Verbal autopsy standards

Ascertaining and attributing cause of death

HMN
London School of Hygiene & Tropical Medicine
INDEPTH Network
USAID FROM THE AMERICAN PEOPLE
MEASURE Evaluation
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1. DEVELOPMENT OF VERBAL AUTOPSY STANDARDS

1.1 Purpose and content

The purpose of this manual is to disseminate new standard data collection and cause-of-death assignment resources for verbal autopsy, and to provide some general guidelines for their use. These resources include:

- Verbal autopsy questionnaires for three age groups (under four weeks; four weeks to 14 years; and 15 years and above) (Part 2);
- Cause-of-death certification and coding guidelines for applying the *International statistical classification of diseases and related health problems*, tenth revision (ICD-10) [1] to verbal autopsy (Part 3, sections 3.2–3.8); and
- A cause-of-death list for verbal autopsy with corresponding ICD-10 codes ("correspondence table", Part 3, section 3.9).

This manual and the resources it contains are the consensus products of a three-year effort by an expert group led by the World Health Organization (WHO), consisting of researchers, data users, and other stakeholders under the sponsorship of the Health Metrics Network (HMN). They are intended to serve the needs of various users and producers of mortality information including researchers, policy-makers, and programme managers and evaluators. In order to make these resources as easily and widely accessible as possible, they will be published on the WHO web site and in printed form, and incorporated into the HMN's web site and forthcoming resource kit for strengthening national vital statistics systems. As new language versions become available, these too will be put into the public domain, with WHO serving as a repository for all rigorously translated and back-translated materials that are consistent with the standard procedures published here.

The expert group on verbal autopsy systematically reviewed, debated and refined the accumulated experience and evidence from the most widely used and validated verbal autopsy questionnaires and procedures. This resulted in standard verbal autopsy questionnaires for three age groups. In addition, the expert group reached agreement on the use of standardized methods for certification, coding and tabulation of causes of death from verbal autopsy according to ICD-10 procedures. Application of these standardized tools will introduce more consistency and cross-comparability of verbal autopsy-derived mortality data. The correspondence table allows for easy access to ICD-10. It also allows the assignment of a group/subgroup level for causes-of-death corresponding to ICD-10 codes, if a specific cause of death cannot be assigned because information from the verbal autopsy is not sufficient. Where more information is available, the full ICD-10 is to be used for coding (see section 3.9 of Part 3 for an explanation of the purpose and use of this correspondence table).

1.2 The need for standardization in verbal autopsy methods

The dearth of reliable data on the levels and causes of mortality for those living in poorer regions of the world continues to limit efforts to build a solid evidence base for health policy, planning, monitoring and evaluation. In settings where the majority of deaths still occur at home and where

civil registration systems do not function, there is little chance that deaths occurring away from health facilities will be recorded at all, let alone certified as to the cause or causes of death.

As a partial solution to this problem, verbal autopsy has become the primary source of information about causes of death in populations lacking vital registration and medical certification [2]. Verbal autopsy is an interview carried out with family members and/or caregivers of the deceased using a structured questionnaire to elicit signs and symptoms and other pertinent information that can later be used to assign a probable underlying cause of death. Verbal autopsy is an essential public health tool for obtaining a reasonable direct estimation of the cause structure of mortality at a community or population level, although it may not be an accurate method for attributing causes of death at the individual level.

The past two decades have seen a proliferation of interest, as well as research and development, in all aspects of the verbal autopsy process, including data-collection systems where verbal autopsy is applied (e.g. demographic surveillance sites, sample or sentinel registration systems, censuses or household surveys); questionnaire content and format; application to different age groups; cause-of-death assignment process; coding and tabulation of causes of death according to the ICD-10 rules; and the vexing issue of validation [3]. As a result, cause-specific mortality data have become available for populations that otherwise would have none.

Verbal autopsy is used in three main ways. First, it is used primarily as a research tool in the context of longitudinal population studies, intervention research or epidemiological studies, usually in children or to determine maternal cause(s) of death. Second, it has become a source of cause-of-death statistics to meet the demand for population-level disease-burden estimates to be used in policy, planning, priority-setting and benchmarking (as in global burden-of-disease studies [4]). Third, data derived from verbal autopsy are gaining acceptance as a source of cause-of-death statistics to be used for monitoring progress and evaluating what works and what does not.

Given the strong connection to focused research programs, there has been little coordination among producers and users of verbal autopsy data and – despite some attempts at promoting standard tools [5–7] – those active in the field have not tended towards a convergence on best practices. The design of first- and second-generation verbal autopsy questionnaires, for example, has been driven largely by the needs of researchers and the specific questions to be answered. Initially at least, there was no overriding concern to ensure comparability of data sets from country to country. In addition, the costs and complexity of verbal autopsy validation, the inherent limitations of validation protocols and the scarcity of comparative validation studies of the same questionnaires in multiple countries have left the users of verbal autopsy without a compelling scientific case for adopting a particular "standard". Rather, there has been a tendency to cannibalize from previous forms and questionnaires, or simply to start from scratch. It should also be noted that there have been some attempts to publish, document and advocate for standardized approaches to cause-of-death assignment in verbal autopsy [8–12]. This a critical component of the process of implementing verbal autopsy methods, and, as we discuss below, must go hand in hand with the standardization of data collection tools in order to ensure the production of comparable data sets.

In the past five to seven years, however, the importance of verbal autopsy-derived mortality data as a source of comparative population health outcome statistics has grown rapidly, making the necessity to standardize approaches all the more compelling. For example, meta-analyses of existing verbal autopsy data sets have been attempted in order to set some global "benchmarks" for the mortality burden among children due to various diseases [13–17]. Because of the lack of standard data collection and cause-of-death attribution and tabulation procedures, however, the

comparability of these precious information sources is seriously limited. Assessments of data consistency and reliability are further constrained by lack of public availability of data sets themselves [18], by the scarcity of rigorous validation studies and by the frequent problem of small and non-representative samples.

At the same time, there are great demands for direct measures of impact to track progress in meeting the Millennium Development Goals and to evaluate disease control programmes and major global health initiatives – including interventions aimed at reducing mortality due to specific diseases or conditions. Where the coverage of medical death certification is high and representative, and the quality of medical records is high and consistent, civil registration and health records are the preferred source of information to calculate these indicators. The reality is that for poor, often rural populations – for whom new interventions and policies are designed to reduce mortality, often due to specific diseases or conditions – verbal autopsy, for all its shortcomings, remains the only practical option for measuring levels and trends in specific causes [2].

Finally, decades of health sector reform have put a premium on "evidence-based" planning and priority setting – often at the sub-national level. Mortality data (often generated from verbal autopsy) have been critical inputs into these processes [19]. These data have allowed national and district intervention packages to be based on better evidence.

The need for consensus on a core set of technical standards and on guidelines for verbal autopsy, together with their widespread endorsement and adoption, has, therefore, become urgent. While there are questions about the accuracy of verbal autopsy for assigning some causes of death, it is hard to overstate the benefits to be gained by applying a standardized verbal autopsy process to obtain representative mortality statistics in countries with inadequate vital registration systems.

Verbal autopsy methodologies are still evolving; many areas of active and important research in verbal autopsy methods remain. These include topics such as further optimization of questionnaires and statistical methods for assigning causes of death from verbal autopsy that are both reliable and that remove human bias from the assignment process [20]. For the present, however – and in order to ensure that data on cause-specific mortality derived from verbal autopsy in coming years have the greatest possible benefits to those producing them as well as to those using them for comparative purposes – it is urged that these new standard resources become the foundation for efforts in verbal autopsy data collection wherever possible.

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2. INTERNATIONAL STANDARD VERBAL AUTOPSY QUESTIONNAIRES

2.1 Introduction

The three international standard verbal autopsy questionnaires are intended to serve the needs of multiple users and producers of mortality information, including researchers, policy-makers and those carrying out monitoring and evaluation activities. They are the product of a rigorous expert review of all verbal autopsy questionnaires currently in wide usage, and particularly those that have been validated (e.g. [1–4]).

It is important to recognize that verbal autopsy cannot ascertain all causes of death. Furthermore, as many validation studies have shown, verbal autopsy does not perform equally well for all causes that it can ascertain. Taking these limitations into account, the standard questionnaires were developed in such a way as to:

- Permit certification and coding procedures of ICD-10
- Ascertain all causes of death that may be attributed with reasonable accuracy from a well-administered verbal autopsy interview (see the correspondence table in Part 3, section 3.9)

The expert review group reached consensus on a set of standard questionnaires to allow the addition of variables of topical interest (e.g. risk factors) where necessary. While such augmentation of the standard questionnaires is not necessarily encouraged (see "Guidelines on augmentation, translation and local adaptation", below) as long as the standard variables are included and correct cause-of-death certification and coding procedures are used, it should be possible to generate comparable data over time across populations.

2.2 Standard verbal autopsy questionnaires

2.2.1 Common elements

All of the standard verbal autopsy questionnaires contain both common elements, and sections (or modules) appropriate to both the age and sex of the deceased. The common elements include a "general information" module, and questions that relate to some causes of death and certain generalized signs and symptoms. The "general information" module – the first page of each questionnaire – contains key identifying and sociodemographic information, and data fields necessary for the management of completed forms. It suggests standard contents that identify and record:

- A unique ID, control or reference number for the verbal autopsy questionnaire being completed;
- The date, place and time of the interview, and identity of the interviewer;
- Key characteristics of the respondent;
- The time, place and date of death;
- The name, sex and age of the deceased;
- The cause(s) of death and events leading to death according to the respondent;

Other standard questionnaire modules include:

- History of previously known medical conditions (of the deceased or of the mother);
- History of injury or accident;
- Treatment and health service use during the period of final illness;
- Data abstracted from death certificates, antenatal or maternal and child health clinic cards, or other medical records and relevant documentary evidence at the household level.

These modules are, with few exceptions, the same across the three standard questionnaires.

The module of each questionnaire that contains the essential information for certification of cause of death has a checklist to note the "signs and symptoms noted during the final illness". With the exception of questions about injuries and accidents, and some questions about generalized systemic signs and symptoms (e.g. fever or intestinal signs and symptoms), the questions contained in the checklist of signs and symptoms vary depending on age and/or the sex of the deceased.

2.2.2 Verbal autopsy questionnaire 1: death of a child aged under four weeks

The purpose of verbal autopsy questionnaire 1 is to distinguish among stillbirths, early neonatal deaths and late neonatal deaths and to determine causes of those perinatal events and deaths. In addition to the "signs and symptoms noted during the final illness" checklist, the questionnaire contains extensive questions concerning the history of the pregnancy; delivery; the condition of the baby soon after birth; and the mother's health and contextual factors.

2.2.3 Verbal autopsy questionnaire 2: death of a child aged four weeks to 14 years

Verbal autopsy questionnaire 2 is designed to ascertain the major causes of post-neonatal child mortality (i.e. starting from the fourth week of life), as well as causes of death that may be seen through 14 years. The questionnaire includes all the standard modules described above, as well as modules for children aged four weeks to 11 months.

2.2.4 Verbal autopsy questionnaire 3: death of a person aged 15 years and above

Verbal autopsy questionnaire 3 is designed to identify all major causes of death among adolescents and adults (i.e. starting at age 15), including deaths related to pregnancy and childbirth. The questionnaire includes an extensive module for all female deaths. Questionnaire 3 also includes a module on behavioural risk factors (e.g. alcohol and tobacco consumption).

2.3 Appropriate respondents and recall period

The respondent who provides information about the deceased and allows the interviewer to complete the verbal autopsy questionnaire should be the primary caregiver (usually a family member) who was with the deceased in the period leading to death. This individual is likely to provide the most reliable and accurate account of the signs and symptoms of importance. It is not uncommon for a verbal autopsy respondent to require assistance from other household or family members in answering the verbal autopsy questions.

Verbal autopsy interviews conducted as part of longitudinal registration or surveillance activities should be conducted as soon as practically possible after the report of the event is received, but after any culturally prescribed mourning period has passed. When verbal autopsies are to be included in cross-sectional household surveys, recall of more than one year should be done with

caution. Shorter recall periods are preferable and more research is needed on the effects of recall periods beyond 12 months on accuracy of verbal autopsy.

2.4 Guidelines on augmentation, translation and local adaptation

The international standard verbal autopsy questionnaires should address the major causes of death in most populations where the use of verbal autopsy is a necessary means to obtain cause-of-death information. Modifying the "signs and symptoms noted during the final illness" checklist of the standard questionnaires should be carried out with caution because extensive modification would compromise the comparability of verbal autopsy data between populations. In particular, the addition of new questions about particular diseases of interest may bias results if a disproportionate amount of information about only one condition is available in the cause-of-death assignment process. If absolutely necessary, modifications should be carefully documented and distinguished from the standard questionnaire modules and variables. This may be the case if there are emerging or locally important causes of death for which there are no questions on the standard verbal autopsy questionnaires. In these circumstances, advice may be sought from WHO for making such modifications. In general, only changes to the wording of existing variables for the purposes of enhancing local comprehension or ensuring cultural acceptability of questions should be undertaken.

Examples of modifications that are unlikely to affect the comparability of results might include:

- Adding questions or modules about household characteristics, and environmental or behavioural risk factors;
- Adding or changing questions about usage of a particular health service or health intervention.

Examples of modifications that may affect the comparability of results include:

- Changing or adding to response categories in the checklist of "signs and symptoms noted during the final illness";
- Adding new questions about diseases of particular interest (e.g. malaria, HIV/AIDS, diarrhoeal disease).

2.5 References

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INTERNATIONAL STANDARD VERBAL AUTOPSY QUESTIONNAIRE 1
DEATH OF A CHILD AGED UNDER 4 WEEKS

ID/CONTROL/REFERENCE NUMBER

SECTION 1.1 INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR (2 0)
INTERVIEWER'S NAME				INT. NUMBER
RESULT*				RESULT
NEXT VISIT: DATE / TIME				TOTAL NUMBER OF VISITS

1 COMPLETED 2 NOT AT HOME 3 POSTPONED 4 REFUSED
5 PARTLY COMPLETED 6 NO APPROPRIATE RESPONDENT FOUND 7 OTHER _____ (SPECIFY)

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME	NAME		
DATE	DATE		

PLACE NAME _____

ADDRESS/DIRECTIONS TO HOUSEHOLD _____

SECTION 1.2 ADDITIONAL DEMOGRAPHIC INFORMATION
(FOR USE IN SAMPLE VITAL REGISTRATION OR DEMOGRAPHIC SURVEILLANCE SITE)

REGION/PROVINCE _____
FIELD SITE _____
HOUSEHOLD NUMBER _____
NAME OF REFERENCE PERSON _____
RESIDENTIAL STATUS OF THE DECEASED _____

REGION/PROVINCE .....
FIELD SITE .....
HOUSEHOLD NUMBER .....

RESIDENT IN ENUMERATION AREA **1**
BODY BROUGHT HOME FOR BURIAL **2**
HOME-COMING SICK **3**

SAMPLE INFORMED CONSENT STATEMENT

Hello. My name is _____ and I am working with [AGENCY].
We are collecting information on the causes of death in the community. We would very much appreciate your participation in this effort. We want to ask you about the circumstances leading to the death of the deceased. Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of this information-collection activity.
Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all. However, we hope that you will participate in this survey since the results will help the government improve services for people.

At this time, do you want to ask me anything about the purpose or content of this interview?

