Was she female? | id10019 | female | g1_05 | g1_05 | g1_05 | y | y | y | y | y | y | y | y | y | y |
| i022a | Was s(he) aged 65 years or more at death? | id10022 | elder | g1_07a | | | y | y | y | | | | | | | y |
| i022b | Was s(he) aged 50 to 64 years at death? | id10022 | midage | g1_07a | | | y | y | y | | | | | | y | |
| i022c | Was s(he) aged 15 to 49 years at death? | id10022 | adult | g1_07a | | | y | y | y | | | | | y | | |
| i022d | Was s(he) aged 5-14 years at death? | id10022 | child | g1_07a | c1_25a; c1-25b | | y | y | y | | | | y | | | |
| i022e | Was s(he) aged 1 to 4 years at death? | id10022 | under5 | | c1_25a; c1_25b | | y | y | y | | | y | | | | |
| i022f | Was s(he) aged 1 to 11 months at death? | id10022 | infant | | c1_25a; c1_25b | | y | y | y | | y | | | | | |
| i022g | Was s(he) aged < 1 month (28 days) at death? | id10022 | neonate | | | c1_25a; c1_25b | y | y | y | y | | | | | | |
| i022h | Was s(he) a live baby who died within 24 hours of birth? | id10022 | died_d1 | | | c1_25a; c1_25b; c1_26 | y | y | y | y | | | | | | |
| i022i | Was s(he) a baby who died between 24 and 48 hours of birth? | id10022 | died_d23 | | | c1_25a; c1_25b | y | y | y | y | | | | | | |
| i022j | Was s(he) a baby who died more than 48 hours from birth, but within the first week? | id10022 | died_d36 | | | c1_25a; c1_25b | y | y | y | y | | | | | | |
| i022k | Was s(he) a baby who died after the first week, but within the first month? | id10022 | died_w1 | | | c1_25a; c1_25b | y | y | y | y | | | | | | |
| i022l | Was she a woman aged 12-19 years at death? | id10022 | magegp1 | g1_05; g1_07a | | | y | | y | | | | y | y | | |
| i022m | Was she a woman aged 20-34 years at death? | id10022 | magegp2 | g1_05; g1_07a | | | y | | y | | | | | y | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i022n | Was she a woman aged 35 to 49 years at death? | id10022 | magegp3 | g1_05; g1_07a | | | y | | y | | | | | y | | |
| i059o | Was she married at the time of death? | id10059 | married | g1_08 | | | y | | y | | | | y | y | | |
| i077o | Did (s)he suffer from any injury or accident that led to her/his death? | id10077 | injury | a5_08_1 | c4_47_11 | | y | y | y | y | y | y | y | y | y | y |
| i079o | Was (s)he injured in a road traffic accident? | id10079 | traffic | a5_01_1 | c4_47_1 | | y | y | y | y | y | y | y | y | y | y |
| i082o | Was (s)he injured in a non-road transport accident? | id10082 | o_trans | | | | y | y | y | y | y | y | y | y | y | y |
| i083o | Was (s)he injured in a fall? | id10083 | fall | a5_01_2 | c4_47_2 | | y | y | y | y | y | y | y | y | y | y |
| i084o | Was (s)he poisoned in any way? | id10084 | poison | a5_01_4 | | | y | y | y | y | y | y | y | y | y | y |
| i085o | Did (s)he die of drowning? | id10085 | drown | a5_01_3 | c4_47_3 | | y | y | y | y | y | y | y | y | y | y |
| i086o | Was (s)he injured by the bite or sting of a venomous animal? | id10086 | venom | a5_01_5 | c4_47_5 | | y | y | y | y | y | y | y | y | y | y |
| i087o | Was (s)he injured by an animal or insect (non-venomous) | id10087 | | | | | y | y | y | y | y | y | y | y | y | y |
| i089o | Was (s)he injured by burns or fire? | id10089 | fire | a5_05_6 | c4_47_6 | | y | y | y | y | y | y | y | y | y | y |
| i090o | Was (s)he subject to violence (suicide, homicide, abuse)? | id10090 | assault | a5_01_7 | c4_47_7 | | y | y | y | y | y | y | y | y | y | y |
| i091o | Was (s)he injured by a fire arm? | id10091 | | | | | y | y | y | y | y | y | y | y | y | y |
| i092o | Was (s)he stabbed, cut or pierced? | id10092 | | | | | y | y | y | y | y | y | y | y | y | y |
| i093o | Was (s)he strangled? | id10093 | | | | | y | y | y | y | y | y | y | y | y | y |
| i094o | Was (s)he injured by a blunt force? | id10094 | | | | | y | y | y | y | y | y | y | y | y | y |
| i095o | Was (s)he injured by a force of nature? | id10095 | force | | | | y | y | y | y | y | y | y | y | y | y |
| i096o | Was (s)he electrocuted? | id10096 | | | | | y | y | y | y | y | y | y | y | y | y |
| i098o | Was the injury accidental? | id10098 | | | | | y | y | y | y | y | y | y | y | y | y |
| i099o | Was the injury or accident self-inflicted? | id10099 | suicide | a5_02 | | | y | y | y | | | | y | y | y | y |
| i100o | Was the injury or accident intentionally inflicted by someone else? | id10100 | inflict | a5_03 | | | y | y | y | y | y | y | y | y | y | y |
| i104o | Did the baby ever cry? | id10104 | cried | | | c1_12 | n | y | y | y | | | | | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i105o | Did the baby cry immediately after birth, even if only a little bit? | id10105 | | | | c3_07 | y | y | y | y | | | | | | |
| i106a | Was it more than 5 minutes after birth before the baby first cried? | id10106 | | | | c3_08 | y | y | y | y | | | | | | |
| i107o | Did the baby stop being able to cry? | id10107 | | | | c3_09 | y | y | y | y | | | | | | |
| i108a | Did the baby stop crying more than a day before (s)he died? | id10108 | | | | c3_10 | y | y | y | y | | | | | | |
| i109o | Did the baby ever move? | id10109 | | | | c1_13 | n | y | y | y | | | | | | |
| i110o | Did the baby ever breathe? | id10110 | | | | c1_14 | n | y | y | y | | | | | | |
| i111o | Did the baby breathe immediately after birth, even a little? | id10111 | baby_br | | | c3_04 | y | y | y | y | | | | | | |
| i112o | Did the baby have a breathing problem? | id10112 | | | | c3_05 | y | y | y | y | | | | | | |
| i113o | Was the baby given assistance to breathe at birth? | id10113 | born_nobr | | | c3_06 | y | y | y | y | | | | | | |
| i114o | If the baby didn't show any sign of life, was it born dead? | id10114 | no_life | | | c1_15 | y | y | y | y | | | | | | |
| i115o | Were there any bruises or signs of injury on child's body after the birth? | id10115 | | | | c1_16 | y | y | y | y | | | | | | |
| i116o | Was the baby's body soft, pulpy and discoloured with the skin peeling away? | id10116 | mushy | | | c1_17 | y | y | y | y | | | | | | |
| i120a | Did the final illness last less than 3 weeks? | id10120 | acute | a1_01a; a1_01_b | c1_21a; c1_21b | c1_21a; c1_21b | y | y | y | | y | y | y | y | y | y |
| i120b | Did the final illness last at least 3 weeks? | id10120 | chronic | a1_01a; a1_01_b | c1_21a; c1_21b | c1_21a; c1_21b | y | y | y | | y | y | y | y | y | y |
| i123o | Did (s)he die suddenly? | id10123 | sudden | a1_01a; a1_01_b | c1_21a; c1_21b | c1_21a; c1_21b | y | y | y | y | y | y | y | y | y | y |
| i125o | Was there any diagnosis by a health professional of tuberculosis? | id10125 | tuber | a1_01_13 | | | y | y | y | | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i127o | Was there any diagnosis by a health professional of HIV/AIDS? | id10127 | hiv_aids | a1_01_14 | | | y | y | y | | y | y | y | y | y | y |
| i128o | Did (s)he have a recent positive test by a health professional for malaria? | id10128 | malaria | | | | y | y | y | | y | y | y | y | y | y |
| i129o | Did (s)he have a recent negative test by a health professional for malaria? | id10129 | malarneg | | | | y | y | y | | y | y | y | y | y | y |
| i130o | Was there any diagnosis by a health professional of dengue fever? | id10130 | | | | | y | y | y | | y | y | y | y | y | y |
| i131o | Was there any diagnosis by a health professional of measles? | id10131 | measles | | | | y | y | y | | y | y | y | y | y | y |
| i132o | Was there any diagnosis by a health professional of high blood pressure? | id10132 | hypert | a1_01_10 | | | y | y | y | | y | y | y | y | y | y |
| i133o | Was there any diagnosis by a health professional of heart disease? | id10133 | heart_dis | a1_01_9 | | | y | y | y | y | y | y | y | y | y | y |
| i134o | Was there any diagnosis by a health professional of diabetes? | id10134 | diabetes | a1_01_7 | | | y | y | y | | y | y | y | y | y | y |
| i135o | Was there any diagnosis by a health professional of asthma? | id10135 | asthma | a1_01_1 | | | y | y | y | | y | y | y | y | y | y |
| i136o | Was there any diagnosis by a health professional of epilepsy? | id10136 | epilepsy | a1_01_8 | | | y | y | y | | y | y | y | y | y | y |
| i137o | Was there any diagnosis by a health professional of cancer? | id10137 | cancer | a1_01_3 | | | y | y | y | | y | y | y | y | y | y |
| i138o | Was there any diagnosis by a health professional of Chronic Obstructive Pulmonary Disease (COPD)? | id10138 | copd | a1_01_4 | | | y | y | y | | | | | y | y | y |
| i139o | Was there any diagnosis by a physician or health worker of dementia? | id10139 | dement | a1_01_5 | | | y | y | y | | | | | y | y | y |
| i140o | Was there any diagnosis by a health professional of depression? | id10140 | depress | a1_01_6 | | | y | y | y | | | | | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i141o | Was there any diagnosis by a health professional of stroke? | id10141 | stroke | a1_01_12 | | | y | y | y | | | | y | y | y | y |
| i142o | Was there any diagnosis by a health professional of sickle cell disease? | id10142 | sickle | | | | y | y | y | | y | y | y | y | y | y |
| i143o | Was there any diagnosis by a health professional of kidney disease? | id10143 | kidney_dis | | | | y | y | y | | y | y | y | y | y | y |
| i144o | Was there any diagnosis by a health professional of liver disease? | id10144 | liver_dis | | | | y | y | y | | y | y | y | y | y | y |
| i147o | During the illness that led to death, did (s)he have a fever? | id10147 | fever | a2_01b | c4_01 | c3_26 | y | y | y | y | y | y | y | y | y | y |
| i148a | Did the fever last less than a week before death? | id10148 | ac_fever | a2_03a; a2_03b | c4_02a; c4_02b | c3_28a; c3_28b | y | y | y | y | y | y | y | y | y | y |
| i148b | Did the fever last at least one week, but less than 2 weeks before death? | id10148 | | a2_03a; a2_03b | c4_02a; c4_02b | c3_28a; c3_28b | y | y | y | y | y | y | y | y | y | y |
| i148c | Did the fever last at least 2 weeks before death? | id10148 | ch_fever | a2_03a; a2_03b | c4_02a; c4_02b | c3_28a; c3_28b | y | y | y | y | y | y | y | y | y | y |
| i149o | Did the fever continue until death? | id10149 | | | c4_03 | | y | y | y | y | y | y | y | y | y | y |
| i150a | Was the fever severe? | id10150 | | a2_04 | c4_04 | | y | y | y | | y | y | y | y | y | y |
| i151a | Was the fever continuous? | id10151 | | a2_05 | c4_05 | | y | y | y | | y | y | y | y | y | y |
| i152o | Did (s)he have night sweats? | id10152 | night_sw | a2_06 | | | y | y | y | | y | y | y | y | y | y |
| i153o | During the illness that led to death, did (s)he have a cough? | id10153 | cough | a2_32 | c4_12 | | y | y | y | y | y | y | y | y | y | y |
| i154a | Did the cough last less than 3 weeks before death? | id10154 | ac_cough | a2_33a; a2_33b | c4_13a; c4_13b | | y | y | y | y | y | y | y | y | y | y |
| i154b | Did the cough last at least 3 weeks before death? | id10154 | ch_cough | a2_33a; a2_33b | c4_13a; c4_13b | | y | y | y | | y | y | y | y | y | y |
| i155o | Was the cough productive, with sputum? | id10155 | pr_cough | a2_34 | | | y | y | y | | | y | y | y | y | y |
| i156o | Was the cough very severe? | id10156 | | | c4_14 | | y | y | y | | y | y | y | y | y | y |
| i157o | Did (s)he cough up blood? | id10157 | bl_cough | a2_35 | | | y | y | y | | | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i158o | Did (s)he make a whooping sound when coughing? | id10158 | whoop | | | | y | y | y | y | y | y | y | | | |
| i159o | During the illness that led to death, did (s)he have any difficulty breathing? | id10159 | breath | a2_36 | c4_16 | c3_17 | y | y | y | y | y | y | y | y | y | y |
| i161a | Did the difficult breathing last for at least 3 days before death? | id10161 | | a2_37a; a2_37b | c4_17a; c4_17b | c3_19a; c3_19b | y | y | y | y | y | y | y | y | y | y |
| i165a | Was the difficult breathing continuous during this period? | id10165 | | a2_38 | | | y | y | y | | y | y | y | y | y | y |
| i166o | Did (s)he have fast breathing? | id10166 | rapid_br | a2_40 | c4_18 | c3_20 | y | y | y | y | y | y | y | y | y | y |
| i167a | Did the fast breathing last for less than two weeks before death? | id10167 | ac_rpbr | a2_41a; a2_41b | c4_19a; c4_19b | c3_22a; c3_22b | y | y | y | y | y | y | y | y | y | y |
| i167b | Did the fast breathing last for at least 2 weeks before death? | id10167 | ch_rpbr | a2_41a; a2_41b | c4_19a; c4_19b | | y | y | y | y | y | y | y | y | y | y |
| i168o | Did (s)he have breathlessness? | id10168 | br_less | | | | y | y | y | y | y | y | y | y | y | y |
| i169a | Did the breathlessness last for less than 2 weeks before death? | id10169 | ac_brl | | | | y | y | y | y | y | y | y | y | y | y |
| i169b | Did the breathlessness last for at least 2 weeks before death? | id10169 | ch_brl | | | | y | y | y | y | y | y | y | y | y | y |
| i170o | Was (s)he unable to carry out daily routines due to breathlessness? | id10170 | exert_br | | | | y | y | y | | | | y | y | y | y |
| i171o | Was (s)he breathless while lying flat? | id10171 | lying_br | a2_39_1 | | | y | y | y | | | | y | y | y | y |
| i172o | Did you see the lower chest wall/ribs being pulled in as the child breathed? | id10172 | chest_in | | c4_20 | c3_23 | y | y | y | y | y | y | y | | | |