May I begin the interview now?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED . . . 1 ↓ RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2→ END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 2. BASIC INFORMATION ABOUT RESPONDENT			
201	RECORD THE TIME AT START OF INTERVIEW	HOUR ..... [ ][ ] MINUTES ..... [ ][ ]	
202	NAME OF THE RESPONDENT	_____ (NAME)	
203	What is your relationship to the deceased?	FATHER ..... 1 MOTHER ..... 2 SIBLING ..... 4 OTHER RELATIVE _____ (SPECIFY) 6 NO RELATION 8	
204	Did you live with the deceased in the period leading to her/his death?	YES ..... 1 NO 2	
SECTION 3. INFORMATION ON THE DECEASED AND DATE/PLACE OF DEATH			
301	What was the name of the deceased?	_____ (NAME)	
302	Was the deceased female or male?	FEMALE ..... 1 MALE 2	
303	When was the deceased born? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY ..... [ ][ ] MONTH ..... [ ][ ] YEAR ..... [ ][ ][ ][ ]	
304	How old was the deceased when s/he died?	AGE IN DAYS ..... [ ][ ]	
305	When did s/he die? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY ..... [ ][ ] MONTH ..... [ ][ ] YEAR ..... [ ][ ][ ][ ]	
306	Where did s/he die?	HOSPITAL ..... 1 OTHER HEALTH FACILITY ..... 2 HOME ..... 3 OTHER _____ (SPECIFY) 6 DON'T KNOW 8	
SECTION 4. RESPONDENT'S ACCOUNT OF ILLNESS/EVENTS LEADING TO DEATH			
401	Could you tell me about the illness/events that led to her/his death?		
402	CAUSE OF DEATH 1 ACCORDING TO RESPONDENT		
403	CAUSE OF DEATH 2 ACCORDING TO RESPONDENT		

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 5. PREGNANCY HISTORY			
501	I would like to ask you some questions concerning the mother and symptoms that the deceased had/showed at birth and shortly after. Some of these questions may not appear to be directly related to the baby's death. Please bear with me and answer all the questions. They will help us to get a clear picture of all possible symptoms that the deceased had.		
502	How many births, including stillbirths, did the mother have before this baby?	NUMBER OF BIRTHS/ STILLBIRTHS . . . . . ☐☐ DON'T KNOW 9 8	
503	How many months was the pregnancy when the baby was born?	MONTHS . . . . . ☐☐ DON'T KNOW 9 8	
504	Did the pregnancy end earlier than expected?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 506 → 506
505	How many weeks before the expected date of delivery?	WEEKS . . . . . ☐☐ DON'T KNOW 9 8	
506	During the pregnancy did the mother suffer from any of the following known illnesses:	YES NO DK	
	1 High blood pressure?	HIGH BLOOD PRESSURE 1 2 8	
	2 Heart disease?	HEART DISEASE 1 2 8	
	3 Diabetes?	DIABETES 1 2 8	
	4 Epilepsy/convulsion?	EPILEPSY/CONVULSION 1 2 8	
	5 Did she suffer from any other medically diagnosed illness?	OTHER . . . . . 1 2 8 _____ ↵ (SPECIFY)	
507	During the last 3 months of pregnancy did the mother suffer from any of the following illnesses:	YES NO DK	
	1 Vaginal bleeding?	VAGINAL BLEEDING 1 2 8	
	2 Smelly vaginal discharge?	SMELLY VAGINAL DISCHARGE 1 2 8	
	3 Puffy face?	PUFFY FACE 1 2 8	
	4 Headache?	HEADACHE 1 2 8	
	5 Blurred vision?	BLURRED VISION 1 2 8	
	6 Convulsion?	CONVULSION 1 2 8	
	7 Febrile illness?	FEBRILE ILLNESS 1 2 8	
	8 Severe abdominal pain that was not labor pain?	SEVERE ABDOMINAL PAIN (NOT LABOR PAIN) 1 2 8	
	9 Pallor and shortness of breath (both present)?	PALLOR/SHORTNESS OF BREATH (BOTH) 1 2 8	
	10 Did she suffer from any other illness?	OTHER ILLNESS . . . . . 1 2 8 _____ ↵ (SPECIFY)	
508	Was the child a single or multiple birth?	SINGLETON . . . . . 1 TWIN . . . . . 2 TRIPLET OR MORE . . . . . 3 DON'T KNOW 8	→ 601 → 601
509	What was the birth order of the child that died?	FIRST . . . . . 1 SECOND . . . . . 2 THIRD OR HIGHER . . . . . 3 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 6. DELIVERY HISTORY			
601	Where was the child born?	HOSPITAL . . . . . 1 OTHER HEALTH FACILITY . . . . . 2 HOME . . . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
602	Who assisted with the delivery?	DOCTOR . . . . . 1 NURSE/MIDWIFE . . . . . 2 TRADITIONAL BIRTH ATTENDANT . . . . . 3 RELATIVE . . . . . 4 MOTHER BY HERSELF . . . . . 5 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
603	When did the water break?	BEFORE LABOR STARTED . . . . . 1 DURING LABOR . . . . . 2 DON'T KNOW 8	
604	How many hours after the water broke was the baby born?	LESS THAN 24 HOURS . . . . . 1 24 HOURS OR MORE . . . . . 2 DON'T KNOW 8	
605	Was the water foul smelling?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
606	Did the baby stop moving in the womb?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 608 → 608
607	When did the baby stop moving in the womb?	BEFORE LABOR STARTED . . . . . 1 DURING LABOR . . . . . 2 DON'T KNOW 8	
608	Did a birth attendant listen for fetal heart sounds during labor?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 610 → 610
609	Were fetal heart sounds present?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
610	Was there excess bleeding on the day labor started?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
611	Did the mother have a fever on the day labor started?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
612	How long did the labor pains last?	LESS THAN 12 HOURS . . . . . 1 12-23 HOURS . . . . . 2 24 HOURS OR MORE . . . . . 3 DON'T KNOW 8	
613	Was it a normal vaginal delivery?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 615 → 615
614	What type of delivery was it?	FORCEPS/VACUUM . . . . . 1 CAESAREAN SECTION . . . . . 2 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
615	Which part of the baby came first?	HEAD . . . . . 1 BOTTOM . . . . . 2 FEET . . . . . 3 ARM/HAND . . . . . 4 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
616	Did the umbilical cord come out before the baby was born?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 7. CONDITION OF THE BABY SOON AFTER BIRTH			
701	At birth what was the size of the baby?	SMALLER THAN NORMAL . . . . . 1 NORMAL . . . . . 2 LARGER THAN NORMAL . . . . . 3 DON'T KNOW 8	
702	Was the baby premature?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 704 → 704
703	How many months or weeks along was the pregnancy? INDICATE PERIOD OF PREGNANCY	MONTHS . . . . . 1 WEEKS . . . . . 2 DON'T KNOW 9 9 8	
704	What was the birth weight of the baby?	KILOGRAMS . . . . DON'T KNOW 9 8	
705	Was anything applied to the umbilical cord stump after birth?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 707 → 707
706	What was it?	_____ _____ (SPECIFY)	
707	Were there any signs of injury or broken bones?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 709 → 709
708	Where were the marks or signs of injury?	_____ _____ (SPECIFY)	
709	Was there any sign of paralysis?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
710	Did the baby have any malformation?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 712 → 712
711	What kind of malformation did the baby have?	SWELLING/DEFECT ON THE BACK . . . . . 1 VERY LARGE HEAD . . . . . 2 VERY SMALL HEAD . . . . . 3 DEFECT OF LIP AND/OR PALATE . . . . . 4 OTHER MALFORMATION _____ 6 (SPECIFY) DON'T KNOW 8	
712	What was the color of the baby at birth?	NORMAL . . . . . 1 PALE . . . . . 2 BLUE . . . . . 3 DON'T KNOW 8	
713	Did the baby breathe after birth, even a little?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
714	Was the baby given assistance to breathe?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
715	Did the baby ever cry after birth, even a little?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
716	Did the baby ever move, even a little?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
717	CHECK 713, 715, AND 716 FOR CODES 'NO': ALL THREE CODES 'NO': THE BABY DIDN'T BREATH, THE BABY DIDN'T CRY, THE BABY DIDN'T MOVE ☐ OTHER ☐		→801
718	If the baby did not cry, breathe or move, was it born dead?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →801 →801
719	Was the baby macerated, that is, showed signs of decay?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	→1001 →1001 →1001
SECTION 8. HISTORY OF INJURIES/ACCIDENTS			
801	Did the baby suffer from any injury or accident that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →804 →804
802	What kind of injury or accident did the baby suffer?	ROAD TRAFFIC ACCIDENT . . . 01 FALL . . . 02 DROWNING . . . 03 POISONING . . . 04 BURNS . . . 05 VIOLENCE/ASSAULT . . . 06 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . 98	
803	Was the injury or accident intentionally inflicted by someone else?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
804	Did the baby suffer from any animal/insect bite that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →901 →901
805	What type of animal/insect?	DOG . . . 1 SNAKE . . . 2 INSECT . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 9. NEONATAL ILLNESS HISTORY			
901	Was the baby ever able to suckle or bottle-feed?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 905 → 905
902	How soon after birth did the baby suckle or bottle-feed?	HOURS . . . 1 ☐☐ DAYS . . . 2 ☐☐ DON'T KNOW . . . 9 9 8	
903	Did the baby stop suckling or bottle-feeding?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 905 → 905
904	How many days after birth did the baby stop suckling or bottle-feeding?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
905	Was the breastfeeding exclusive?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
906	Did the baby have convulsions?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 908 → 908
907	How soon after birth did the convulsions start?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
908	Did the baby become stiff and arched backwards?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
909	Did the child have bulging of the fontanelle?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 911 → 911
910	How many days after birth did the baby have the bulging?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
911	Did the baby become unresponsive or unconscious?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 913 → 913
912	How many days after birth did the baby become unresponsive or unconscious?'	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
913	Did the baby have a fever?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 915 → 915
914	How many days after birth did the baby have a fever?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
915	Did the baby become cold to the touch?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 917 → 917
916	How many days after birth did the baby become cold to the touch?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
917	Did the baby have a cough?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 919 → 919
918	How many days after birth did the baby start to cough?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
919	Did the baby have fast breathing?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 921 → 921
920	How many days after birth did the baby start breathing fast?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
921	Did the baby have difficulty breathing?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 926 → 926
922	How many days after birth did the baby start having difficulty in breathing?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
923	Did the baby have chest indrawing?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
924	Did the baby have grunting? DEMONSTRATE	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
925	Did the baby have flaring of the nostrils?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
926	Did the baby have diarrhoea?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 930 → 930
927	How many days after birth did the baby have diarrhoea?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	
928	When the diarrhoea was most severe, how many times did the baby pass stools in a day?	NUMBER . . . ☐☐ DON'T KNOW . . . 9 8	
929	Was there blood in the stools?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
930	Did the baby have vomiting?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 933 → 933
931	How many days after birth did vomiting start?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
932	When the vomiting was most severe, how many times did the baby vomit in a day?	NUMBER OF TIMES A DAY . . . . . ☐☐ DON'T KNOW 9 8	
933	Did the baby have abdominal distension?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 935 → 935
934	How many days after birth did the baby have abdominal distension?	DAYS . . . . . ☐☐ DON'T KNOW 9 8	
935	Did the baby have redness or discharge from the umbilical cord stump?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
936	Did the baby have a pustular skin rash?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
937	Did the baby have yellow palms or soles?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 1001 → 1001
938	How many days after birth did the yellow palms or soles begin?	DAYS . . . . . ☐☐ DON'T KNOW 9 8	
939	For how many days did the baby have yellow palms or soles?	DAYS . . . . . ☐☐ DON'T KNOW 9 8	
SECTION 10. MOTHER'S HEALTH AND CONTEXTUAL FACTORS			
1001	What was the age of the mother at the time the baby died?	YEARS . . . . . ☐☐ DON'T KNOW 9 8	
1002	Did the mother receive antenatal care?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	
1003	Did the mother receive tetanus toxoid (TT) vaccine?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	→ 1005 → 1005
1004	How many doses?	NUMBER OF DOSES . . . . . ☐☐ DON'T KNOW 9 8	
1005	How is the mother's health now?	HEALTHY . . . . . 1 ILL . . . . . 2 NOT ALIVE . . . . . 3 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 11. TREATMENT AND HEALTH SERVICE USE FOR THE FINAL ILLNESS			
1101	Did the baby receive any treatment for the illness that led to death?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 1201 → 1201
1102	Can you please list the treatments the baby was given for the illness that led to death? COPY FROM PRESCRIPTION/DISCHARGE NOTES IF AVAILABLE	_____ _____ _____	
1103	Please tell me at which of the following places or facilities the baby received treatment during the illness that led to death:	YES NO DK	
	1 Home?	HOME 1 2 8	
	2 Traditional healer?	TRADITIONAL HEALER 1 2 8	
	3 Government clinic?	GOVERNMENT CLINIC 1 2 8	
	4 Government hospital?	GOVERNMENT HOSPITAL 1 2 8	
	5 Private clinic?	PRIVATE CLINIC 1 2 8	
	6 Private hospital?	PRIVATE HOSPITAL 1 2 8	
	7 Pharmacy, drug seller, store?	PHARMACY, DRUG SELLER, STORE 1 2 8	
	8 Any other place or facility?	OTHER . . . . . 1 2 8 _____ (SPECIFY)	
1104	In the month before death, how many contacts with formal health services did the baby have?	NUMBER OF CONTACTS . . . . . ☐☐ DON'T KNOW 9 8	
1105	Did a health care worker tell you the cause of death?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 1201 → 1201
1106	What did the health care worker say?	_____ _____ _____	

SECTION 12. DATA ABSTRACTED FROM DEATH CERTIFICATE			
1201	Do you have a death certifcate for the baby?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 1301 → 1301
1202	Can I see the death certificate? COPY DAY, MONTH AND YEAR OF DEATH FROM THE DEATH CERTIFICATE.	DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐	
1203	COPY DAY, MONTH AND YEAR OF ISSUE OF DEATH CERTIFICATE.	DAY ☐☐ MONTH ☐☐ YEAR ☐☐☐☐	
1204	RECORD THE CAUSE OF DEATH FROM THE FIRST (TOP) LINE OF THE DEATH CERTIFICATE: _____		
1205	RECORD THE CAUSE OF DEATH FROM THE SECOND LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1206	RECORD THE CAUSE OF DEATH FROM THE THIRD LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1207	RECORD THE CAUSE OF DEATH FROM THE FOURTH LINE OF THE DEATH CERTIFICATE (IF ANY): _____		

SECTION 13. DATA ABSTRACTED FROM OTHER HEALTH RECORDS			
1301	OTHER HEALTH RECORDS AVAILABLE?	YES . . . . . 1 NO 2	→ 1311
1302	FOR EACH TYPE OF HEALTH RECORD SUMMARIZE DETAILS FOR LAST 2 VISITS (IF MORE THAN 2) AND RECORD DATE OF ISSUE. (RECORD INFORMATION ABOUT MOTHER AND STILLBORN DECEASED CHILD)		
1303	BURIAL PERMIT (CAUSE OF DEATH) _____		
1304	POSTMORTEM RESULTS (CAUSE OF DEATH) _____		
1305	MCH/ANC CARD (RELEVANT INFORMATION) _____		
1306	HOSPITAL PRESCRIPTION (RELEVANT INFORMATION) _____		
1307	TREATMENT CARDS (RELEVANT INFORMATION) _____		
1308	HOSPITAL DISCHARGE (RELEVANT INFORMATION) _____		
1309	LABORATORY RESULTS (RELEVANT INFORMATION) _____		
1310	OTHER HOSPITAL DOCUMENTS SPECIFY: _____		
1311	RECORD THE TIME AT THE END OF INTERVIEW	HOURS . . . . . ☐☐ MINUTES . . . . . ☐☐	

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF THE SUPERVISOR: _____ DATE: _____

INTERNATIONAL STANDARD VERBAL AUTOPSY QUESTIONNAIRE 2
DEATH OF A CHILD AGED 4 WEEKS TO 14 YEARS

ID/CONTROL/REFERENCE NUMBER

SECTION 1.1 INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR (2 0)
INTERVIEWER'S NAME				INT. NUMBER
RESULT*				RESULT
NEXT VISIT: DATE				TOTAL NUMBER OF VISITS
TIME				

1 COMPLETED 2 NOT AT HOME 3 POSTPONED 4 REFUSED
5 PARTLY COMPLETED 6 NO APPROPRIATE RESPONDENT FOUND 7 OTHER _____ (SPECIFY)

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME	NAME		
DATE	DATE		

PLACE NAME _____

ADDRESS/DIRECTIONS TO HOUSEHOLD _____

SECTION 1.2 ADDITIONAL DEMOGRAPHIC INFORMATION
(FOR USE IN SAMPLE VITAL REGISTRATION OR DEMOGRAPHIC SURVEILLANCE SITE)

REGION/PROVINCE _____
FIELD SITE _____
HOUSEHOLD NUMBER _____
NAME OF REFERENCE PERSON _____
RESIDENTIAL STATUS OF THE DECEASED _____

REGION/PROVINCE . . . . . .
FIELD SITE . . . . . .
HOUSEHOLD NUMBER . . . . . .

RESIDENT IN ENUMERATION AREA 1
BODY BROUGHT HOME FOR BURIAL 2
HOME-COMING SICK 3

SAMPLE INFORMED CONSENT STATEMENT

Hello. My name is _____ and I am working with [AGENCY].
We are collecting information on the causes of death in the community. We would very much appreciate your participation in this effort. We want to ask you about the circumstances leading to the death of the deceased. Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of this information-collection activity.
Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all. However, we hope that you will participate in this survey since the results will help the government improve services for people.

At this time, do you want to ask me anything about the purpose or content of this interview?

May I begin the interview now?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED . . . 1 ↓ RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2 → END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 2. BASIC INFORMATION ABOUT RESPONDENT			
201	RECORD THE TIME AT THE START OF THE INTERVIEW	HOUR . . . . . ☐☐ MINUTES . . . . . ☐☐	
202	NAME OF THE RESPONDENT	_____ (NAME)	
203	What is your relationship to the deceased?	FATHER . . . . . 1 MOTHER . . . . . 2 SPOUSE . . . . . 3 SIBLING . . . . . 4 OTHER RELATIVE _____ (SPECIFY) 6 NO RELATION 8	
204	Did you live with the deceased in the period leading to her/his death?	YES . . . . . 1 NO 2	
SECTION 3. INFORMATION ON THE DECEASED AND DATE/PLACE OF DEATH			
301	What was the name of the deceased?	_____ (NAME)	
302	Was the deceased female or male?	FEMALE . . . . . 1 MALE 2	
303	When was the deceased born? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY . . . . . ☐☐ MONTH . . . . . ☐☐ YEAR . . . . . ☐☐☐☐	
304	How old was the deceased when s/he died?	AGE IN YEARS . . . . . ☐☐	
305	What was her/his occupation, that is, what kind of work did s/he mainly do?	_____ ☐☐ _____ _____	
306	What was the highest level of formal education the deceased attended?	NONE . . . . . 1 PRIMARY . . . . . 2 SECONDARY . . . . . 3 DON'T KNOW 8	
307	What was her/his marital status?	NEVER MARRIED . . . . . 1 MARRIED/LIVING WITH A PARTNER . . . . . 2 WIDOWED . . . . . 3 DIVORCED . . . . . 4 SEPARATED . . . . . 5 DON'T KNOW 8	
308	When did s/he die? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY . . . . . ☐☐ MONTH . . . . . ☐☐ YEAR . . . . . ☐☐☐☐	
309	Where did s/he die?	HOSPITAL . . . . . 1 OTHER HEALTH FACILITY . . . . . 2 HOME . . . . . 3 OTHER _____ (SPECIFY) 6 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 4. RESPONDENT'S ACCOUNT OF ILLNESS/EVENTS LEADING TO DEATH			
401	Could you tell me about the illness/events that led to her his/death?		
402	CAUSE OF DEATH 1 ACCORDING TO RESPONDENT		
403	CAUSE OF DEATH 2 ACCORDING TO RESPONDENT		
SECTION 5. HISTORY OF PREVIOUSLY KNOWN MEDICAL CONDITIONS			
501	I would like to ask you some questions concerning previously known medical conditions the deceased had; injuries and accidents that the deceased suffered; and signs and symptoms that the deceased had/showed when s/he was ill. Some of these questions may not appear to be directly related to his/her death. Please bear with me and answer all the questions. They will help us to get a clear picture of all possible symptoms that the deceased had. Please tell me if the deceased suffered from any of the following illnesses:		
502	Heart disease?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
503	Diabetes?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
504	Asthma?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
505	Epilepsy?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
506	Malnutrition?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
507	Cancer?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 509 → 509
508	Can you specify the type or site of cancer?	TYPE/SITE _____	
509	Tuberculosis?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
510	HIV/AIDS?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
511	Did s/he suffer from any other medically diagnosed illness?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 601 → 601
512	Can you specify the illness?	ILLNESS _____	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 6 HISTORY OF INJURIES/ACCIDENTS			
601	Did s/he suffer from any injury or accident that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →604 →604
602	What kind of injury or accident did the deceased suffer?	ROAD TRAFFIC ACCIDENT . . . 01 FALL . . . 02 DROWNING . . . 03 POISONING . . . 04 BURNS . . . 05 VIOLENCE/ASSAULT . . . 06 OTHER _____ 96 (SPECIFY)	
603	Was the injury or accident intentionally inflicted by someone else?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
604	CHECK QUESTION 304 FOR AGE AT DEATH: 10 YEARS OR OLDER ☐ ↓ UNDER 10 YEARS ☐ →		606
605	Do you think that s/he committed suicide?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
606	Did s/he suffer from any animal/insect bite that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →608 →608
607	What type of animal/insect?	DOG . . . 1 SNAKE . . . 2 INSECT . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . 8	
608	CHECK QUESTION 304 FOR AGE AT DEATH: UNDER ONE YEAR ☐ ↓ ONE YEAR OR OLDER ☐ →		801
SECTION 7. SYMPTOMS AND SIGNS NOTED DURING THE FINAL ILLNESS OF INFANTS			
701	Was the child small at birth?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
702	Was the child born prematurely?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →704 →704
703	How many months or weeks premature? INDICATE PERIOD OF PREGNANCY	WEEKS . . . 1 ☐☐ MONTHS . . . 2 ☐☐ DON'T KNOW . . . 9 9 8	
704	Was the child growing normally?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
705	Did the child have bulging of the fontanelle?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 →801 →801
706	For how many days before death did s/he have the bulging?	DAYS . . . ☐☐ DON'T KNOW . . . 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 8. STATUS OF MOTHER AND SYMPTOMS NOTED DURING THE FINAL ILLNESS FOR ALL CHILDREN			
801	How is the mother's health now?	HEALTHY ..... 1 ILL ..... 2 NOT ALIVE ..... 3 DON'T KNOW 8	
802	For how long was the child ill before s/he died?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
803	Did s/he have a fever?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 808 → 808
804	For how long did s/he have a fever?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
805	Was the fever severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
806	Was the fever continuous or on and off?	CONTINUOUS ..... 1 ON AND OFF ..... 2 DON'T KNOW 8	
807	Did s/he have chills/rigor?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
808	Did s/he have a cough?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 812 → 812
809	For how long did s/he have a cough?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
810	Was the cough severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
811	Did the child vomit after s/he coughed?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
812	Did s/he have fast breathing?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 818 → 818
813	For how long did s/he have fast breathing?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
814	Did s/he have difficulty in breathing?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 820 → 820

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
815	For how long did s/he have difficulty in breathing?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
816	Did s/he have chest indrawing?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 818 → 818
817	For how long did s/he have chest indrawing?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
818	Did s/he have noisy breathing (grunting or wheezing)? DEMONSTRATE	YES ..... 1 NO ..... 2 DON'T KNOW 8	
819	Did s/he have flaring of the nostrils?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
820	Did s/he have diarrhoea?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 824 → 824
821	For how long did s/he have diarrhoea?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
822	When the diarrhoea was most severe, how many times did s/he pass stool in a day?	NUMBER ..... [ ][ ] DON'T KNOW 9 8	
823	At any time during the final illness was there blood in the stool?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
824	Did s/he vomit?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 827 → 827
825	For how long did s/he vomit?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
826	When the vomiting was most severe, how many times did s/he vomit in a day?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
827	Did s/he have abdominal pain?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 830 → 830

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
828	For how long did s/he have abdominal pain?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
829	Was the abdominal pain severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
830	Did s/he have abdominal distension?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 834 → 834
831	For how long did s/he have abdominal distension?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
832	Did the distension develop rapidly within days or gradually over months?	RAPIDLY WITHIN DAYS ..... 1 GRADUALLY OVER MONTHS ..... 2 DON'T KNOW 8	
833	Was there a period of a day or longer during which s/he did not pass any stool?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
834	Did s/he have any mass in the abdomen?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 836 → 836
835	For how long did s/he have the mass in the abdomen?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
836	Did s/he have headache?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 839 → 839
837	For how long did s/he have headache?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
838	Was the headache severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
839	Did s/he have a stiff or painful neck?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 841 → 841
840	For how long did s/he have a stiff or painful neck?	DAYS .... DON'T KNOW 9 8	
841	Did s/he become unconscious?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 844 → 844

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
842	For how long was s/he unconscious?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
843	Did the unconsciousness start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 FAST (IN A DAY) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	
844	Did s/he have convulsions?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 846 → 846
845	For how long did s/he have convulsions?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
846	Did s/he have paralysis of the lower limbs?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 849 → 849
847	How long did s/he have paralysis of the lower limbs?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
848	Did the paralysis of the lower limbs start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 FAST (IN A DAY) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	
849	Was there any change in the amount of urine s/he passed daily?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 852 → 852
850	For how long did s/he have the change in the amount of urine s/he passed daily?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
851	How much urine did s/he pass?	TOO MUCH ..... 1 TOO LITTLE ..... 2 NO URINE AT ALL ..... 3 DON'T KNOW 8	
852	During the illness that led to death, did s/he have any skin rash?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 856 → 856
853	For how long did s/he have the skin rash?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
854	Was the rash located on: 1 The face? 2 The trunk? 3 On the arms and legs?	YES NO DK FACE ..... 1 2 8 TRUNK ..... 1 2 8 ARMS AND LEGS 1 2 8	
855	What did the rash look like?	MEASLES RASH ..... 1 RASH WITH CLEAR FLUID ..... 2 RASH WITH PUS ..... 3 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
856	Did s/he have red eyes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
857	Did s/he have bleeding from the nose, mouth, or anus?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
858	Did s/he have weight loss?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 861 → 861
859	For how long before death did s/he have the weight loss?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
860	Did s/he look very thin and wasted?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
861	Did s/he have mouth sores or white patches in the mouth or on the tongue?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 863 → 863
862	For how long did s/he have mouth sores or white patches in the mouth or on the tongue?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
863	Did s/he have any swelling?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 866 → 866
864	For how long did s/he have the swelling?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
865	Was the swelling on: 1 The face? 2 The joints? 3 The ankles? 4 The whole body? 5 Any other place?	YES NO DK FACE ..... 1 2 8 JOINTS ..... 1 2 8 ANKLES ..... 1 2 8 WHOLE BODY ..... 1 2 8 OTHER PLACE ..... 1 2 8 SPECIFY: _____ ↵	
866	Did s/he have any lumps?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 869 → 869
867	For how long did s/he have the lumps?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
868	Were the lumps on: 1 The neck? 2 The armpit? 3 The groin? 4 Any other place?	YES NO DK NECK ..... 1 2 8 ARMPIT ..... 1 2 8 GROIN ..... 1 2 8 OTHER PLACE ..... 1 2 8 SPECIFY: _____ ↵	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
869	Did s/he have yellow discoloration of the eyes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 871 → 871
870	For how long did s/he have the yellow discoloration of the eyes?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
871	Did her/his hair color change to reddish or yellowish?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 873 → 873
872	For how long did s/he have reddish/yellowish hair?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
873	Did s/he look pale (thinning/lack of blood) or have pale palms, eyes or nail beds?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 875 → 875
874	For how long did s/he look pale (thinning/lack of blood) or have pale palms, eyes, or nail beds?	DAYS ..... ☐☐ DON'T KNOW 9 8	
875	Did s/he have sunken eyes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 901 → 901
876	For how long did s/he have sunken eyes?	DAYS ..... ☐☐ DON'T KNOW 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 9. TREATMENT AND HEALTH SERVICE USE FOR THE FINAL ILLNESS			
901	Was s/he vaccinated for measles?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
902	Did s/he receive any treatment for the illness that led to death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 909 → 909
903	Can you please list the drugs s/he was given for the illness that led to death? COPY FROM PRESCRIPTION/DISCHARGE NOTES IF AVAILABLE	_____ _____ _____	
904	What type of treatment did s/he receive: 1 Oral rehydration salts and/or intravenous fluids (drip) treatment? 2 Blood transfusion? 3 Treatment/food through a tube passed through the nose? 4 Any other treatment?	YES NO DK ORS/DRIP TREATMENT ..... 1 2 8 BLOOD TRANSFUSION ..... 1 2 8 THROUGH THE NOSE ..... 1 2 8 OTHER _____ 1 2 8 (SPECIFY)	
905	Please tell me at which of the following places/facilities s/he received treatment during the illness that led to death: 1 Home? 2 Traditional healer? 3 Government clinic? 4 Government hospital? 5 Private clinic? 6 Private hospital? 7 Pharmacy, drug seller, store? 8 Any other place or facility?	YES NO DK HOME ..... 1 2 8 TRADITIONAL HEALER ..... 1 2 8 GOVERNMENT CLINIC ..... 1 2 8 GOVERNMENT HOSPITAL ..... 1 2 8 PRIVATE CLINIC ..... 1 2 8 PRIVATE HOSPITAL ..... 1 2 8 PHARMACY/DRUG SELLER/STORE ..... 1 2 8 OTHER _____ 1 2 8 (SPECIFY)	
906	In the month before death, how many contacts with formal health services did s/he have?	NUMBER OF CONTACTS ..... ☐☐ DON'T KNOW 9 8	
907	Did a health care worker tell you the cause of death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 909 → 909
908	What did the health care worker say?	_____ _____ _____	
909	Did s/he have any operation for the illness?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 1001 → 1001
910	How long before death did s/he have the operation?	DAYS ..... ☐☐ DON'T KNOW 9 8	
911	On what part of the body was the operation?	ABDOMEN ..... 1 CHEST ..... 2 HEAD ..... 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 10. DATA ABSTRACTED FROM DEATH CERTIFICATE			
1001	Do you have a death certifcate for the deceased?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 →1101 →1101
1002	Can I see the death certificate? COPY DAY, MONTH AND YEAR OF DEATH FROM THE DEATH CERTIFICATE.	**DAY** **MONTH** **YEAR** ☐☐ ☐☐ ☐☐☐☐	
1003	COPY DAY, MONTH AND YEAR OF ISSUE OF DEATH CERTIFICATE.	**DAY** **MONTH** **YEAR** ☐☐ ☐☐ ☐☐☐☐	
1004	RECORD THE CAUSE OF DEATH FROM THE FIRST (TOP) LINE OF THE DEATH CERTIFICATE: _____		
1005	RECORD THE CAUSE OF DEATH FROM THE SECOND LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1006	RECORD THE CAUSE OF DEATH FROM THE THIRD LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1007	RECORD THE CAUSE OF DEATH FROM THE FOURTH LINE OF THE DEATH CERTIFICATE (IF ANY): _____		

SECTION 11. DATA ABSTRACTED FROM OTHER HEALTH RECORDS			
1101	OTHER HEALTH RECORDS AVAILABLE?	YES . . . . . 1 NO 2	→ 1111
1102	FOR EACH TYPE OF HEALTH RECORD SUMMARIZE DETAILS FOR LAST 2 VISITS (IF MORE THAN 2) AND RECORD DATE OF ISSUE		
1103	BURIAL PERMIT (CAUSE OF DEATH) _____		
1104	POSTMORTEM RESULTS (CAUSE OF DEATH) _____		
1105	MCH/ANC CARD (RELEVANT INFORMATION) _____		
1106	HOSPITAL PRESCRIPTION (RELEVANT INFORMATION) _____		
1107	TREATMENT CARDS (RELEVANT INFORMATION) _____		
1108	HOSPITAL DISCHARGE (RELEVANT INFORMATION) _____		
1109	LABORATORY RESULTS (RELEVANT INFORMATION) _____		
1110	OTHER HOSPITAL DOCUMENTS SPECIFY: _____		
1111	RECORD THE TIME AT THE END OF INTERVIEW	HOURS . . . . . MINUTES	

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF THE SUPERVISOR: _____ DATE: _____

INTERNATIONAL STANDARD VERBAL AUTOPSY QUESTIONNAIRE 3
DEATH OF A PERSON AGED 15 YEARS AND ABOVE

ID/CONTROL/REFERENCE NUMBER

SECTION 1.1 INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE				DAY / MONTH / YEAR (2 0)
INTERVIEWER'S NAME				INT. NUMBER
RESULT*				RESULT
NEXT VISIT: DATE				TOTAL NUMBER OF VISITS
TIME				

1 COMPLETED 2 NOT AT HOME 3 POSTPONED 4 REFUSED
5 PARTLY COMPLETED 6 NO APPROPRIATE RESPONDENT FOUND 7 OTHER _____ (SPECIFY)

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME	NAME		
DATE	DATE		

PLACE NAME _____

ADDRESS/DIRECTIONS TO HOUSEHOLD _____

SECTION 1.2 ADDITIONAL DEMOGRAPHIC INFORMATION
(FOR USE IN SAMPLE VITAL REGISTRATION OR DEMOGRAPHIC SURVEILLANCE SITE)

REGION/PROVINCE _____
FIELD SITE _____
HOUSEHOLD NUMBER _____
NAME OF REFERENCE PERSON _____
RESIDENTIAL STATUS OF THE DECEASED _____

REGION/PROVINCE . . . . . .
FIELD SITE . . . . . .
HOUSEHOLD NUMBER . . . . . .