| i173a | Did his/her breathing sound like wheezing or grunting? | id10173 | wheeze | a2_42 | c4_22; c4_23; c4_24 | c3_24 | y | y | y | y | y | y | y | y | y | y |
| i174o | During the illness that led to death, did (s)he have chest pain? | id10174 | ch_pain | a2_43 | | | y | y | y | | | y | y | y | y | y |
| i175o | Was the chest pain severe? | id10175 | | | | | y | y | y | | | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i176a | Did (s)he experience chest pain at least 3 days before death? | id10176 | | | | | y | y | y | | | y | y | y | y | y |
| i178a | Did the chest pain last for at least 30 minutes? | id10178 | | a2_44 | | | y | y | y | | | y | y | y | y | y |
| i181o | Did (s)he have diarrhoea? | id10181 | diarr | a2_47 | c4_06 | | y | y | y | y | y | y | y | y | y | y |
| i182a | Did (s)he have diarrhoea for less than 2 weeks before death? | id10182 | ac_diarr | a2_48a; a2_48b | | | y | y | y | y | y | y | y | y | y | y |
| i182b | Did (s)he have diarrhoea for at least 2 weeks but less than 4 weeks before death? | id10182 | pe_diarr | a2_48a; a2_48b | | | y | y | y | y | y | y | y | y | y | y |
| i182c | Did (s)he have diarrhoea for at least 4 weeks before death? | id10182 | ch_diarr | a2_48a; a2_48b | | | y | y | y | | y | y | y | y | y | y |
| i183a | Did the baby or child have at least 4 stools on the day that loose liquid stools were most frequent? | id10183 | | | c4_07a; c4_07b | | y | y | y | | y | y | y | | | |
| i184a | Did the frequent loose or liquid stools start at least 3 days before death? | id10184 | | | c4_08a; c4_08b | | y | y | y | | y | y | y | | | |
| i185o | Did the frequent loose or liquid stools continue up until death? | id10185 | | | c4_09 | | y | y | y | | y | y | y | | | |
| i186o | At any time during the final illness was there blood in the stools? | id10186 | bl_diarr | | c4_11 | | y | y | y | y | y | y | y | y | y | y |
| i187o | Was there blood in the stool up until death? | id10187 | | a2_50 | | | y | y | y | | y | y | y | y | y | y |
| i188o | During the illness that led to death, did (s)he vomit? | id10188 | vomit | | | | y | y | y | y | y | y | y | y | y | y |
| i189o | Did (s)he vomit in the week preceding the death? | id10189 | | a2_53 | | | y | y | y | y | y | y | y | y | y | y |
| i190o | Did (s)he vomit for at least 3 days before death? | id10190 | | a2_54a; a2_54b | | | y | y | y | | | | y | y | y | y |
| i191o | Was there blood in the vomit? | id10191 | bl_vomit | a2_55 | | | y | y | y | | | y | y | y | y | y |
| i192o | Was the vomit black? | id10192 | | a2_56 | | | y | y | y | | | | y | y | y | y |
| i193o | During the illness that led to death, did (s)he have any abdominal (belly) problem? | id10193 | abdom | | | | y | y | y | y | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i194o | Did (s)he have abdominal pain? | id10194 | abd_pain | a2_61 | | | y | y | y | | | y | y | y | y | y |
| i195o | Was the abdominal pain severe? | id10195 | | | | | y | y | y | | | y | y | y | y | y |
| i197a | Did (s)he have severe abdominal pain for less than 2 weeks before death? | id10197 | ac_abdp | a2_62a; a2_62b | | | y | y | y | | | y | y | y | y | y |
| i197b | Did (s)he have severe abdominal pain for at least 2 weeks before death? | id10197 | ch_abdp | a2_62a; a2_62b | | | y | y | y | | | y | y | y | y | y |
| i199a | Was the pain in the upper abdomen? | id10199 | | a2_63_1 | | | y | y | y | | | y | y | y | y | y |
| i199b | Was the pain in the lower abdomen? | id10199 | | a2_63_2 | | | y | y | y | | | y | y | y | y | y |
| i200o | Did (s)he have a more than usually protruding abdomen? | id10200 | swe_abd | a2_64 | c4_40 | | y | y | y | | y | y | y | y | y | y |
| i201a | Did (s)he have a more than usually protruding abdomen for less than 2 weeks before death? | id10201 | ac_swab | a2_65a; a2_65b | | | y | y | y | | y | y | y | y | y | y |
| i201b | Did (s)he have a more than usually protruding abdomen for at least 2 weeks before death? | id10201 | ch_swab | a2_65a; a2_65b | | | y | y | y | | y | y | y | y | y | y |
| i203a | Did (s)he develop the protruding abdomen rapidly? | id10203 | | a2_66 | | | y | y | y | | y | y | y | y | y | y |
| i204o | Did (s)he have any mass in the abdomen? | id10204 | abd_mass | a2_67 | | | y | y | y | | y | y | y | y | y | y |
| i205a | Did (s)he have a mass in the abdomen for less than 2 weeks before death? | id10205 | ac_abdm | a2_68a; a2_68b | | | y | y | y | | y | y | y | y | y | y |
| i205b | Did (s)he have a mass in the abdomen for at least 2 weeks before death? | id10205 | ch_abdm | a2_68a; a2_68b | | | y | y | y | | y | y | y | y | y | y |
| i207o | During the illness that led to death, did (s)he have a severe headache? | id10207 | headache | a2_69 | | | y | y | y | | | y | y | y | y | y |
| i208o | During the illness that led to death, did (s)he have a stiff neck? | id10208 | stiff_neck | a2_72 | c4_28 | | y | y | y | | y | y | y | y | y | y |
| i209a | Did (s)he have a stiff neck for less than one week before death? | id10209 | ac_stnk | a2_73a; a2_73b | | | y | y | y | | y | y | y | y | y | y |
| i209b | Did (s)he have a stiff neck for at least one week before death? | id10209 | ch_stnk | a2_73a; a2_73b | | | y | y | y | | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i210o | During the illness that led to death, did (s)he have a painful neck? | id10210 | | | | | y | y | y | | y | y | y | y | y | y |
| i211a | Did (s)he have a painful neck for at least one week before death? | id10211 | | | | | y | y | y | | y | y | y | y | y | y |
| i212o | During the illness that led to death, did (s)he have mental confusion? | id10212 | men_con | a2_78 | | | y | y | y | | | | | y | y | y |
| i213o | Did (s)he have mental confusion for at least 3 months before death? | id10213 | mencon1 | a2_79a; a2_79b | | | y | y | y | | | | | y | y | y |
| i214o | During the illness that led to death, was (s)he unconscious? | id10214 | | a2_74 | c4_26 | | y | y | y | y | y | y | y | y | y | y |
| i215o | Was (s)he unconscious for at least 24 hours before death? | id10215 | coma | a2_76a; a2_76b | c4_27 | | y | y | y | y | y | y | y | y | y | y |
| i216a | Was (s)he unsconscious for at least 6 hours before death? | id10216 | | a2_76a; a2_76b | | | y | y | y | | y | y | y | y | y | y |
| i217o | Did the unconsciousness start suddenly, quickly (at least within a single day)? | id10217 | co_ons | a2_75 | | | y | y | y | | y | y | y | y | y | y |
| i218o | Did the unconsciousness continue until death? | id10218 | | a2_77 | | | y | y | y | | y | y | y | y | y | y |
| i219o | During the illness that led to death, did (s)he have any convulsions? | id10219 | convul | | | | y | y | y | y | y | y | y | y | y | y |
| i220o | Did (s)he experience any generalized convulsions or fits? | id10220 | | a2_82 | c4_25 | | y | y | y | | y | y | y | | | |
| i221a | Did the convulsions last for less than 10 minutes? | id10221 | ac_conv | a2_83a; a2_83b | | | y | y | y | | y | y | y | y | y | y |
| i221b | Did the convulsions last for at least 10 minutes? | id10221 | ch_conv | a2_83a; a2_83b | | | y | y | y | | y | y | y | y | y | y |
| i222o | Did (s)he become unconscious immediately after the convulsion? | id10222 | unc_con | a2_84 | | | y | y | y | | y | y | y | y | y | y |
| i223o | During the illness that led to death, did (s)he have any urine problems? | id10223 | urine | | | | y | y | y | | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i224o | Did (s)he stop urinating? | id10224 | uri_ret | | | | y | y | y | | y | y | y | y | y | y |
| i225o | Did (s)he go to urinate more often than usual? | id10225 | exc_urine | | | | y | y | y | | | y | y | y | y | y |
| i226o | Did (s)he pass blood in the urine? | id10226 | uri_haem | | | | y | y | y | | y | y | y | y | y | y |
| i227o | During the illness that led to death, did (s)he have any sores or ulcers anywhere? | id10227 | skin | | | | y | y | y | | y | y | y | y | y | y |
| i228o | Did (s)he have sores? | id10228 | sk_les | a2_10 | | | y | y | y | | y | y | y | y | y | y |
| i229o | Did the sores have clear fluid and/or pus? | id10229 | | a2_11 | | | y | y | y | | y | y | y | y | y | y |
| i230o | Did (s)he have an ulcer (pit) on the foot? | id10230 | sk_feet | a2_13 | | | y | y | y | | y | y | y | y | y | y |
| i231o | Did any ulcer ooze pus? | id10231 | | a2_14 | | | y | y | y | | y | y | y | y | y | y |
| i232a | Did the ulcer ooze pus for at least 2 weeks? | id10232 | | a2_15a; a2_15b | | | y | y | y | | y | y | y | y | y | y |
| i233o | During the illness that led to death, did (s)he have any skin rash? | id10233 | rash | a2_07 | c4_30 | | y | y | y | y | y | y | y | y | y | y |
| i234a | Did (s)he have the skin rash for less than one week? | id10234 | ac_rash | a2_08a; a2_08b | c4_33a; c4_33b | | y | y | y | | y | y | y | y | y | y |
| i234b | Did (s)he have the skin rash for at least one week? | id10234 | ch_rash | a2_08a; a2_08b | c4_33a; c4_33b | | y | y | y | | y | y | y | y | y | y |
| i235a | Did (s)he have a rash on the face? | id10235 | | a2_09_1a | c4_31_1 | | y | y | y | | y | y | y | y | y | y |
| i235b | Did (s)he have a rash on the trunk or abdomen? | id10235 | | a2_09_1a | c4_31_1 | | y | y | y | | y | y | y | y | y | y |
| i235c | Did (s)he have a rash on the extremities? | id10235 | | a2_09_1a | c4_31_1 | | y | y | y | | y | y | y | y | y | y |
| i235d | Did (s)he have a rash everywhere? | id10235 | | a2_09_1a | c4_31_1 | | y | y | y | | y | y | y | y | y | y |
| i236o | Did (s)he have measles rash? | id10236 | measrash | | | | y | y | y | | y | y | y | y | y | y |
| i237o | Did (s)he ever have shingles or herpes zoster? | id10237 | herpes | | | | y | y | y | | | | | y | y | y |
| i238o | During the illness that led to death, did her/his skin flake off in patches? | id10238 | | | c4_38 | | y | y | y | | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i239o | During the illness that led to death, did he/she have areas of the skin that turned black? | id10239 | | | c4_46 | | y | y | y | y | y | y | y | y | y | y |
| i240o | During the illness that led to death, did he/she have areas of the skin with redness and swelling? | id10240 | | | | | y | y | y | y | y | y | y | y | y | y |
| i241o | During the illness that led to death, did (s)he bleed from anywhere? | id10241 | | | c4_44 | | y | y | y | y | y | y | y | y | y | y |
| i242o | Did (s)he bleed from the nose, mouth or anus? | id10242 | bl_orif | | c4_45 | | y | y | y | | y | y | y | y | y | y |
| i243o | During the illness that led to death, did (s)he have noticeable weight loss? | id10243 | wt_loss | a2_18 | | | y | y | y | | y | y | y | y | y | y |
| i244o | Was (s)he severely thin or wasted? | id10244 | wasting | a2_19 | c4_35 | | y | y | y | | y | y | y | y | y | y |
| i245o | During the illness that led to death, did s/he have a whitish rash inside the mouth or on the tongue? | id10245 | or_cand | | c4_43 | | y | y | y | | y | y | y | y | y | y |
| i246o | During the illness that led to death, did (s)he have stiffness of the whole body or was unable to open the mouth? | id10246 | rigidity | | | | y | y | y | | y | y | y | y | y | y |
| i247o | During the illness that led to death, did (s)he have puffiness of the face? | id10247 | swe_oth | a2_25 | | | y | y | y | | | y | y | y | y | y |
| i248a | Did (s)he have puffiness of the face for at least one week before death? | id10248 | | a2_26a | | | y | y | y | | | y | y | y | y | y |
| i249o | During the illness that led to death, did (s)he have swollen legs or feet? | id10249 | | a2_23 | c4_36 | | y | y | y | | y | y | y | y | y | y |
| i250a | Did the swelling last for at least 3 days before death? | id10250 | | a2_24a; a2_24b | c4_37a; c4_37b | | y | y | y | | y | y | y | y | y | y |
| i251o | Did (s)he have both feet swollen? | id10251 | swe_legs | | | | y | y | y | | | y | y | y | y | y |
| i252o | During the illness that led to death, did (s)he have general puffiness all over his/her body? | id10252 | | a2_27 | | | y | y | y | | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i253o | During the illness that led to death, did (s)he have any lumps? | id10253 | swell | | | | y | y | y | | y | y | y | y | y | y |
| i254o | Did (s)he have any lumps or lesions in the mouth? | id10254 | swe_oral | | | | y | y | y | | y | y | y | y | y | y |
| i255o | Did (s)he have any lumps in the neck? | id10255 | swe_neck | a2_29 | | | y | y | y | | y | y | y | y | y | y |
| i256o | Did (s)he have any lumps in the armpit? | id10256 | swe_armp | a2_30 | | | y | y | y | | y | y | y | y | y | y |
| i257o | Did (s)he have any lumps in the groin? | id10257 | swe_gen | a2_31 | | | y | y | y | | y | y | y | y | y | y |
| i258o | During the illness that led to death, was (s)he in any way paralysed? | id10258 | | a2_85 | | | y | y | y | | y | y | y | y | y | y |
| i259o | Did (s)he have paralysis of only one side of the body? | id10259 | paral_one | | | | y | y | y | | y | y | y | y | y | y |
| i260a | Was only the right side of the body paralysed? | id10260 | | a2_87_1 | | | y | y | y | | y | y | y | y | y | y |
| i260b | Was only the left side of the body paralysed? | id10260 | | a2_87_2 | | | y | y | y | | y | y | y | y | y | y |
| i260c | Was only the lower part of the body paralysed? | id10260 | | a2_87_3 | | | y | y | y | | y | y | y | y | y | y |