RESIDENT IN ENUMERATION AREA 1
BODY BROUGHT HOME FOR BURIAL. 2
HOME-COMING SICK 3

SAMPLE INFORMED CONSENT STATEMENT

Hello. My name is _____ and I am working with [AGENCY]. We are collecting information on the causes of death in the community. We would very much appreciate your participation in this effort. We want to ask you about the circumstances leading to the death of the deceased. Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of this information-collection activity. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all. However, we hope that you will participate in this survey since the results will help the government improve services for people.

At this time, do you want to ask me anything about the purpose or content of this interview?

May I begin the interview now?

Signature of interviewer: _____ Date: _____

RESPONDENT AGREES TO BE INTERVIEWED . . . 1 ↓ RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2→ END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 2. BASIC INFORMATION ABOUT RESPONDENT			
201	RECORD THE TIME AT START OF INTERVIEW	HOUR . . . . . ☐☐ MINUTES . . . . . ☐☐	
202	NAME OF THE RESPONDENT	_____ (NAME)	
203	What is your relationship to the deceased?	FATHER . . . . . 1 MOTHER . . . . . 2 SPOUSE . . . . . 3 SIBLING . . . . . 4 CHILD . . . . . 5 OTHER RELATIVE _____ (SPECIFY) 6 NO RELATION 8	
204	Did you live with the deceased in the period leading to her/his death?	YES . . . . . 1 NO 2	
SECTION 3. INFORMATION ON THE DECEASED AND DATE/PLACE OF DEATH			
301	What was the name of the deceased?	_____ (NAME)	
302	Was the deceased female or male?	FEMALE . . . . . 1 MALE 2	
303	When was the deceased born? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY . . . . . ☐☐ MONTH . . . . . ☐☐ YEAR . . . . . ☐☐☐☐	
304	How old was the deceased when s/he died?	AGE IN YEARS . . . . . ☐☐☐	
305	What was her/his occupation, that is, what kind of work did s/he mainly do?	_____ ☐☐ _____ _____	
306	What was the highest level of formal education the deceased attended?	NONE . . . . . 1 PRIMARY . . . . . 2 SECONDARY . . . . . 3 HIGHER . . . . . 4 DON'T KNOW 8	
307	What was her/his marital status?	NEVER MARRIED . . . . . 1 MARRIED/LIVING WITH A PARTNER . . . . . 2 WIDOWED . . . . . 3 DIVORCED . . . . . 4 SEPARATED . . . . . 5 DON'T KNOW 8	
308	When did s/he die? RECORD '9 8' IF DON'T KNOW DAY OR MONTH RECORD '9 9 9 8' IF DON'T KNOW YEAR	DAY . . . . . ☐☐ MONTH . . . . . ☐☐ YEAR . . . . . ☐☐☐☐	
309	Where did s/he die?	HOSPITAL . . . . . 1 OTHER HEALTH FACILITY . . . . . 2 HOME . . . . . 3 OTHER _____ (SPECIFY) 6 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 4. RESPONDENT'S ACCOUNT OF ILLNESS/EVENTS LEADING TO DEATH			
401	Could you tell me about the illness/events that led to her/his death?		
402	CAUSE OF DEATH 1 ACCORDING TO RESPONDENT		
403	CAUSE OF DEATH 2 ACCORDING TO RESPONDENT'		
SECTION 5. HISTORY OF PREVIOUSLY KNOWN MEDICAL CONDITIONS			
501	I would like to ask you some questions concerning previously known medical conditions the deceased had; injuries and accidents that the deceased suffered; and signs and symptoms that the deceased had/showed when s/he was ill. Some of these questions may not appear to be directly related to his/her death. Please bear with me and answer all the questions. They will help us to get a clear picture of all possible symptoms that the deceased had. Please tell me if the deceased suffered from any of the following illnesses:		
502	High blood pressure?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
503	Diabetes?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
504	Asthma?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
505	Epilepsy?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
506	Malnutrition?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
507	Cancer?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 509 → 509
508	Can you specify the type or site of cancer?	TYPE/SITE _____	
509	Tuberculosis?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
510	HIV/AIDS?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
511	Did s/he suffer from any other medically diagnosed illness?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 601 → 601
512	Can you specify the illness?	ILLNESS _____	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 6. HISTORY OF INJURIES/ACCIDENTS			
601	Did s/he suffer from any injury or accident that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 604 → 604
602	What kind of injury or accident did the deceased suffer?	ROAD TRAFFIC ACCIDENT . . . 01 FALL . . . 02 DROWNING . . . 03 POISONING . . . 04 BURNS . . . 05 VIOLENCE/ASSAULT . . . 06 OTHER _____ 96 (SPECIFY) DON'T KNOW . . . 98	
603	Was the injury or accident intentionally inflicted by someone else?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
604	Do you think that s/he committed suicide?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	
605	Did s/he suffer from any animal/insect bite that led to her/his death?	YES . . . 1 NO . . . 2 DON'T KNOW . . . 8	 → 607 → 607
606	What type of animal/insect?	DOG . . . 1 SNAKE . . . 2 INSECT . . . 3 OTHER _____ 6 (SPECIFY) DON'T KNOW . . . 8	
607	**CHECK QUESTION 302 FOR SEX OF THE DECEASED:** FEMALE ☐ → **701** MALE ☐ →		**901**

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 7. SYMPTOMS AND SIGNS ASSOCIATED WITH ILLNESS OF WOMEN			
701	Did she have an ulcer or swelling in the breast?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 703 → 703
702	For how long did she have an ulcer or swelling in the breast?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
703	Did she have excessive vaginal bleeding during menstrual periods?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 705 → 705
704	For how long did s/he have the excessive vaginal bleeding during menstrual periods?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
705	Did she have vaginal bleeding in between menstrual periods?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 707 → 707
706	For how long did she have vaginal bleeding in between menstrual periods?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
707	Did she have abnormal vaginal discharge?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 801 → 801
708	For how long did she have abnormal vaginal discharge?	DAYS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
SECTION 8. SYMPTOMS AND SIGNS ASSOCIATED WITH PREGNANCY			
801	Was she pregnant at the time of death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 806 → 806
802	How long was she pregnant?	WEEKS ..... 1 ☐☐ MONTHS ..... 2 ☐☐ DON'T KNOW 9 9 8	
803	How many pregnancies had she had, including this one?	PREGNANCIES ..... ☐☐ DON'T KNOW 9 8	
804	During the last 3 months of pregnancy, did she suffer from any of the following illnesses: 1 Vaginal bleeding? 2 Smelly vaginal discharge? 3 Puffy face? 4 Headache? 5 Blurred vision? 6 Convulsion? 7 Febrile illness? 8 Severe abdominal pain that was not labor pain? 9 Pallor and shortness of breath (both present)? 10 Did she suffer from any other illness?	YES NO DK VAGINAL BLEEDING ..... 1 2 8 SMELLY VAGINAL DISCHARGE ... 1 2 8 PUFFY FACE ..... 1 2 8 HEADACHE ..... 1 2 8 BLURRED VISION ..... 1 2 8 CONVULSION ..... 1 2 8 FEBRILE ILLNESS ..... 1 2 8 SEVERE ABDOMINAL PAIN (NOT LABOR PAIN) ..... 1 2 8 PALLOR/SHORTNESS OF BREATH (BOTH) ..... 1 2 8 OTHER ILLNESS ..... 1 2 8 SPECIFY: _____	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
805	Did she die during labor, but undelivered?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
806	Did she give birth recently?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 818 → 818
807	How many days after giving birth did she die?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
808	Was there excessive bleeding on the day labor started?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
809	Was there excessive bleeding during labor before delivering the baby?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
810	Was there excessive bleeding after delivering the baby?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
811	Did she have difficulty in delivering the placenta?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
812	Was she in labor for unusually long (more than 24 hours)?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
813	Was it a normal vaginal delivery?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 815 → 815
814	What type of delivery was it?	FORCEPS/VACUUM ..... 1 CAESAREAN SECTION ..... 2 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
815	Did she have foul smelling vaginal discharge?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
816	Where did she give birth?	HOSPITAL ..... 1 OTHER HEALTH FACILITY ..... 2 HOME ..... 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
817	Who conducted the delivery?	DOCTOR ..... 1 NURSE/MIDWIFE ..... 2 TRADITIONAL BIRTH ATTENDANT ..... 3 RELATIVE ..... 4 MOTHER BY HERSELF ..... 5 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
818	Did she experience an abortion recently?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 901 → 901
819	Did she die during the abortion?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 821 → 821
820	How many days before death did she have the abortion?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
821	How many months pregnant was she when she had the abortion?	MONTHS ..... [ ][ ] DON'T KNOW 9 8	
822	Did she have heavy bleeding after the abortion?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
823	Did the abortion occur by itself, spontaneously?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 901 → 901
824	Did she take medicine or treatment to induce?	YES ..... 1 NO ..... 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 9. SIGNS AND SYMPTOMS NOTED DURING THE FINAL ILLNESS			
901	For how long was s/he ill before s/he died?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
902	Did s/he have a fever?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 907 → 907
903	For how long did s/he have a fever?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
904	Was the fever continuous or on and off?	CONTINUOUS ..... 1 ON AND OFF ..... 2 DON'T KNOW 8	
905	Did s/he have fever only at night?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
906	Did s/he have chills/rigor?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
907	Did s/he have a cough?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 913 → 913
908	For how long did s/he have a cough?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
909	Was the cough severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
910	Was the cough productive with sputum?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
911	Did s/he cough out blood?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
912	Did s/he have night sweats?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
913	Did s/he have breathlessness?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 918 → 918
914	For how long did s/he have breathlessness?	DAYS ..... 1 MONTHS ..... 2 DON'T KNOW 9 9 8	
915	Was s/he unable to carry out daily routines due to breathlessness?	YES ..... 1 NO ..... 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
916	Was s/he breathless while lying flat?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
917	Did s/he have wheezing?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
918	Did s/he have chest pain?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 928 → 928
919	For how long did s/he have chest pain?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
920	Did chest pain start suddenly or gradually?	SUDDENLY ..... 1 GRADUALLY ..... 2 DON'T KNOW 8	
921	When s/he had severe chest pain, how long did it last?	LESS THAN HALF AN HOUR ..... 1 HALF AN HOUR TO 24 HOURS ..... 2 LONGER THAN 24 HOURS ..... 3 DON'T KNOW 8	
922	Was the chest pain located below the breastbone (sternum)?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
923	Was the chest pain located over the heart and did it spread to the left arm?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
924	Was the chest pain located over the ribs (sides)?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
925	Was the chest pain continuous or on and off?	CONTINUOUS ..... 1 ON AND OFF ..... 2 DON'T KNOW 8	
926	Did the chest pain get worse while coughing?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
927	Did s/he have palpitations?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
928	Did s/he have diarrhoea?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 933 → 933
929	For how long did s/he have diarrhoea?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
930	Was the diarrhoea continuous or on and off?	CONTINUOUS ..... 1 ON AND OFF ..... 2 DON'T KNOW 8	
931	At any time during the final illness was there blood in the stool?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
932	When the diarrhoea was most severe, how many times did s/he pass stools in a day?	NUMBER ..... [ ][ ] DON'T KNOW 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
933	Did s/he vomit?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 937 → 937
934	For how long did s/he vomit?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
935	Did the vomit look like a coffee-colored fluid or bright red/blood red or some other?	COFFEE-COLORED FLUID ..... 1 BRIGHT RED/BLOOD RED ..... 2 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	
936	When the vomiting was most severe, how many times did s/he vomit in a day?	NUMBER ..... [ ][ ] DON'T KNOW 9 8	
937	CHECK QUESTION 302 FOR SEX OF THE DECEASED: FEMALE ☐ ↓ MALE ☐ →		939
938	CHECK QUESTIONS 801, 805, 819 TO SEE IF SHE DIED DURING PREGNANCY, LABOR, ABORTION OR POSTPARTUM: NO ☐ ↓ YES ☐ →		948
939	Did s/he have abdominal pain?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 941 → 941
940	For how long did s/he have abdominal pain?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
941	Did s/he have abdominal distension?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 945 → 945
942	For how long did s/he have abdominal distension?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
943	Did the distension develop rapidly within days or gradually over months?	RAPIDLY WITHIN DAYS ..... 1 GRADUALLY OVER MONTHS ..... 2 DON'T KNOW 8	
944	Was there a period of a day or longer during which s/he did not pass any stool?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
945	Did s/he have any mass in the abdomen?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 948 → 948
946	For how long did s/he have the mass in the abdomen?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
947	Where in the abdomen was the mass located?	RIGHT UPPER ABDOMEN ..... 1 LEFT UPPER ABDOMEN ..... 2 LOWER ABDOMEN ..... 3 ALL OVER ABDOMEN ..... 4 DON'T KNOW 8	
948	Did s/he have difficulty or pain while swallowing solids?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 950 → 950
949	For how long did s/he have difficulty or pain while swallowing solids?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
950	Did s/he have difficulty or pain while swallowing liquids?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 952 → 952
951	For how long did s/he have difficulty or pain while swallowing liquids?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
952	Did s/he have headache?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 955 → 955
953	For how long did s/he the have headache?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
954	Was the headache severe?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
955	Did s/he have a stiff or painful neck?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 957 → 957
956	For how long did s/he have a stiff or painful neck?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
957	Did s/he have mental confusion?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 960 → 960
958	For how long did s/he have mental confusion?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
959	Did the mental confusion start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 WITHIN A DAY (FAST) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	
960	Did s/he become unconscious?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 963 → 963
961	For how long was s/he unconscious?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
962	Did the unconsciousness start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 WITHIN A DAY (FAST) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
963	Did s/he have convulsions?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 965 → 965
964	For how long did s/he have convulsions?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
965	Was s/he unable to open the mouth?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 967 → 967
966	For how long was s/he unable to open the mouth?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
967	Did s/he have stiffness of the whole body?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 969 → 969
968	For how long did s/he have stiffness of the whole body?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
969	Did s/he have paralysis of one side of the body?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 972 → 972
970	For how long did s/he have paralysis of one side of the body?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
971	Did the paralysis of one side of the body start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 WITHIN A DAY (FAST) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	
972	Did s/he have paralysis of the lower limbs?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 975 → 975
973	How long did s/he have paralysis of the lower limbs?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
974	Did the paralysis of the lower limbs start suddenly, quickly within a single day, or slowly over many days?	SUDDENLY ..... 1 WITHIN A DAY (FAST) ..... 2 SLOWLY (MANY DAYS) ..... 3 DON'T KNOW 8	
975	Was there any change in color of urine?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 977 → 977
976	For how long did s/he have the change in color of urine?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
977	During the final illness did s/he ever pass blood in the urine?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 979 → 979
978	For how long did s/he pass blood in the urine?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
979	Was there any change in the amount of urine s/he passed daily?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 982 → 982
980	For how long did s/he have the change in the amount of urine passed daily?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
981	Did s/he pass too much urine, too little urine, or no urine at all?	TOO MUCH ..... 1 TOO LITTLE ..... 2 NO URINE AT ALL ..... 3 DON'T KNOW 8	
982	During the illness that led to death, did s/he have any skin rash?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 986 → 986
983	For how long did s/he have the skin rash?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
984	Was the rash on: 1 The face? 2 The trunk? 3 The arms and legs? 4 Any other place?	YES NO DK FACE ..... 1 2 8 TRUNK ..... 1 2 8 ARMS AND LEGS ..... 1 2 8 OTHER PLACE ..... 1 2 8 SPECIFY: _____	
985	What did the rash look like?	MEASLES RASH ..... 1 RASH WITH CLEAR FLUID ..... 2 RASH WITH PUS ..... 3 DON'T KNOW 8	
986	Did s/he have red eyes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
987	Did s/he have bleeding from the nose, mouth, or anus?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
988	Did s/he ever have shingles/herpes zoster?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
989	Did s/he have weight loss?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 990 → 990
989.1	For how long did s/he have weight loss?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
989.2	Did s/he look very thin and wasted?	YES ..... 1 NO ..... 2 DON'T KNOW 8	
990	Did s/he have mouth sores or white patches in the mouth or on the tongue?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 991 → 991
990.1	For how long did s/he have mouth sores or white patches in the mouth or on the tongue?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
991	Did s/he have any swelling?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 992 → 992