| i260d | Was only the upper part of the body paralysed? | id10260 | | a2_87_4 | | | y | y | y | | y | y | y | y | y | y |
| i260e | Was only one leg paralysed? | id10260 | | a2_87_5 | | | y | y | y | | y | y | y | y | y | y |
| i260f | Was only one arm paralysed? | id10260 | | a2_87_6 | | | y | y | y | | y | y | y | y | y | y |
| i260g | Was the entire body paralysed? | id10260 | | a2_87_7 | | | y | y | y | | y | y | y | y | y | y |
| i261o | During the illness that led to death, did (s)he have difficulty swallowing? | id10261 | | a2_57 | | | y | y | y | | y | y | y | y | y | y |
| i262a | Did (s)he have difficulty swallowing for at least one week before death? | id10262 | | a2_58a; a2_58b | | | y | y | y | | y | y | y | y | y | y |
| i263a | Did (s)he have difficulty with swallowing solids? | id10263 | | a2_59 | | | y | y | y | | y | y | y | y | y | y |
| i263b | Did (s)he have difficulty with swallowing liquids? | id10263 | diff_sw | a2_59 | | | y | y | y | | y | y | y | y | y | y |
| i264o | Did (s)he have pain upon swallowing? | id10264 | | a2_60 | | | y | y | y | | y | y | y | y | y | y |
| i265o | During the illness that led to death, did (s)he have yellow discolouration of the eyes? | id10265 | yellow | a2_21 | | | y | y | y | y | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i266a | Did (s)he have the yellow discolouration for at least 3 weeks before death? | id10266 | | a2_22a; a2_22b | | | y | y | y | | y | y | y | y | y | y |
| i267o | During the illness that led to death, did her/his hair change to a reddish or yellowish colour? | id10267 | hair | | c4_39 | | y | y | y | | y | y | y | y | y | y |
| i268o | During the illness that led to death, did (s)he look pale (thinning/lack of blood) or have pale palms, eyes or nail beds? | id10268 | anaemia | | c4_41 | | y | y | y | | y | y | y | y | y | y |
| i269o | During the illness that led to death, did (s)he have sunken eyes? | id10269 | eye_sunk | | | | y | y | y | | y | y | y | | | |
| i270o | During the illness that led to death, did (s)he drink a lot more water than usual? | id10270 | exc_drink | | | | y | y | y | | | y | y | y | y | y |
| i271o | Was the baby able to suckle or bottle-feed within the first 24 hours after birth? | id10271 | fed_d1 | | | c3_11 | n | y | y | y | y | | | | | |
| i272o | Did the baby ever suckle in a normal way? | id10272 | | | | c3_12 | n | y | y | y | y | | | | | |
| i273o | Did the baby stop suckling? | id10273 | | | | c3_13 | y | y | y | y | y | | | | | |
| i274a | Did the baby stop suckling on the 2nd day of life or later? | id10274 | st_suck | | | c3_14a; c3_14b | y | y | y | y | y | | | | | |
| i275o | Did the baby have convulsions starting within the first 24 hours of life? | id10275 | conv_d1 | | | | y | y | y | y | y | | | | | |
| i276o | Did the baby have convulsions starting more than 24 hours after birth? | id10276 | conv_d2 | | | | y | y | y | y | y | | | | | |
| i277o | Did the baby's body become stiff, with the back arched backwards? | id10277 | arch_b | | | | y | y | y | y | y | | | | | |
| i278o | During the illness that led to death, did the baby have a bulging or raised fontanelle? | id10278 | font_hi | | c4_29 | c3_34 | y | y | y | y | y | | | | | |
| i279o | During the illness that led to death, did the baby have a sunken fontanelle? | id10279 | font_lo | | | | y | y | y | y | y | | | | | |
| i281o | During the illness that led to death, did the baby become unresponsive or unconscious? | id10281 | | | | c3_33 | y | y | y | y | y | | | | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i282o | Did the baby become unresponsive or unconscious soon after birth, within less than 24 hours? | id10282 | unw_d1 | | | | y | y | y | y | y | | | | | |
| i283o | Did the baby become unresponsive or unconscious more than 24 hours after birth? | id10283 | unw_d2 | | | | y | y | y | y | y | | | | | |
| i284o | During the illness that led to death, did the baby become cold to touch? | id10284 | cold | | | c3_29 | y | y | y | y | y | | | | | |
| i285a | Was the baby more than 3 days old when it started feeling cold to touch? | id10285 | | | | c3_30a; c3_30b | y | y | y | y | y | | | | | |
| i286o | During the illness that led to death, did the baby become lethargic, after a period of normal activity? | id10286 | | | | c3_32 | y | y | y | y | y | | | | | |
| i287o | Did the baby have redness or discharge from the umbilical cord stump? | id10287 | umbinf | | | c3_35; c3_36 | y | y | y | y | y | | | | | |
| i288o | During the illness that led to death, did the baby have skin ulcer(s) or pits? | id10288 | | | | c3_39 | y | y | y | y | y | | | | | |
| i289o | During the illness that led to death, did the baby have yellow skin, palms (hand) or soles (foot)? | id10289 | b_yellow | | | c3_47 | y | y | y | y | y | | | | | |
| i290o | Did the baby or infant appear to be healthy and then just die suddenly? | id10290 | | | c3_49 | c3_49 | y | y | y | y | y | | | | | |
| i294o | During the illness that led to death, did she have any swelling or lump in the breast? | id10294 | swe_breast | a3_01 | | | y | | y | | | | | y | y | y |
| i295o | During the illness that led to death, did she have any ulcers (pits) in the breast? | id10295 | | a3_02 | | | y | | y | | | | | y | y | y |
| i296o | Did she ever have a period or menstruate? | id10296 | | | | | y | | y | | | | | y | y | y |
| i297o | During the illness that led to death, did she have excessive vaginal bleeding in between menstrual periods? | id10297 | vb_bet | a3_05 | | | y | | y | | | | y | y | y | y |
| i298o | Was the bleeding excessive? | id10298 | | | | | y | | y | | | | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i299o | Did her menstrual period stop naturally because of menopause? | id10299 | vb_men | a3_03 | | | y | | y | | | | | y | y | y |
| i300o | Did she have vaginal bleeding after cessation of menstruation? | id10300 | vb_after | a3_04 | | | y | | y | | | | | y | y | y |
| i301o | Was there excessive vaginal bleeding in the week prior to death? | id10301 | | a3_06 | | | y | | y | | | | y | y | y | y |
| i302o | At the time of death was her period overdue? | id10302 | | a3_07 | | | y | | y | | | | y | y | | |
| i303a | Had her period been overdue for at least 4 weeks? | id10303 | | a3_08a; a3_08b | | | y | | y | | | | y | y | | |
| i304o | Did she have a sharp pain in her abdomen shortly before death? | id10304 | | a3_09 | | | y | | y | | | | y | y | | |
| i305o | Was she pregnant at the time of death? | id10305 | pregnant | a3_10 | | | y | | y | | | | y | y | | |
| i306o | Did she die within 6 weeks of delivery, abortion or miscarriage? | id10306 | del_6wks | | | | y | | y | | | | y | y | | |
| i309o | Was she, or had she been, pregnant for less than 6 months when she died? | id10309 | pend_6wks | a3_11a; a3_11b | | | y | | y | | | | y | y | | |
| i310o | Please confirm: When she died, she was NEITHER pregnant NOR had recently been pregnant NOR had recently delivered when she died - is that right? | id10310 | not_preg | | | | y | | y | | | | y | y | | |
| i312o | Did she die during labour, but before delivery? | id10312 | died_lab | a3_15 | | | y | | y | | | | y | y | | |
| i313o | Did she die after delivering a baby? | id10313 | | | | | y | | y | | | | y | y | | |
| i314o | Did she die within 24 hours after delivery? | id10314 | death_24 | | | | y | | y | | | | y | y | | |
| i315o | Did she die within 6 weeks of childbirth? | id10315 | | a3_18 | | | y | | y | | | | y | y | | |
| i316o | Did she give birth to a live baby (within 6 weeks of her death)? | id10316 | baby_al | | | | y | | y | | | | y | y | | |
| i317o | Did she die during or after a multiple pregnancy? | id10317 | multip | | | | y | | y | | | | y | y | | |
| i318o | Was she breastfeeding the child in the days before death? | id10318 | breast_fd | | | | y | | y | | | | y | y | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i319a | Did she die during or after her first pregnancy? | id10319 | first_p | | | | y | | y | | | | y | y | | |
| i319b | Did she have four or more pregnancies before this one? | id10319 | more4 | | | | y | | y | | | | y | y | | |
| i320o | Had she had any previous Caesarean section? | id10320 | cs_prev | | | | y | | y | | | | y | y | | |
| i321o | During pregnancy, did she suffer from high blood pressure? | id10321 | bpr_preg | | | | y | | y | | | | y | y | | |
| i322o | Did she have foul smelling vaginal discharge during pregnancy or after delivery? | id10322 | disch_sm | | | | y | | y | | | | y | y | | |
| i323o | During the last 3 months of pregnancy, did she suffer from convulsions? | id10323 | fit_preg | | | | y | | y | | | | y | y | | |
| i324o | During the last 3 months of pregnancy did she suffer from blurred vision? | id10324 | vis_bl | | | | y | | y | | | | y | y | | |
| i325o | Did she have excessive bleeding during pregnancy or shortly after delivery? | id10325 | bleed | | | | y | | y | | | | y | y | | |
| i326o | Was there vaginal bleeding during the first 6 months of pregnancy? | id10326 | e_bleed | | | | y | | y | | | | y | y | | |
| i327o | Was there vaginal bleeding during the last 3 months of pregnancy but before labour started? | id10327 | s_bleed | a3_13 | | | y | | y | | | | y | y | | |
| i328o | Did she have excessive bleeding during labour, before delivery? | id10328 | d_bleed | a3_14 | | | y | | y | | | | y | y | | |
| i329o | Did she have excessive bleeding after delivery or abortion? | id10329 | p_bleed | a3_19 | | | y | | y | | | | y | y | | |
| i330o | Was the placenta completely delivered? | id10330 | placent_r | | | | n | | y | | | | y | y | | |
| i331o | Did she deliver or try to deliver an abnormally positioned baby? | id10331 | baby_pos | | | | y | | y | | | | y | y | | |
| i332a | Did her labour last longer than 24 hours? | id10332 | lab_24 | a3_16a; a3_16b | | | y | | y | | | | y | y | | |
| i333o | Did she attempt to terminate the pregnancy? | id10333 | term_att | | | | y | | y | | | | y | y | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i334o | Did she recently have a pregnancy that ended in an abortion (spontaneous or induced)? | id10334 | abort | | | | y | | y | | | | y | y | | |
| i335o | Did she die during an abortion? | id10335 | | a3_12 | | | y | | y | | | | y | y | | |
| i336o | Did she die within 6 weeks of having an abortion? | id10336 | | a3_17 | | | y | | y | | | | y | y | | |
| i337a | Did the mother deliver at a health facility or clinic? | id10337 | del_fac | | | | n | | y | | | | y | y | | |
| i337b | Did the mother deliver at home? | id10337 | del_home | | | | y | | y | | | | y | y | | |
| i337c | Did the mother deliver elsewhere (not at a health facility nor at home)? | id10337 | del_else | | | | y | | y | | | | y | y | | |
| i338o | Did she receive professional assistance during the delivery? | id10338 | prof_ass | | | | y | | y | | | | y | y | | |
| i340o | Did she have an operation to remove her uterus shortly before death? | id10340 | hyster | | | | y | | y | | | | y | y | | |
| i342o | Was the delivery normal vaginal, without forceps or vacuum? | id10342 | del_norm | | | | n | | y | | | | y | y | | |
| i343o | Was the delivery vaginal, with forceps or vacuum? | id10343 | del_ass | | | | y | | y | | | | y | y | | |
| i344o | Was the delivery a Caesarean section? | id10344 | del_cs | | | | y | | y | | | | y | y | | |
| i347o | Was her baby born more than one month early? | id10347 | mon_early | | | | y | | y | | | | y | y | | |
| i354o | Was the child part of a multiple birth? | id10354 | twin | | c1_01 | c1_01 | y | y | y | y | y | | | | | |
| i355a | If the child was part of a multiple birth, was it born first? | id10355 | | | c1_02 | c1_02 | n | y | y | y | y | | | | | |
| i356o | Is the child's mother still alive? | id10356 | | | c1_03 | c1_03 | n | y | y | y | y | | | | | |
| i357o | Did the child's mother die during or shortly after the delivery? | id10357 | | | c1_04 | c1_04 | y | y | y | y | y | | | | | |
| i358a | Did the child's mother die in the baby's first year of life? | id10358 | | | c1_05a; c1_05b | c1_05a; c1_05b | y | y | y | y | y | | | | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i360a | Was the baby born in a health facility or clinic? | id10360 | b_bfac | | c1_06a; c2_13a | c1_06a; c2_13a | n | y | y | y | y | | | | | |
| i360b | Was the baby born at home? | id10360 | b_bhome | | c1_06a; c2_13a | c1_06a; c2_13a | y | y | y | y | y | | | | | |
| i360c | Was the baby born somewhere else (e.g. on the way to a clinic)? | id10360 | b_bway | | c1_06a; c2_13a | c1_06a; c2_13a | y | y | y | y | y | | | | | |
| i361o | Did the mother receive professional assistance during the delivery? | id10361 | b_bprof | | c2_15a | c2_15a | y | y | y | y | y | | | | | |
| i362o | At birth, was the baby of usual size? | id10362 | ab_size | | c1_07 | c1_07 | n | y | y | y | y | | | | | |
| i363o | At birth, was the baby smaller than normal (weighing under 2.5 kg)? | id10363 | born_small | | c1_07 | c1_07 | y | y | y | y | y | | | | | |
| i364o | At birth, was the baby very much smaller than usual, (weighing under 1 kg)? | id10364 | | | c1_07 | c1_07 | y | y | y | y | y | | | | | |