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
991.1	For how long did s/he have the swelling?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
991.2	Was the swelling on: 1 The face? 2 The joints? 3 The ankles? 4 The whole body? 5 Any other place?	YES NO DK FACE ..... 1 2 8 JOINTS ..... 1 2 8 ANKLES ..... 1 2 8 WHOLE BODY ..... 1 2 8 OTHER PLACE ..... 1 2 8 SPECIFY: _____	
992	Did s/he have any lumps?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 993 → 993
992.1	For how long did s/he have the lumps?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
992.2	Were the lumps on: 1 The neck? 2 The armpit? 3 The groin? 4 Any other place?	YES NO DK NECK ..... 1 2 8 ARMPIT ..... 1 2 8 GROIN ..... 1 2 8 OTHER PLACE ..... 1 2 8 SPECIFY: _____	
993	Did s/he have yellow discoloration of the eyes?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 994 → 994
993.1	For how long did s/he have yellow discoloration of the eyes?	DAYS ..... 1 [ ][ ] MONTHS ..... 2 [ ][ ] DON'T KNOW 9 9 8	
994	Did s/he look pale (thinning/lack of blood) or have pale palms, eyes or nail beds?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 995 → 995
994.1	For how long did s/he look pale or have pale palms, eyes or nail beds?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
995	Did s/he have an ulcer, abscess, or sore anywhere on the body?	YES ..... 1 NO ..... 2 DON'T KNOW 8	→ 1001 → 1001
995.1	For how long did s/he have the ulcer, abscess, or sore?	DAYS ..... [ ][ ] DON'T KNOW 9 8	
995.2	What was the location of the ulcer, abscess, or sore?	_____ _____ (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 10. TREATMENT AND HEALTH SERVICE USE FOR THE FINAL ILLNESS			
1001	Did s/he receive any treatment for the illness that led to death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1008 → 1008
1002	Can you please list the drugs s/he was given for the illness that led to death? COPY FROM PRESCRIPTION/DISCHARGE NOTES IF AVAILABLE	_____ _____ _____	
1003	What type of treatment did s/he receive:	YES NO DK	
	1 Oral rehydration salts and/or intravenous fluids (drip) treatment?	ORS/DRIP TREATMENT 1 2 8	
	2 Blood transfusion?	BLOOD TRANSFUSION 1 2 8	
	3 Treatment/food through a tube passed through the nose?	THROUGH THE NOSE 1 2 8	
	4 Any other treatment?	OTHER _____ 1 2 8 (SPECIFY)	
1004	Please tell me at which of the following places/facilities s/he received treatment during the illness that led to death:	YES NO DK	
	1 Home?	HOME 1 2 8	
	2 Traditional healer?	TRADITIONAL HEALER 1 2 8	
	3 Government clinic?	GOVERNMENT CLINIC 1 2 8	
	4 Government hospital?	GOVERNMENT HOSPITAL 1 2 8	
	5 Private clinic?	PRIVATE CLINIC 1 2 8	
	6 Private hospital?	PRIVATE HOSPITAL 1 2 8	
	7 Pharmacy, drug seller, store?	PHARMACY, DRUG SELLER, STORE 1 2 8	
	8 Any other placer or facility?	OTHER _____ 1 2 8 (SPECIFY)	
1005	In the month before death, how many contacts with formal health services did s/he have?	NUMBER OF CONTACTS ..... ☐☐ DON'T KNOW 9 8	
1006	Did a health care worker tell you the cause of death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1008 → 1008
1007	What did the health care worker say?	_____ _____ _____	
1008	Did s/he have any operation for the illness?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1101 → 1101
1009	How long before death did s/he have the operation?	DAYS ..... ☐☐ DON'T KNOW 9 8	
1010	On what part of the body was the operation?	ABDOMEN ..... 1 CHEST ..... 2 HEAD ..... 3 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 11. RISK FACTORS			
1101	Did s/he drink alcohol?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1106 → 1106
1102	How long had s/he been drinking? RECORD '00' IF LESS THAN ONE YEAR	YEARS ..... ☐☐ DON'T KNOW 9 8	
1103	How often did s/he drink alcohol?	DAILY ..... 1 FREQUENTLY (WEEKLY) ..... 2 ONCE IN A WHILE ..... 3 DON'T KNOW 8	
1104	Did she stop drinking?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1106 → 1106
1105	How long before death did s/he stop drinking? RECORD '00' IF LESS THAN ONE MONTH	MONTHS ..... ☐☐ DON'T KNOW 9 8	
1106	Did s/he smoke tobacco (cigarette, cigar, pipe etc.)?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1201 → 1201
1107	How long had s/he been smoking? RECORD '00' IF LESS THAN ONE YEAR	YEARS ..... ☐☐ DON'T KNOW 9 8	
1108	How often did s/he smoke?	DAILY ..... 1 FREQUENTLY (WEEKLY) ..... 2 ONCE IN A WHILE ..... 3 DON'T KNOW 8	 → 1201 → 1201 → 1201
1109	How many cigarettes did s/he smoke daily?	NUMBER OF CIGARETTES ..... ☐☐ DON'T KNOW 9 8	
1110	Did s/he stop smoking before death?	YES ..... 1 NO ..... 2 DON'T KNOW 8	 → 1201 → 1201
1111	How long before death did s/he stop smoking? RECORD '00' IF LESS THAN ONE MONTH	MONTHS ..... ☐☐ DON'T KNOW 9 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
SECTION 12. DATA ABSTRACTED FROM DEATH CERTIFICATE			
1201	Do you have a death certifcate for the deceased?	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	 → 1301 → 1301
1202	Can I see the death certificate? COPY DAY, MONTH AND YEAR OF DEATH FROM THE DEATH CERTIFICATE.	**DAY** **MONTH** **YEAR** ☐☐ ☐☐ ☐☐☐☐	
1203	COPY DAY, MONTH AND YEAR OF ISSUE OF DEATH CERTIFICATE.	**DAY** **MONTH** **YEAR** ☐☐ ☐☐ ☐☐☐☐	
1204	RECORD THE CAUSE OF DEATH FROM THE FIRST (TOP) LINE OF THE DEATH CERTIFICATE: _____		
1205	RECORD THE CAUSE OF DEATH FROM THE SECOND LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1206	RECORD THE CAUSE OF DEATH FROM THE THIRD LINE OF THE DEATH CERTIFICATE (IF ANY): _____		
1207	RECORD THE CAUSE OF DEATH FROM THE FOURTH LINE OF THE DEATH CERTIFICATE (IF ANY): _____		

SECTION 13. DATA ABSTRACTED FROM OTHER HEALTH RECORDS			
1301	OTHER HEALTH RECORDS AVAILABLE?	YES . . . . . 1 NO 2	→ 1311
1302	FOR EACH TYPE OF HEALTH RECORD SUMMARIZE DETAILS FOR LAST 2 VISITS (IF MORE THAN 2) AND RECORD DATE OF ISSUE		
1303	BURIAL PERMIT (CAUSE OF DEATH) _____		
1304	POSTMORTEM RESULTS (CAUSE OF DEATH) _____		
1305	MCH/ANC CARD (RELEVANT INFORMATION) _____		
1306	HOSPITAL PRESCRIPTION (RELEVANT INFORMATION) _____		
1307	TREATMENT CARDS (RELEVANT INFORMATION) _____		
1308	HOSPITAL DISCHARGE (RELEVANT INFORMATION) _____		
1309	LABORATORY RESULTS (RELEVANT INFORMATION) _____		
1310	OTHER HOSPITAL DOCUMENTS SPECIFY: _____		
1311	RECORD THE TIME AT THE END OF INTERVIEW	HOURS . . . . . MINUTES	

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ON SPECIFIC QUESTIONS:

ANY OTHER COMMENTS:

SUPERVISOR'S OBSERVATIONS

NAME OF THE SUPERVISOR: _____ DATE: _____

3. APPLYING ICD-10 TO VERBAL AUTOPSY

3.1 Objectives

This verbal autopsy guide aims to assist staff who conduct verbal autopsies in applying the *International statistical classification of diseases and related health problems, 10th revision* (ICD-10) rules to the diagnoses resulting from such an autopsy. The aim is to assist staff who: record diagnoses on the standard certificate of death (certifiers), code the diagnoses (coders) and select the cause of death (coders). This guide provides an overview of certification, coding and cause-of-death assignment so that people working on only one aspect of the verbal autopsy procedure will be able to understand all the steps involved. The use of this guide will ensure consistency in verbal autopsy-based mortality statistics, and their comparability with other sources of cause-of-death data that are coded to ICD-10. It incorporates questions and exercises aimed at acquainting users with ICD-10 in order to help them avoid frequent pitfalls. The verbal autopsy guide, contained in sections 3.2–3.8, should be used in conjunction with the three volumes of ICD-10.

The cause-of-death list for verbal autopsy with corresponding ICD-10 codes (the correspondence table), in section 3.9 provides a list of verbal autopsy cause-of-death categories that are mapped to broad three- and four-character ICD-10 categories; the correspondence table simplifies the process of using ICD-10 for coding. It contains codes, some criteria that ensure categories are used correctly and hints to help users avoid common mistakes. When sufficient information is available to describe the cause of death in more detail than provided for by this table, the coder should refer to the full ICD-10.

A separate **field instruction manual** must be individually compiled by those who plan to set up a verbal autopsy project. Its content will depend largely on the local setting, and for any particular project should describe:

- the process of verbal autopsy;
- the organization and workflow of the project;
- the collection of data;
- the use of separate interview questionnaires;
- instructions on interpreting data obtained from verbal autopsy interviews;
- the responsibilities and roles of all staff involved;
- quality assurance procedures; and
- local circumstances, such as who the contact people are, relevant telephone numbers, and whether computers are available.

3.2 Overview

This section provides an overview on the use of mortality information, explains how such information is usually collected by physicians and how this process differs in places where verbal autopsy is used. It also discusses how standardization of classifications is relevant to allowing comparability of data across peoples and over time. The instructions in this section show how to apply these steps to the results of verbal autopsy.

3.2.1 Introduction to mortality information

In many areas of the world, a large proportion of the population has no access to health care provided by medically qualified personnel. In these areas, health care is often provided by lay or

paramedical personnel and is based on traditional methods or elementary medical training. In these situations, the information on mortality that is needed to indicate the existence of a health problem or to facilitate the management of health systems is provided by the same personnel.

Mortality information may be used to:

- develop information about epidemiology and prevention;
- manage health care;
- spend public money in the most useful way;
- compare health across different regions.

3.2.2 Sources of mortality information

Mortality information is collected using a process called "vital registration". This describes how a country collects information on the births and deaths of its people. This information is usually gathered at a national centre that keeps a written record of all vital events (births and deaths) on standardized forms.

Countries around the world have vital registration systems at different stages of development. The proportion of vital events registered (coverage) and the detail and quality of the information recorded vary between countries. In the development from having no system of registration to one of full registration, a stepwise approach has proven useful.

- **Sentinel registration** is a system in which single diseases or groups of diseases are monitored in samples of a population – for example, maternal mortality is measured in population samples in urban and rural areas.
- **Demographic surveillance systems** are registration areas where registration practices for births and deaths are developed, tested and validated.
- **Sample registration systems** register a nationally representative sample of the population using established protocols for vital registration.
- **Partial vital registration** means that registration is expanded to full registration where the necessary infrastructure exists – for example, in urban areas – and that sample registration is maintained in other, mainly rural, sites.
- **Full vital registration** refers to a system in which at least 90% of a country's deaths and births are registered. Information collected during the registration of death includes age and sex, the cause of death, the place of residence and the place of death.

3.2.3 Verbal autopsy

Verbal autopsy is a technique used to determine the cause of death by asking caregivers, friends or family members about signs and symptoms exhibited by the deceased in the period before death. This is usually done using a standardized questionnaire that collects details on signs, symptoms, complaints and any medical history or events.

The cause of death, or the sequence of causes that led to death, are assigned based on the data collected by this questionnaire and on any other available information. Rules and guidelines, algorithms or computer programmes, may assist in evaluating the information.

The purpose of verbal autopsy is to describe the causes of death at the community level or population level where no, or only limited, vital registration is completed with medical certificates.

3.2.4 The cause of death

Cause-of-death registration in the context of verbal autopsy aims to assign a single underlying cause of death. It is essential to undertake four standard steps to identify the underlying cause of death. In order to collect reliable and useful statistical information, each step must be performed in a standard fashion.

The following sections provide the necessary detail on each of the four steps.

3.2.4.1 Step 1: Identify the cause of death

In places where doctors certify the cause of death directly, they do so by examining the body of the deceased, interpreting medical records and other information, and/or performing an autopsy.

In situations where people die without seeing a doctor, and doctors do not have access to the body, a verbal autopsy may be used to gather the information necessary to assign a cause of death.

3.2.4.2 Step 2: Certify the death

The conditions that led to death – the causes of death – are reported on the "international form of the medical certificate for cause of death".

If a verbal autopsy has been performed, the international form of the medical certificate for cause of death is used. This allows standard ICD procedures to be used as early as possible in the process of information collection. The person who identifies the diagnoses from the verbal autopsy is personally responsible for recording the causes of death on a death certificate.

3.2.4.3 Step 3: Code the causes of death

The diagnoses reported on the certificate are coded. Coding means that a standard number is assigned to represent a disease or cause of death. The code identifies the correct category in ICD-10. ICD-10 provides rules and guidelines for assigning codes.

Assigning a code to a disease makes it possible to group similar causes of death. The coded data can then be analysed regardless of the wording or language originally used for the certification itself.

This coding may be done by a physician or a lay person who has received special training. In either case good knowledge of ICD-10 codes is important. All coders should understand medical terms and have some knowledge of how the human body works.

3.2.4.4 Step 4: Select the underlying cause of death

The rules for selecting the underlying cause of death have been defined by WHO in ICD-10. These rules are used to identify the single underlying cause of death if there is more than one cause reported on the death certificate.

These rules ensure that the selection process used is the same everywhere. When these rules are followed, selection does not depend on an individual's opinion, and the results (underlying cause of death) can be compared at local, national or international levels.

Continual training and considerable experience are essential to ensure that selection rules are followed correctly.

In some deaths only a single cause of death is identified and reported on the death certificate. In these cases, all that has to be done is to code this single cause.

In other cases, two or more causes of death may be identified and recorded on the certificate. Where two or more causes are listed, the most relevant cause of death for coding and reporting purposes is selected. This selected single cause is called the "underlying cause of death".

Therefore, the underlying cause of death is the condition, event or circumstance without which the patient would not have died.

WHO defines the underlying cause of death as: the disease or injury that initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence that produced the fatal injury.

Example:

> A cancer patient dies. The immediate cause of death was heart failure resulting from the spread of the cancer. However, the original cancer site was in the breast. Thus, the sequence would be: cancer (malignant neoplasm) that had spread, resulting in heart failure.

In this example, heart failure was the final cause of death in the sequence that started with breast cancer.

The breast cancer (malignant neoplasm) is the condition that should be coded as the underlying cause of death.

3.3 Instructions

This section provides instructions for completing the four steps explained in section 3.2. In verbal autopsy, the standard death certificate (Fig. 1) is often not filled in completely. However, this standard certificate should always be used for verbal autopsy, so that the same rules as for medical certification can be followed in assigning the underlying cause of death.

This section also provides a simplified description of ICD-10 coding guidelines and rules for selecting the underlying cause of death. Coders will need specific training to correctly apply the rules.

3.3.1 Assigning cause of death in verbal autopsy

The completed verbal autopsy questionnaire will contain information on diseases, signs and symptoms, the age and sex of the deceased as well as his or her history and medical reports (if available). This information is used to assign the causes that led to death.

3.3.1.1 Assigning diseases from signs and symptoms

The use of a standard set of diagnostic criteria ensures that the results of evaluation and selection are determined in a standard fashion by staff involved in this step. This could be a physician or a lay person who has been medically trained.

3.3.1.2 Diagnostic criteria (algorithms)

Diagnostic criteria may also be called algorithms. They describe which combination of symptoms, duration and severity may lead to a specific diagnosis.

These diagnostic criteria are used to:

- provide guidance. Algorithms may be used to guide and support a physician's decision-making so that all of the relevant factors are taken into account when a diagnosis is made;

- ensure stability of outcome. Algorithms help focus diagnostic possibilities on one or more probable conditions and reduce the number of highly improbably ones.

Example:

From interview to diagnosis

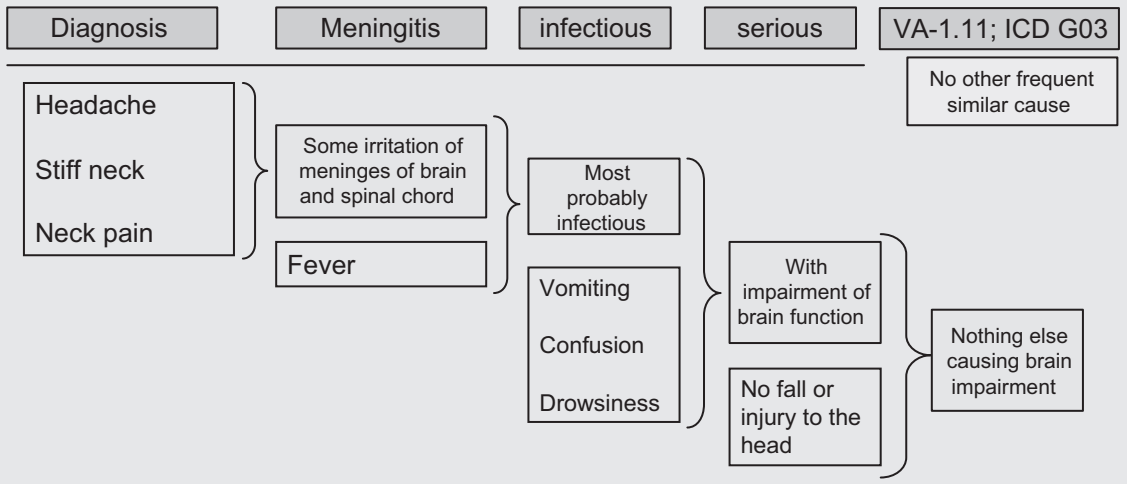
The wife of a man who died 2 months ago is interviewed. She reports that he had complained for some days of headache. He then had problems turning his head and complained of neck pain.

She noticed that he felt increasingly hot to the touch, had chills and sweated heavily. During his last days he was vomiting and was confused. He was tired and slept most of the time.

The interviewer asked if the dead man had had an accident and whether he had hurt his head during the weeks before he died. His wife reported that he had not fallen or had an injury to his head.

The responses to the questionnaire would be evaluated using a set of criteria. After this, one verbal autopsy category and one ICD-10 code would be assigned to the case. The process for the example above is shown in Fig. 1.

FIG. 1. SAMPLE OF A DIAGNOSTIC ALGORITHM FOR IDENTIFYING THE DIAGNOSIS "MENINGITIS"



Algorithms used to select one specific diagnosis during verbal autopsy may take into account, for example, how frequently a disease occurs in a specific region. ICD-10 gives one such example (see the note under code A09, chapter 1, volume 1).

Different sets of algorithms are in use. You need to identify which ones should be used in your verbal autopsy project. Common agreement exists on some sets of criteria. These criteria are included in the list at the end of Part 3.

3.3.1.3 Computers

Computers may be useful during the different steps of determining the cause of death. They may make it easier to assign a diagnosis using information gathered during verbal autopsy; they may assist in coding; and they may also be helpful in selecting the underlying cause of death if there is more than one condition mentioned on the certificate.

3.3.2 The international form of the medical certificate for cause of death

Death certificates are the main source of mortality data. A properly completed death certificate shows clearly why and how the death occurred. The information gathered during verbal autopsy may be used to assign one or more diagnoses to complete cause-of-death information and to fill in the medical certificate of death.

In completing the certificate, the certifier should report any disease, abnormality, injury or external cause that is believed to have contributed to the death. It is essential to note that modes of death – such as respiratory failure, heart failure or brain death – should **not** be considered causes of death.

The certificate has two parts (part I and part II) and a section to record the time interval between the onset of each condition and the date of death.

FIG. 2. INTERNATIONAL FORM OF THE MEDICAL CERTIFICATE FOR CAUSE OF DEATH

INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF DEATH

Cause of death		Approximate Interval between onset and death
I Disease or condition directly leading to death *	a)..... due to (or as a consequence of)	.....
Antecedent causes Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last.	b)..... due to (or as a consequence of)	.....
	c)..... due to (or as a consequence of)	.....
	d).....	.....
II Other significant conditions contributing to the death, but not related to the disease or conditions causing it	.....	.....
	.....	.....
**This does not mean the mode of dying, e.g. heart failure, respiratory failure, it means the disease, injury, or complication that caused death.*		

Part I is used to record diseases or conditions related to the sequence of events **leading directly** to the death.

Part II is used to record conditions that have **no direct connection** with the events leading to death but which, by their nature, contributed to the death.

3.3.2.1 Part I of the certificate

Part I of the certificate provides four lines on which the sequence of events leading to death are recorded. This space is used for diseases that are related to the sequence of events leading directly to death. The condition thought to be the **underlying cause of death** should appear on the last completed line of part I.

The direct cause of death is entered on the first line, i.e. I(a). There must always be an entry on line I(a). The entry on line I(a) may be the only condition reported in part I.

Where two or more conditions must be recorded, the sequence of events leading to death should be entered. Each event in the sequence should be recorded on a separate line.

There is an exception: two independent diseases may be occasionally thought to have contributed equally to the sequence at a particular point. In such unusual circumstances they may be entered on the same line.

The sequence of entries in part I is as follows:

- line (a) records the disease or condition directly leading to death;
- line (b) records other disease or condition, if any, leading to (a);
- line (c) records other disease or condition, if any, leading to (b); and
- line (d) records other disease or condition, if any, leading to (c).

The underlying cause of death is entered on the last line used.

The certifier should make every attempt to provide a clear sequence of events in part I.

If the cause of death is unknown even after investigation, it is acceptable to record "unknown". This is preferable to speculating about a cause of death.

3.3.2.2 Part II of the certificate

Part II is used to record conditions that have had no direct connection with the events leading to death but which, by their nature, contributed to the death.

3.3.2.3 Reporting the duration of conditions

The duration of the disease or condition is the interval between the onset of each condition entered on the certificate (not the time of the diagnosis of the condition) and the date of death; the interval is recorded in the column to the right of the disease or condition.

The best estimate of the interval should be recorded when the time or date of onset is not known. The unit of time should be entered for each diagnosis whether it is:

- years
- months
- days
- hours
- minutes or
- unknown.

In a correctly completed certificate, the duration entered on each line will not exceed the duration entered for the condition on the line underneath (the condition that preceded it) since the causal sequence requires that antecedent conditions are reported in reverse order of their occurrence. On the form, this means conditions are reported in an ascending sequence (Fig. 3).

The information on duration is useful in coding certain diseases and also provides a check on the accuracy of the reported sequence of conditions.

FIG. 3. SAMPLE OF CERTIFICATE

INTERNATIONAL FORM OF MEDICAL CERTIFICATE OF DEATH

Cause of death		Approximate Interval between onset and death
I Disease or condition directly leading to death *	a) Pneumonia due to (or as a consequence of)	2 weeks
Antecedent causes Morbid conditions, if any, giving rise to the above cause, stating the underlying condition last.	b) Malnutrition due to (or as a consequence of)	months
	c) due to (or as a consequence of)	
	d)	
II Other significant conditions contributing to the death, but not related to the disease or conditions causing it	Diabetes	

**This does not mean the mode of dying, e.g. heart failure, respiratory failure, it means the disease, injury, or complication that caused death.*

In this case malnutrition caused pneumonia. The pneumonia killed the person. The person also had diabetes mellitus. Diabetes may have contributed to the death. It was not part of the sequence of events that caused the deadly pneumonia.

3.3.2.4 The three "golden rules" of completing a certificate

The causes of death reported on a certificate provide the basis for coding and selecting the underlying cause of death. Some well-known behaviours hamper the evaluation of certificates. The "golden rules" address them all.

1. **Write clearly and do not use abbreviations.**
2. **Always have an entry on line (a) of part I.**
3. **List all conditions in a causal sequence. The most recent condition – the direct cause of death – should appear on the top line and the least recent condition should appear on the bottom line.**

3.4 Structure and principles of ICD-10

The ICD is an internationally agreed scheme used to code diseases in a standardized fashion. It has been revised 10 times since its origins more than 100 years ago, so the current version is called ICD-10.

This section is intended to be an introduction to the classification scheme. You are not expected to become an ICD expert after reading it. You will learn how ICD is organized and how it works.

3.4.1 Overview of ICD-10 classification

In ICD-10 diseases and their causes are grouped for practical, epidemiological reasons as follows:

- communicable diseases
- general diseases that may affect the whole body
- localized diseases arranged by site

- developmental diseases
- injuries
- external causes.

The ICD-10 has three volumes.

Volume 1: the list

- Volume 1 is the tabular list. It is an alphanumeric listing of diseases and disease groups. It contains notes on inclusion and exclusion and some coding rules.
- It has 22 chapters and 11 400 categories enumerated to 4 characters. However, only the 1655, 3-character categories are relevant to coding a single underlying cause of mortality.

At the end of volume 1 there are five special tabulation lists. These are not designed for coding; they are for tabulation only. They must not be used for coding or reporting. The lists mentioned here should not be confused with the correspondence table at the end of Part 3 of this manual, which shows the correspondence between ICD-10 codes and those used in verbal autopsy.

Exercise:

> *Look up list number 1 in ICD-10 and identify differences between it and the correspondence table at the end of this guide.*

Volume 2: the manual

This provides an introduction to, and instructions on how to use, ICD-10.

- It also contains guidelines for certification and rules for **mortality** coding (that is, coding causes of death).
- It contains guidelines for recording and coding **morbidity** (for example, for hospital statistics).
- It also contains guidelines for tabulating statistical data and definitions (for example, for "perinatal").

Volume 3: index and guide

- This is an alphabetical index of the diseases and conditions found in the tabular list.
- It has a table of neoplasms.
- There is also a table of chemicals and drugs.
- There is a table of external causes.
- There is guidance on selecting appropriate codes for many conditions not displayed in the tabular list.

Volume 1 and volume 3 are inseparable. Volumes 1 and 3 must be used together to find codes to describe each case correctly (for example, the cause of death).

3.4.2 The tabular list

ICD-10 has 22 chapters, each of which is identified by a Roman numeral. Chapters XIX (Injury, poisoning and certain other consequences of external causes) and XXI (Factors influencing health status and contact with health services) are not used for coding the underlying cause of death.

The full list of chapters is as follows.

Chapter	Title	Range of codes in whole chapters
I	Certain infectious and parasitic diseases	A00–B99
II	Neoplasms	C00–D48
III	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	D50–D89
IV	Endocrine, nutritional and metabolic diseases	E00–E90
V	Mental and behavioural disorders	F00–F99
VI	Diseases of the nervous system	G00–G99
VII	Diseases of the eye and adnexa	H00–H59
VIII	Diseases of the ear and mastoid process	H60–H95
IX	Diseases of the circulatory system	I00–I99
X	Diseases of the respiratory system	J00–J99
XI	Diseases of the digestive system	K00–K93
XII	Diseases of the skin and subcutaneous tissue	L00–L99
XIII	Diseases of the musculoskeletal system and connective tissue	M00–M99
XIV	Diseases of the genitourinary system	N00–N99
XV	Pregnancy, childbirth and the puerperium	O00–O99
XVI	Certain conditions originating in the perinatal period	P00–P96
XVII	Congenital malformations, deformations and chromosomal abnormalities	Q00–Q99
XVIII	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	R00–R99
XIX	Injury, poisoning and certain other consequences of external causes	S00–T99
XX	External causes of morbidity and mortality	V01–Y98
XXI	Factors influencing health status and contact with health services	Z00–Z99
XXII	Codes for special purposes	U00–U99[a]

[a] Only some categories in this chapter are used in mortality coding.

3.4.2.1 Blocks of related conditions in ICD-10

Each chapter is divided into blocks of related conditions. The blocks are further divided into 3-character and 4-character categories.

Example:

Example of a block in chapter I

Viral hepatitis (B15–B19)

B15 Acute hepatitis A
B16 Acute hepatitis B
B17 Other acute viral hepatitis
B18 Chronic viral hepatitis
B19 Unspecified viral hepatitis

3.4.2.2 3-character categories or rubrics

Some 3-character categories are used only for single conditions. Others contain groups of diseases.

Example:

3-character category with a single disease

A71 Trachoma
Excludes: sequelae of trachoma (B94.0)

3-character category with a group of diseases

A75 Typhus fever
Excludes: rickettsiosis due to Ehrlichia sennetsu (A79.8)

A75.0 Epidemic louse-borne typhus fever due to *Rickettsia prowazekii*
Classical typhus (fever)
Epidemic (louse-borne) typhus

A75.1 Recrudescent typhus [Brill's disease]
Brill-Zinsser disease

A75.2 Typhus fever due to *Rickettsia typhi*
Murine (flea-borne) typhus

A75.3 Typhus fever due to *Rickettsia tsutsugamushi*
Scrub (mite-borne) typhus
Tsutsugamushi fever

A75.9 Typhus fever, unspecified
Typhus (fever) NOS

3.4.2.3 4-character categories or rubrics

These 4-character categories are not mandatory for reporting at the international level but the use of a fourth character adds detail and specificity to the coded data. The use of a fourth character allows for as many as 10 subcategories.

Example:

A01 **Typhoid and paratyphoid fevers**
A01.0 **Typhoid fever**
Infection due to Salmonella typhi
A01.1 **Paratyphoid fever A**
A01.2 **Paratyphoid fever B**
A01.3 **Paratyphoid fever C**
A01.4 **Paratyphoid fever, unspecified**
Infection due to Salmonella paratyphi NOS

} **4-character categories**

3.4.2.4 Content structure

Most chapters are associated with particular body systems, special diseases or external factors.

The chapters on special diseases include conditions that are not found in the body-system chapters even though they may be present in that body system. Conditions that are coded to a special disease chapter take precedence over those that are coded to the body-system chapter.

Exercise:

> *Look at the titles of the chapters in ICD-10. The chapter titles indicate that the conditions included are wide-ranging; therefore a large number of codes are required to cover all of the conditions.*

Inclusion terms

Within the 3-character and 4-character rubrics, a number of other diagnostic terms, in addition to the code title, are usually listed. These are known as "inclusion terms" and are given as examples of diagnostic statements to be classified to that rubric. In essence, they reflect similar diseases that may be coded to the same category or different words and terms used to describe the same disease.