| i365o | At birth, was the baby larger than normal (weighing over 4.5 kg)? | id10365 | born_big | | c1_07 | c1_07 | y | y | y | y | y | | | | | |
| i367a | Was the baby born during the ninth month (at least 37 weeks) of pregnancy? | id10367 | born_38 | | c2_02a; c2_02b | c2_02a; c2_02b | n | y | y | y | y | | | | | |
| i367b | Was the baby born during the eighth month (34 to 37 weeks) of pregnancy? | id10367 | born_3437 | | c2_02a; c2_02b | c2_02a; c2_02b | y | y | y | y | y | | | | | |
| i367c | Was the baby born before the eighth month (less than 34 weeks) of pregnancy? | id10367 | born_early | | c2_02a; c2_02b | c2_02a; c2_02b | y | y | y | y | y | | | | | |
| i368o | Were there any complications in the late part of the pregnancy (defined as the last 3 months), but before labour? | id10368 | | | | | y | y | y | y | y | | | | | |
| i369o | Were there any complications during labour or delivery? | id10369 | comdel | | c2_01_10 | c2_01_10 | y | y | y | y | y | | | | | |
| i370o | Was any part of the baby physically abnormal at time of delivery? (for example: body part too large or too small, additional growth on body)? | id10370 | born_malf | | c1_18 | c1_18 | y | y | y | y | y | y | y | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i371o | Did the baby/child have a swelling or defect on the back? | id10371 | mlf_bk | | c1_19_3 | c1_19_3 | y | y | y | y | y | y | y | | | |
| i372o | Did the baby/child have a very large head? | id10372 | mlf_lh | | c1_19_2 | c1_19_2 | y | y | y | y | y | y | y | | | |
| i373o | Did the baby/child have a very small head? | id10373 | mlf_sh | | c1_19_1 | c1_19_1 | y | y | y | y | y | y | y | | | |
| i376o | Was the baby moving in the last few days before the birth? | id10376 | | | | c2_04 | n | y | y | y | | | | | | |
| i377o | Did the baby stop moving in the womb before labour started? | id10377 | move_lb | | | | y | y | y | y | | | | | | |
| i382a | Did labour and delivery take more than 24 hours? | id10382 | | | | c2_10a; c2_10b | y | y | y | y | | | | | | |
| i383o | Was the baby born 24 hours or more after the waters broke? | id10383 | waters | | | c2_07 | y | y | y | y | | | | | | |
| i384o | Was the liquor foul smelling when the waters broke? | id10384 | | | | c2_09 | y | y | y | y | | | | | | |
| i385a | Was the liquor a green or brown colour when the waters broke? | id10385 | | | | c2_08a | y | y | y | y | | | | | | |
| i387o | Was the delivery normal vaginal, without forceps or vacuum? | id10387 | b_norm | | | c2_17 | n | y | y | y | | | | | | |
| i388o | Was the delivery vaginal, with forceps or vacuum? | id10388 | b_assist | | | c2_17 | y | y | y | y | | | | | | |
| i389o | Was the delivery a Caesarean section? | id10389 | b_caes | | | c2_17 | y | y | y | y | | | | | | |
| i391o | Did the child's mother receive any vaccinations since reaching adulthood including during this pregnancy? | id10391 | | | | c2_11 | n | y | y | y | | | | | | |
| i393o | Did the mother receive tetanus toxoid (TT) vaccine? | id10393 | mttv | | | | n | y | y | y | | | | | | |
| i394a | Was this baby born from the mother's first pregnancy? | id10394 | b_first | | | | y | y | y | y | | | | | | |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i394b | Did the baby's mother have four or more births before this one? | id10394 | b_more4 | | | | y | y | y | y | | | | | | |
| i395o | During labour, did the baby's mother suffer from fever? | id10395 | | | | c2_01_9 | y | y | y | y | | | | | | |
| i396o | During the last 3 months of pregnancy, labour or delivery, did the baby's mother suffer from high blood pressure? | id10396 | b_mpbr | | | c2_01_2 | y | y | y | y | | | | | | |
| i397o | Did the baby's mother have diabetes mellitus? | id10397 | | | | c2_01_4 | y | y | y | y | | | | | | |
| i398o | Did the baby's mother have foul smelling vaginal discharge during pregnancy or after delivery? | id10398 | b_msmds | | | | y | y | y | y | | | | | | |
| i399o | During the last 3 months of pregnancy, labour or delivery, did the baby's mother suffer from convulsions? | id10399 | b_mcon | | | c2_01_1 | y | y | y | y | | | | | | |
| i400o | During the last 3 months of pregnancy did the baby's mother suffer from blurred vision? | id10400 | b_mbvi | | | | y | y | y | y | | | | | | |
| i401o | Did the baby's mother have severe anaemia? | id10401 | | | | c2_01_3 | y | y | y | y | | | | | | |
| i402o | Did the baby's mother have vaginal bleeding during the last 3 months of pregnancy but before labour started? | id10402 | b_mbvl | | | c2_01_8 | y | y | y | y | | | | | | |
| i403o | Did the baby's bottom, feet, arm or hand come out of the vagina before its head? | id10403 | ab_posit | | | c2_01_5 | y | y | y | y | | | | | | |
| i404o | Was the umbilical cord wrapped more than once around the baby's neck at birth? | id10404 | cord | | | c2_01_7 | y | y | y | y | | | | | | |
| i405o | Was the umbilical cord delivered first? | id10405 | | | | c2_01_6 | y | y | y | y | | | | | | |
| i406o | Was the baby blue in colour at birth? | id10406 | cyanosis | | | | y | y | y | y | | | | | | |
| i408o | Before the illness that led to death, was the baby/child growing normally? | id10408 | devel | | | | n | y | y | y | y | y | | | | |
| i411o | Did (s)he drink alcohol? | id10411 | alcohol | a4_05 | | | y | y | y | | | | | y | y | y |
| i412o | Did (s)he use tobacco? | id10412 | | a4_01 | | | y | y | y | | | | | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i413o | Did (s)he smoke tobacco (cigarette, cigar, pipe, etc.)? | id10413 | smoking | a4_02_1 | | | y | y | y | | | | | y | y | y |
| i414a | Did (s)he use non-smoking tobacco? | id10414 | | a4_02_3 | | | y | y | y | | | | | y | y | y |
| i415a | Did (s)he smoke at least 10 cigarettes daily? | id10415 | | a4_04 | | | y | y | y | | | | | y | y | y |
| i418o | Did (s)he receive any treatment for the illness that led to death? | id10418 | treat | a6_01 | c5_01 | | y | y | y | y | y | y | y | y | y | y |
| i419o | Did (s)he receive oral rehydration salts? | id10419 | t_ort | | | | y | y | y | y | y | y | y | y | y | y |
| i420o | Did (s)he receive (or need) intravenous fluids (drip) treatment? | id10420 | t_iv | | | | y | y | y | y | y | y | y | y | y | y |
| i421o | Did (s)he receive (or need) a blood transfusion? | id10421 | blood_tr | | | | y | y | y | | y | y | y | y | y | y |
| i422o | Did (s)he receive (or need) treatment/food through a tube passed through the nose? | id10422 | t_ngt | | | | y | y | y | y | y | y | y | y | y | y |
| i423o | Did (s)he receive (or need) injectable antibiotics? | id10423 | antib_i | | | | y | y | y | y | y | y | y | y | y | y |