Example:

> A06 Amoebiasis
> includes *infection due to Entamoeba histolytica*

The A06 category is further subdivided, and all conditions and inclusions in these subdivisions may be coded with A06 too. This is the reason why you will always need ICD-10 and all its subdivisions (blocks, categories) in order to code thoroughly: the fourth characters provide additional useful specificity.

Exercise:

> *Look up the subdivisions of A06 in ICD-10 and see what else is included under that category.*

Exclusion terms

Certain rubrics contain lists of conditions preceded by the word "excludes". This means that the excluded terms are to be coded elsewhere. The correct code that should be assigned is given in parentheses following the term.

Example:

> Category A06 Amoebiasis excludes other protozoal intestinal diseases mentioned under A07.-, such as giardiasis and ascariasis (roundworm disease).

If there is an exclusion term in a subdivision of A06, this exclusion would also be valid for A06. Please note that exclusions also appear at the chapter level and block level, and these exclusions are relevant to codes at the 3-character and 4-character levels.

Exercise:

Look up A06 and A04. Identify the exclusion terms.

3.4.2.5 Conventions of ICD-10

The ICD-10 tabular list (volume 1) and the alphabetical index (volume 3) make use of abbreviations, punctuation marks, symbols and instructional terms that must be clearly understood. These are referred to as "coding conventions".

Dagger (†) and asterisk (*) codes

The dagger and asterisk conventions are not used when coding a single underlying cause of mortality. A dagger code represents the etiology of the disease and must be used, where applicable. The asterisk code is used to describe the manifestation of a disease, if desired. Asterisk codes must not be used for coding the underlying cause of death in verbal autopsy.

Example:

B57.0† **Acute Chagas' disease with heart involvement (I41.2*, I98.1*)**
Acute Chagas' disease with:

- cardiovascular involvement NEC (I98.1*)
- myocarditis (I41.2*)

In this example there is a dagger next to B57.0. Codes with an asterisk are given in parentheses. In verbal autopsy you would code B57.0 and ignore the codes with asterisks.

Not otherwise specified

NOS is an abbreviation for "not otherwise specified"; it implies that a cause is "unspecified" or "unqualified". Coders should be careful **not** to code a term as unqualified unless it is quite clear that no other information is available that would permit a more specific code to be assigned from elsewhere in the classification.

Example:

B50.0 Plasmodium falciparum malaria with cerebral complications
Cerebral malaria NOS

Not elsewhere classified

NEC stands for "not elsewhere classified". This abbreviation serves as a warning that certain specified types of the listed conditions may appear in other parts of the classification.

Example:

K73 Chronic hepatitis, not elsewhere classified
"Not elsewhere classified" is mentioned here because there are other categories in ICD-10 for specified chronic hepatitis, for example in chapter I:

B18 Chronic viral hepatitis

Other conventions

There is a difference between parentheses "( )"and square brackets "[ ]".

Parentheses enclose supplementary words that may follow a diagnostic term without changing the code number to which the words outside the parentheses would be assigned.

Examples:

G11.1 Early-onset cerebellar ataxia
Friedrich's ataxia (autosomal recessive)

Gonorrhoea (acute)(chronic) A54.9

Square brackets enclose synonyms, alternative words or explanatory phrases.

Examples:

A77 Spotted Fever [tick-borne rickettsioses]
B02 Zoster [herpes zoster]

When "and" is used in code titles in volume 1 it means "and/or".

Example:

A18.4 Tuberculosis of skin and subcutaneous tissue
In this case, "tuberculosis of skin" **and** "tuberculosis of subcutaneous tissue" **and** "tuberculosis of skin and subcutaneous tissue" can be coded to A18.4.

Certain postprocedural disorders should not be used to code the underlying cause of mortality. They are E89.-, G97.-, H59.-, H95.-, I97.-, J95.-, K91.-, M96.-, N99.-.

Exercise:

Look up the postprocedural disorders listed above and see what the codes cover.

3.4.3 The alphabetical index

The alphabetical index contains more diagnostic terms than the tabular list.

Volume 3 is an alphabetical index of the tabular listing found in volume 1. It contains far more diagnostic terms than the tabular list, reflecting the many and varied ways that doctors and other clinical staff describe diseases.

By using the index, the coder can find a suggested code from a range of substitute terms. The coder should then check the code against the tabular list to ensure there are no relevant notes or conventions that might change the coding decision.

Volumes 1 and 3 must be used together to locate codes to describe accurately each clinical case.

Coders should not fall into the trap of coding directly from the alphabetical index or browsing the tabular list looking for a code that seems to fit the case being assessed.

- Section I is an alphabetical listing of terms relating to diseases. It also incorporates a table of neoplasms.
- Section II is an alphabetical listing of external causes of injury and poisoning.
- Section III is an alphabetically arranged table of drugs and chemicals.

3.4.3.1 Index entries

Index entries consist of lead terms and of modifiers.

Lead terms (usually nouns) appear on the far left of each column in bold. They refer mainly to the names of diseases or conditions. They describe either the patient's actual pathological condition or the reason for seeking medical attention.

Modifiers are found at different levels of indentation to the right. They usually refer to varieties of diseases or external causes of death that affect coding. Modifiers might identify the site of the condition (for example, leg), the stage of the condition (for example, acute or chronic) or the type of consultation, problem or encounter. Modifiers need not be used for every statement. Modifiers that do not affect code assignment appear in parentheses ( ) after the condition.

Examples:

Index term	Lead term	Modifier
Fracture of the spine	fracture	fracture spine (site of the condition)
Acute **otitis** media	otitis	otitis acute (stage of disease), media (site of the condition)
Upper respiratory **infection**	infection	infection upper (site), respiratory (system involved)
Blackwater fever **malaria**	malaria	blackwater fever (type of condition)
Congenital **malaria**	malaria	congenital (type of condition)
Acute **gonorrhoea** of the cervix	gonorrhoea	gonorrhoea acute (stage of disease), cervix (site of the condition)
Septic **embolism**	embolism	embolism septic (nature of condition)
Note: In the index there are often many entries at each level of indentation. It is necessary to be careful while following the trail of relevant entries for the diagnosis under each lead term.		

Example:

Sample index

Malaise R53
Malakoplakia – *see* Malacoplakia
Malaria, malarial (fever) B54
– with
– – blackwater fever B50.8
– – – hemoglobinuric (bilious) B50.8
– – hemoglobinuria B50.8
– accidentally induced (therapeutically) – *see* Malaria, by type
– algid B50.9
– cerebral B50.0† G94.8*
– clinically diagnosed (without parasitological confirmation) B54
– complicating pregnancy, childbirth or puerperium O98.6
– congenital NEC P37.4

– – falciparum P37.3
– continued (fever) B50.9
– estivo-autumnal B50.9
– falciparum B50.9
– – with complications NEC B50.8
– – – cerebral B50.0† G94.8*
– – severe B50.8
– malariae (with) B52.9

Exercises:

Look up "haemochromatosis with refractory anaemia".

Look up "breast cancer".

Look up "car accident".

Do you remember what square brackets mean?

*What do you do with a † or an * in mortality coding?*

3.4.4 Selecting the underlying cause of death

Once the causes of death have been assigned and reported on the international form of the medical certificate for cause of death by clinicians, the certificate needs to be validated. First, the sequence of events that led to death must be correct. "Sequence" refers to two or more conditions entered on successive lines, each condition being an acceptable cause of the one entered on the line above it.

- When only one cause of death is recorded, this cause is the underlying cause of death and is used for tabulation.
- When more than one cause of death is recorded, the selection of the underlying cause should be made in accordance with the rules outlined in this chapter.

Set of procedures – Selection starts with the "general principle" and a first set of rules. The cause of death thus selected may then be modified by a second set of rules.

This manual provides a brief overview of these rules. In the rare cases when you may need to refer to the rules during verbal autopsy, you may look up section 4.1 and 4.2 of volume 2. These sections contain detailed explanation and examples.

Comparability – The rules ensure that the selection process is carried out the same way everywhere and does not depend on an individual's opinion. This makes the results comparable.

Several selection rules are meant to correct mistakes that certifiers may make while filling in the death certificate.

3.4.4.1 The general principle

When more than one condition is entered on the certificate, the condition entered alone on the last line used in part I should be selected but only if it could have given rise **to all the conditions entered above it**.

Example:

I(a) Abscess of lung
I(b) Lobar pneumonia

Select lobar pneumonia (J18.1) as the underlying cause since the lung abscess could have resulted from lobar pneumonia.

3.4.4.2 Rule 1

If the general principle does not apply and there is a reported **sequence terminating in the condition first entered** on the certificate – leftmost on line I(a) – select the cause of this sequence on the last possible line. If there is more than one sequence, select the one that ends with the first term on line I(a).

In other words, rule 1 applies when there is a reported sequence but the cause on the last line in part I of the certificate does not explain all the diseases mentioned above it.

Example: I (a) Bronchopneumonia
(b) Cerebral infarction and hypertensive heart disease

Select cerebral infarction (I63.9). There are two reported sequences terminating in the condition first entered on the certificate: bronchopneumonia due to cerebral infarction and bronchopneumonia due to hypertensive heart disease. The originating cause of the first-mentioned sequence is selected.

Example: I (a) Oesophageal varices and congestive heart failure
(b) Chronic rheumatic heart disease and cirrhosis of liver

Select cirrhosis of liver (K74.6). The sequence terminating in the condition first entered on the certificate is oesophageal varices due to cirrhosis of liver.

Example: I (a) Acute myocardial infarction
(b) Atherosclerotic heart disease
(c) Influenza

Select atherosclerotic heart disease. The reported sequence terminating in the condition first entered on the certificate is acute myocardial infarction due to atherosclerotic heart disease. But modification rule C also applies.

Example: I (a) Pericarditis
(b) Uraemia and pneumonia

Select uraemia. There are two reported sequences terminating in the condition first entered on the certificate: pericarditis due to uraemia and pericarditis due to pneumonia. The originating cause of the first-mentioned sequence is selected. But modification rule D also applies.

Example: I (a) Cerebral infarction and hypostatic pneumonia
(b) Hypertension and diabetes
(c) Atherosclerosis

Select atherosclerosis. There are two reported sequences terminating in the condition first entered on the certificate: cerebral infarction due to hypertension due to atherosclerosis, and cerebral infarction due to diabetes. The originating cause of the first-mentioned sequence is selected. But modification rule C also applies.

If there is no logical sequence, rule 2 should be applied (see below).

3.4.4.3 Rule 2

If nothing is reported on the lower lines of the certificate that could explain the first-mentioned condition – line I(a) – then select the condition on line I(a).

Example: I (a) Pernicious anaemia and gangrene of foot
(b) Atherosclerosis

Select pernicious anaemia (D51.0). There is no reported sequence terminating in the condition entered first.

Example: I (a) Rheumatic and atherosclerotic heart disease

Select rheumatic heart disease (I09.9). There is no reported sequence; both conditions are on the same line.

Example: I (a) Fibrocystic disease of the pancreas
(b) Bronchitis and bronchiectasis

Select fibrocystic disease of the pancreas (E84.9). There is no reported sequence.

Example: I (a) Senility and hypostatic pneumonia
(b) Rheumatoid arthritis

Select senility. There is a reported sequence – hypostatic pneumonia due to rheumatoid arthritis – but it does not terminate in the condition entered first on the certificate. **But** modification rule A also applies.

Example: I (a) Bursitis and ulcerative colitis

Select bursitis. There is no reported sequence. **But** modification rule B also applies.

Example: I (a) Acute nephritis, scarlet fever

Select acute nephritis. There is no reported sequence. **But** rule 3 (see below) also applies.

Some of the examples above contain a reference to an additional rule that also has to be applied. Look up those rules and consider how they would modify the outcome of the selection.

3.4.4.4 Rule 3

If the condition selected by the general principle or by rule 1 or rule 2 is obviously a direct consequence of another reported condition, whether in part I or part II, select the primary condition. This means that in some cases there is a condition reported in part I or II of the form that has not been selected using the general principle, rule 1 or rule 2 but which could have caused the other conditions on the certificate. In these cases rule 3 is applied.

This rule is particularly tricky. The examples below are meant to provide guidance. The information in volume 2, section 4.1.7 should be read carefully, and considerable experience is needed to understand the rule. In verbal autopsy if a certificate has been completed properly you will rarely need to apply rule 3.

Example: I (a) Kaposi's sarcoma
II AIDS

Select HIV disease resulting in Kaposi's sarcoma (B21.0).

Example: I (a) Cancer of ovary
II HIV disease

Select malignant neoplasm of ovary (C56).

Example: I (a) Tuberculosis
II HIV disease

Select HIV disease resulting in mycobacterial infection (B20.0).

Example: I (a) Cerebral toxoplasmosis and herpes zoster
(b) Burkitt's lymphoma, HIV disease

Select HIV disease resulting in multiple diseases classified elsewhere (B22.7). Cerebral toxoplasmosis, selected according to rule 2, could be considered a direct consequence of HIV disease.

Example: I (a) Bronchopneumonia
II Secondary anaemia and chronic lymphatic leukaemia

Select chronic lymphatic leukaemia (C91.1). Bronchopneumonia, selected by the general principle (see rule 2, example of bursitis and ulcerative colitis), and secondary anaemia can both be considered direct sequelae of chronic lymphatic leukaemia.

Example: I (a) Cerebral haemorrhage
(b) Hypertension
(c) Chronic pyelonephritis and prostatic obstruction

Select prostatic obstruction (N40). Chronic pyelonephritis, selected according to rule l, can be considered a direct sequela of prostatic obstruction.

Example: I (a) Acute nephritis, scarlet fever

Select scarlet fever (A38). Acute nephritis, selected according to rule 2 (see example below referring to hypostatic pneumonia and cerebral haemorrhage), can be considered a direct sequela of scarlet fever.

Example: I (a) Nephrectomy
II Clear cell carcinoma of kidney

Select clear cell carcinoma of kidney (C64). There is no doubt that the nephrectomy was performed for the malignant neoplasm of kidney.

Example: I (a) Acute anaemia
(b) Haematemesis
(c) Bleeding of oesophageal varices
(d) Portal hypertension
II Cirrhosis of liver

Select cirrhosis of liver (K74.6). Portal hypertension, selected according to the general principle, can be considered a direct consequence of cirrhosis of liver.

Example: I (a) Hypostatic pneumonia
(b) Cerebral haemorrhage and cancer of breast
Select cerebral haemorrhage (I61.9). Hypostatic pneumonia, selected according to rule 2, can be considered a direct sequela of either of the other conditions reported; select the one mentioned first.

Example: I (a) Pulmonary infarction
II Left pneumonectomy for carcinoma of lung 3 weeks ago

Select carcinoma of lung (C34.9).

3.4.4.5 Rules for modification

In some cases the underlying cause that has been selected using the above rules is not the cause that is the most useful or informative for public health or prevention purposes – for example, senility, or a general disease process such as atherosclerosis.

In such cases modification rules may need to be applied after the general principle, rule 1, rule 2 and rule 3 have been applied.

There are six modification rules (A–F). Please note that this set of rules is particularly tricky. The paragraphs below are meant to provide an idea of what the rules cover. The information in volume 2, section 4.1.8 must be read carefully, and considerable experience is needed to understand and apply the rules.

Rule A: Senility and other "ill-defined" conditions

Where the selected cause of death is "ill defined" and another condition is reported on the certificate, select the cause of death as if the ill-defined condition had not been reported.

Rule B: Trivial conditions

Where a serious condition is reported but the selected cause is a "trivial condition" (that is, a condition unlikely to cause death), select the underlying cause as if the trivial condition had not been reported.

Rule C: Linkage

ICD-10 provides a list of how to link some diseases in order to select the most relevant underlying cause of death. You will find extensive explanation in sections 4.1.11 and 4.1.12 of volume 2.

Example:

I (a) Intestinal obstruction
(b) Femoral hernia

Code for femoral hernia with obstruction (K41.3).

Rule D: Specificity

Where the selected cause describes a disease in general terms, and a disease term that provides more precise information about the site or nature of this condition is reported on the certificate, prefer the more informative term. This rule often applies when the general term becomes an adjective qualifying the more precise term.