| i424o | Did (s)he receive (or need) antiretroviral therapy (ART)? | id10424 | | | | | y | y | y | y | y | y | y | y | y | y |
| i425o | Did (s)he have (or need) an operation for the illness? | id10425 | surgery | | | | y | y | y | y | y | y | y | y | y | y |
| i426o | Did (s)he have the operation within 1 month before death? | id10426 | sur_1m | | | | y | y | y | y | y | y | y | y | y | y |
| i427o | Was (s)he discharged from hospital very ill? | id10427 | disch | | | | y | y | y | y | y | y | y | y | y | y |
| i428o | Did (s)he receive appropriate immunizations? | id10428 | vaccin | | | | n | y | y | | y | y | y | | | |
| i450o | In the final days before death, did s/he travel to a hospital or health facility? | id10450 | shospf | | | | n | y | y | y | y | y | y | y | y | y |
| i451o | Did (s)he use motorised transport to get to the hospital or health facility? | id10451 | strans | | | | n | y | y | y | y | y | y | y | y | y |
| i452o | Were there any problems during admission to the hospital or health facility? | id10452 | sadmit | | | | y | y | y | y | y | y | y | y | y | y |

| InterVA-5 indicators | | derived from corresponding items | | | | | specification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| iv5_indic | iv5_question | who_2016 | interva_4 | sva_adult | sva_child | sva_neonate | subs_val | male | female | neonate | infant | under5 | child | adult | midage | elder |
| i453o | Were there any problems with the way (s)he was treated (medical treatment, procedures, interpersonal attitudes, respect, dignity) in the hospital or health facility? | id10453 | streat | | | | y | y | y | y | y | y | y | y | y | y |
| i454o | Were there any problems getting medications, or diagnostic tests in the hospital or health facility? | id10454 | smedic | | | | y | y | y | y | y | y | y | y | y | y |
| i455o | Does it take more than 2 hours to get to the nearest hospital or health facility from the deceased's household? | id10455 | smore2 | | | | y | y | y | y | y | y | y | y | y | y |
| i456o | In the final days before death, were there any doubts about whether medical care was needed? | id10456 | sdoubt | | | | y | y | y | y | y | y | y | y | y | y |
| i457o | In the final days before death, was traditional medicine used? | id10457 | stradm | | | | y | y | y | y | y | y | y | y | y | y |
| i458o | In the final days before death, did anyone use a telephone or cell phone to call for help? | id10458 | smobph | | | | n | y | y | y | y | y | y | y | y | y |
| i459o | Over the course of illness, did the total costs of care and treatment prohibit other household payments? | id10459 | scosts | | | | y | y | y | y | y | y | y | y | y | y |

## APPENDIX 2: InterVA-5 (WHO-2016) VA cause categories

The following pages specify the details of the InterVA-5 output cause of death categories, according to the WHO-2016 VA standard definition, with ICD-10 codes.

| *WHO VA cause category* | *ICD-10 codes* |
|---|---|
| **01 Infectious and parasitic diseases** | |
| 01.01 Sepsis | A40-A41 |
| 01.02 Acute respiratory infection, including pneumonia | J00-J22 |
| 01.03 HIV/AIDS related death | B20-B24 |
| 01.04 Diarrhoeal diseases | A00-A09 |
| 01.05 Malaria | B50-B54 |
| 01.06 Measles | B05 |
| 01.07 Meningitis and encephalitis | A39; G00-G05 |
| 01.08 Tetanus | A33-A35 |
| 01.09 Pulmonary tuberculosis | A15-A16 |
| 01.10 Pertussis | A37 |
| 01.11 Haemorrhagic fever | A92-A99 |
| 01.12 Dengue fever | A90-A91 |
| 01.99 Other and unspecified infectious disease | A17-A19; A20-A38;A42-A89; B00-B19; B25-B49; B55-B99 |
| **02 Neoplasms** | |
| 02.01 Oral neoplasms | C00-C06 |
| 02.02 Digestive neoplasms | C15-C26 |
| 02.03 Respiratory neoplasms | C30-C39 |
| 02.04 Breast neoplasms | C50 |
| 02.05 Female reproductive neoplasms | C51-C58 |
| 02.06 Male reproductive neoplasms | C60-C63 |
| 02.99 Other and unspecified neoplasms | C07-C14; C40-C49; C60-D48 |
| **03 Nutritional and endocrine disorders** | |
| 03.01 Severe anaemia | D50-D64 |
| 03.02 Severe malnutrition | E40-E46 |
| 03.03 Diabetes mellitus | E10-E14 |
| **04 Diseases of the circulatory system** | |
| 04.01 Acute cardiac disease | I20-I25 |
| 04.02 Stroke | I60-I69 |
| 04.03 Sickle cell with crisis | D57 |
| 04.99 Other and unspecified cardiac disease | I00-I09; I10-I15; I26-I52; I70-I99 |
| **05 Respiratory disorders** | |
| 05.01 Chronic obstructive pulmonary disease (COPD) | J40-J44 |
| 05.02 Asthma | J45-J46 |
| **06 Gastrointestinal disorders** | |
| 06.01 Acute abdomen | R10 |
| 06.02 Liver cirrhosis | K70-K76 |
| **07 Renal disorders** | |
| 07.01 Renal failure | N17-N19 |
| **08 Mental and nervous system disorders** | |
| 08.01 Epilepsy | G40-G41 |
| **98 Other NCDs** | |

| | |
|---|---|
| 98 Other and unspecified non-communicable disease | D55-D89; E00-E07; E15-E35; E50-E90; F00-F99; G06-G09; G10-G37; G50-G99; H00-H95; J30-J39; J47-J99; K00-K31; K35-K38; K40-K93; L00-L99; M00-M99; N00-N16; N20-N99; R00-R09; R11-R94 |
| **09 Pregnancy-, childbirth and puerperium-related disorders** | |
| 09.01 Ectopic pregnancy | O00 |
| 09.02 Abortion-related death | O03-O08 |
| 09.03 Pregnancy-induced hypertension | O10-O16 |
| 09.04 Obstetric haemorrhage | O46; O67; O72 |
| 09.05 Obstructed labour | O63-O66 |
| 09.06 Pregnancy-related sepsis | O75.3; O85 |
| 09.07 Anaemia of pregnancy | O99.0 |
| 09.08 Ruptured uterus | O71 |
| 09.99 Other and unspecified maternal cause | O01-O02; O20-O45; O47-O62; O68-O70; O73-O84; O86-O99 |
| **10 Neonatal causes of death** | |
| 10.01 Prematurity | P05-P07 |
| 10.02 Birth asphyxia | P20-P22 |
| 10.03 Neonatal pneumonia | P23-P25 |
| 10.04 Neonatal sepsis | P36 |
| 10.05 Neonatal tetanus | A33 |
| 10.06 Congenital malformation | Q00-Q99 |
| 10.99 Other and unspecified perinatal cause of death | P00-P04; P08-P15; P26-P35; P37-P94; P96 |
| **11 Stillbirths** | |
| 11.01 Fresh stillbirth | P95 |
| 11.02 Macerated stillbirth | P95 |
| **12 External causes of death** | |
| 12.01 Road traffic accident | V01-V89 |
| 12.02 Other transport accident | V90-V99 |
| 12.03 Accidental fall | W00-W19 |
| 12.04 Accidental drowning and submersion | W65-W74 |
| 12.05 Accidental exposure to smoke, fire and flames | X00-X19 |
| 12.06 Contact with venomous animals and plants | X20-X29 |
| 12.07 Accidental poisoning and exposure to noxious substance | X40-X49 |
| 12.08 Intentional self-harm | X60-X84 |
| 12.09 Assault | X85-Y09 |
| 12.10 Exposure to force of nature | X30-X39 |
| 12.99 Other and unspecified external cause of death | S00-T99; W20-W64; W75-W99; X50-X59; Y10-Y98 |
| **99 Unknown** | |
| 99 Cause of death unknown | R95-R99 |