Example:

I (a) Meningitis
(b) Tuberculosis

Code for tuberculous meningitis (A17.0). The certifier has stated that the meningitis was due to tuberculosis.

Rule E: Early and late stages of disease

Where the selected cause is the early stage of a disease, and a more advanced stage of the same disease is reported on the certificate, code for the more advanced stage.

This rule does not apply to a chronic form reported as being due to an acute form unless the classification gives special instructions to that effect.

Example:

I (a) Tertiary syphilis
(b) Primary syphilis

Code for tertiary syphilis (A52.9).

Example:

I (a) Chronic nephritis
(b) Acute nephritis

Code for chronic nephritis, unspecified (N03.9), since special instruction is given to this effect (see the following exercise).

Exercise:

Look in volume 2 and try to find this instruction.

Rule F: Sequelae

This rule provides guidance on selection in cases where late damage from a disease (sequela) and the causative disease (occurring a long time before death) are mentioned on the certificate.

Example:

I (a) Hydrocephalus
(b) Tuberculous meningitis

Code for sequelae of tuberculous meningitis (B90.0).

"Sequelae of" categories are as follows: B90, B94, E64, E68, G09, I69, O97, Y85 and Y89.

Exercise:

Look up these special categories in ICD-10 to become familiar with them.

3.5 Using the data

ICD-10 provides tabulation lists for mortality and morbidity in volume 1. Other professional groups have made different lists for grouping diseases and presenting statistics. Regardless of the list used, deaths should be classified by sex and into the following age groups: aged < 1 year, aged 1–4 years, and then in 5-year groups from age 5 years to 84 years, followed by a group for those aged ≥85 years. Volume 2, section 5.6.1, contains a full set of instructions.

The purpose of verbal autopsy is to describe the causes of death at the community level or population level in instances where no better alternative sources exist. Therefore, it is a limited substitute for proper medical certification. The quality of information and of the diagnoses varies depending on the skills of the interviewer and the memory of the respondents.

The "verbal autopsy causes of death list" is found in the two left-hand columns in the tabular list at the end of this book. The verbal autopsy list is a core mortality classification system, specifying some of the most important causes of death in low-income and middle-income countries. It may be seen as the "lowest common denominator" that can be used to merge data from different verbal autopsy projects. Coding diagnoses with ICD will facilitate the merging of data and the retention of as much detail as needed in local settings.

Note: Never merge data collected from verbal autopsy with data from full vital registration systems and medical certification (medical postmortem examination).

The way information is collected during verbal autopsy and the way in which a diagnosis is assigned is different from the method used during medical certification. The certainty of the diagnosis is much lower in verbal autopsy, and some diseases cannot be diagnosed. Merging data from these two methods will hide differences that may result from these methods and lead to misinterpretation of the results.

3.6 Confidentiality

The verbal autopsy procedure involves collecting and storing information that, if disclosed to third parties, might cause harm or distress to the interviewee, friends or relatives of the deceased. Investigators should arrange to protect the confidentiality of the people providing information

by, for example, omitting information that might lead to the identification of individual interviewees or by limiting access to the information or anonymizing data. During the process of obtaining informed consent the investigator should let the prospective interviewee know about the precautions that will be taken to protect confidentiality.

The investigator must establish robust safeguards to protect the confidentiality of interviewees and the data provided by them. Interviewees should be informed of the limits, legal or otherwise, to the investigator's ability to safeguard confidentiality and the possible consequences of breaches of confidentiality.

Prospective interviewees should be informed of the limits of the ability of investigators to ensure strict confidentiality and of any foreseeable adverse social consequences of breaches of confidentiality. Some jurisdictions require that deaths be reported to appropriate agencies. Anything that limits the investigator's ability to maintain confidentiality should be anticipated and disclosed to prospective interviewees.

Ideally the interviewee should sign a locally relevant consent form based on these principles.

3.7 Additional sources of information

3.7.1 Changes and updates to ICD

As part of the updating process for ICD-10, addenda of changes and updates to the classification are released annually. A copy of all of the updates made since 1996 is available at http://www.who.int/classifications/en/.

3.7.2 Information on ICD

General information about the ICD can be found at http://www.who.int/classifications/icd/en/. Volume 2 and a certification flyer are available on this page.

3.7.3 Decision tables

Decision tables to aid in selecting the underlying cause of death, and regular updates, can be obtained from the United States Centers for Disease Control and Prevention's National Center for Health Statistics. The tables can be downloaded from http://www.cdc.gov/nchs/about/major/dvs/im.htm.

3.7.4 An overview of training opportunities

The WHO Family of International Classifications (WHO–FIC) Education Committee has compiled lists of experts and training facilities. The information can be accessed at http://www.cdc.gov/nchs/about/otheract/icd9/nacc_ed_committee.htm.

Links to WHO's regional offices can be found at http://www.who.int/about/regions/en/.

3.7.5 Mortality forum

The mortality forum of the WHO–FIC Network is an international discussion network that examines problems experienced during ICD-10 mortality coding. Issues that cannot be resolved in the forum are referred to the Mortality Reference Group. The tasks of the Mortality Reference Group of the WHO–FIC Collaborating Centres include making decisions about applying and interpreting ICD-10 as it relates to mortality and preparing proposals for updates or changes.

The mortality forum can be accessed at http://www.nordclass.uu.se/verksam/mortfore.

3.8 ICD coding in verbal autopsy – special cases

Some causes of death deserve special attention during coding. These are either frequent causes encountered during verbal autopsy or frequent combinations of causes of death. The cases mentioned in this manual are not exhaustive.

3.8.1 Dealing with multiple causes

Verbal autopsy may lead to the identification of more than one cause of death, since different diagnoses may be reported by relatives or mentioned in medical records.

Several categories of ICD-10 are designed to code relevant combinations of diseases, while in other cases guidance is provided on how to select and report the most useful cause of death. It is important to follow the coding rules, using ICD-10's index and tabular lists as well as the rules and conventions specified in volume 2, in order to locate the most useful codes.

Common examples

There is no classification rule that automatically gives HIV precedence over malaria or vice versa. Whether the cause of death is classified as HIV or malaria depends on how the death certificate has been completed.

Example:

Where there is a mention of HIV with malaria, code to B20.8.

Example:

The table below shows solutions to common coding problems.

Conditions	Code
HIV and pneumonia	B23.8 (if the agent causing the pneumonia is unknown)
Hypertension and stroke	I64
Hypertension in combination with acute myocardial infarction or heart failure	I21
Hypertension and heart failure	I11.0
Diabetes and stroke	E14.6
Diabetes and hypertension	Which code is used depends on the way the certificate is completed: only one code will be retained
Prematurity and/or low birth weight and respiratory distress	P22.0
Diarrhoea and pneumonia	A09

3.8.2 Other special cases

The conditions that may cause confusion during verbal autopsy are those presenting with multiple diagnoses or sequelae, or both. Examples of conditions that may cause confusion are stillbirths where there are known or unknown underlying maternal causes, and external causes of injuries.

The following conditions need special attention when information from verbal autopsies is coded.

3.8.2.1 Malaria

ICD-10 codes may be used when malaria is the cause of death, but the nonspecific nature of the disease and the lack of sufficient details derived during verbal autopsy may pose special difficulties in assigning a code. Malaria that has been clinically diagnosed is coded B54.

Cerebral malaria is a special case in coding. The diagnosis is usually based on the exclusion of other encephalopathies (for example, HIV/AIDS encephalopathy, hypoglycaemia, meningoencephalitis, eclampsia, intoxication, head injury, cerebrovascular accidents, metabolic disorders and other infections) and confirmation of the presence of malaria. In the absence of detail on the verbal autopsy form that may help to confirm malaria or exclude other forms of encephalitis, the physician's knowledge, local experience and information about prevailing epidemiology are used to carefully assess the information on the dead for diagnostic purposes.

In ICD-10, the classification "cerebral malaria" falls under the category of malaria caused by *Plasmodium falciparum*: B50.0 (*Plasmodium falciparum* malaria with cerebral complications). Since this level of detail (a blood slide that shows *P. falciparum* malaria species) is unlikely to be found by verbal autopsy (or even in medical records), coding the diagnosis or cause of death as cerebral malaria (and most other forms of malaria) cannot, strictly speaking, be done based on symptoms and signs alone. The possible causes of deaths from malaria in verbal autopsy settings would therefore be B54 (unspecified malaria) or B50.0 (*P. falciparum* malaria with cerebral complications) only.

Thus, in verbal autopsy it is not possible to use the following codes for malaria: B51, B52, B53.0 and B53.1. These codes require specific information on *Plasmodium*, which cannot found during verbal autopsy. As a result it may be appropriate to certify and code a death from cerebral malaria in the absence of identification of *P. falciparum* as B50.0 (see example below).

Example:

B54 **Unspecified malaria**
Clinically diagnosed malaria without parasitological confirmation

B50.0 **Plasmodium falciparum malaria with cerebral complications**
Cerebral malaria NOS

In this example, the justification is "not otherwise specified" (NOS).

3.8.2.2 HIV

HIV and tuberculosis

In clinical practice, it may be difficult to differentiate between an HIV infection and tuberculosis (TB). It is only possible to be certain about the diagnosis with evidence from HIV serology testing and sputum smear testing for TB bacilli: a patient with symptoms and signs suggestive of HIV or TB but who has a negative HIV serology test and a positive bacteriological sputum culture has TB but not HIV. In many cases, the two conditions coexist, but it is difficult to determine which condition is the underlying cause of death. With the limited information that comes from verbal autopsy, this situation presents a problem that requires following agreed guidelines.

HIV disease may present with many complications and infections, each having its own unique cause of death, from B20 (Human immunodeficiency virus [HIV] disease resulting in infectious and parasitic diseases) to B24 (Unspecified human immunodeficiency virus [HIV] disease). Even

though in ICD-10 the fourth character subcategories of B20–B23 are provided for optional use, it is important to differentiate between TB with HIV and TB alone, when possible.

Diagnosing TB from verbal autopsy may present challenges. A definitive diagnosis of TB can be made only in cases where an acid-fast bacillus smear identifies the disease, typically from sputum. In developing countries, such information is rarely available in the medical records of the deceased. When deciding whether TB is an appropriate diagnosis interpret the clinical signs and the history with caution and try to find out whether the deceased:

- was sputum-positive for acid-fast bacillus;
- had a chest X-ray that suggested pulmonary tuberculosis;
- had been taking anti-TB drugs;
- had a history suggestive of TB, for example, a cough lasting longer than 1 month, wasting, or prolonged fever (in cases in which the deceased had fevers it is difficult to differentiate between TB and HIV disease).

Considering the public health importance of TB, and in order to maintain uniformity in assigning causes of death, the following 4-character categories should be used for HIV disease with TB in cases where neither the sequence can be identified nor a single cause be selected.

Example:

I (a) Tuberculosis
(b) HIV
(c) ---
(d) ----
II ----

Select B20.0, HIV disease resulting in mycobacterial infection.

Example:

I (a) Tuberculosis
(b) ---
(c) ---
(d) ----
II HIV

Select A16.9, Tuberculosis, NOS.

Using B22.0 for HIV and dementia

The B22.0 code for cause of death is used when there is a history of confusion, dementia and loss of consciousness lasting more than 1 day or where there are other central nervous system manifestations, such as stroke associated with HIV.

B22.0 **HIV disease resulting in encephalopathy**
HIV dementia

When there is a case of HIV disease with TB and central nervous system manifestations, B22.0 should be used for the immediate cause of death.

Using B20.7 for HIV and multiple infections

The B20.7 code for cause of death should be used where there is evidence of more than a single infection occurring in a patient with HIV; these infections may include candidiasis, mycoses or parasitic diseases.

B20.7 HIV disease resulting in multiple infections

Using this code for cause of death when there is more than one infection helps to avoid assigning several causes of death (one for each type of associated infection), builds uniformity and facilitates a consensus among coders.

Where there is evidence of TB or other disease in addition to HIV, the cause of death B20.0 (HIV with tuberculosis) is used. In cases of HIV disease where only one infection has been identified, such as candidiasis, then the cause of death assigned is B20.4 "HIV resulting in candidiasis". See the next section for information about coding for Kaposi sarcoma.

Using B21.0 for HIV and Kaposi sarcoma

Where HIV presents with Kaposi sarcoma, this complication is not coded separately but is included in the multiple infection category. In cases where Kaposi sarcoma is the sole complication of HIV disease, then the appropriate ICD code is used (B21.0).

B21.0 HIV disease resulting in Kaposi's sarcoma

This code is used because Kaposi sarcoma is multicentric and is regarded as a malignancy having a viral infectious origin.

Guidelines for paediatric HIV

ICD-10 does not provide specific codes for classifying cause of death from HIV disease in children. Due to difficulties in diagnosing HIV in children in clinical practice, let alone during verbal autopsy, the following guidelines should be used to assign a cause of death in children who had HIV disease.

HIV should be assigned as a cause of death in cases in which there were:

- clinical symptoms suggesting HIV disease in the child in the absence of other obvious causes of immune suppression (for example, malnutrition);
- clinical symptoms suggesting HIV disease and a family and social history suggesting HIV (for example, parental death due to HIV disease) including cases where the child's mother was sick at the time the child died; or
- clinical symptoms suggesting HIV disease and the attending physician had requested an HIV test to confirm the diagnosis.

3.8.2.3 Maternal mortality

Given that maternal deaths are the most frequent cause of death among women of reproductive age in most developing countries, it is important that those who certify and code deaths are clear about what constitutes a maternal death, and what constitutes the direct and indirect causes of the death. The definitions related to maternal deaths are provided in volume 2, section 5.8, of ICD-10 and, for uniformity, should always be used.

A death is classified as a "maternal death" if a woman dies while she is pregnant or within 42 days of terminating a pregnancy, irrespective of the duration or site of pregnancy; maternal deaths may result from any cause related to pregnancy but not from accidental and incidental causes. "Late maternal death" refers to a death occurring from 42 days to 1 year after the termination of a pregnancy.

A "pregnancy-related death" is one that occurs during pregnancy or within 42 days of delivery, irrespective of the cause of death.

Maternal deaths may be either direct or indirect (that is, they may have either direct or indirect causes). **Direct causes** are obstetric complications of pregnancy, labour and the puerperium. Direct causes also refer to deaths occurring following pregnancy with haemorrhage; or deaths from obstructed or prolonged labour, eclampsia, or sepsis; pregnancy with an abortive outcome or multiple gestation; or occurring from complications of caesarean section.

Example:

Direct causes of maternal death

I (a) Haemorrhagic shock
(b) Ruptured uterus
(c) Obstructed labour

In this case, select "obstructed labour" as the underlying cause of death (O66.9; obstructed labour unspecified).

Indirect causes of maternal death are those resulting from pre-existing disease or diseases that developed during pregnancy but are not the direct result of an obstetric cause. Such diseases include pre-existing hypertension, diabetes mellitus, heart disease, thromboembolism, anaemia, malaria and TB.

Maternal deaths that arise from HIV disease (B20–B24) or from obstetrical tetanus (A34) are coded in chapter 1 of ICD-10, and care should be taken to include them in the **maternal mortality rate**. Thus, it is important to specify whether the numerator in the maternal mortality rate includes direct or indirect causes, or both.

3.8.2.4 Stillbirth or fetal death

The term "stillbirth" or "fetal death" is used (not intrauterine fetal death), when the death is recorded after the birth of a dead fetus and not while the fetus is in utero.

There is no difference in the cause of death between stillbirths recorded as "fresh" or "macerated". Where a fetal death or stillbirth can be attributed to a particular cause (for example, antepartum haemorrhage, maternal infection, eclampsia), the cause of death recorded is "stillbirth" (fetal death) due to whatever is the appropriate obstetric cause.

Where there is no identifiable cause for the stillbirth from the history, the appropriate cause of death will be P95 "Stillbirth due to unspecified cause".

3.8.2.5 Neonatal deaths

Neonatal deaths are those that occur among live-born infants during the first 28 completed days of life. The certification of perinatal death normally requires information about both the mother and the neonate.

Sometimes difficulties arise in distinguishing between stillbirth and neonatal death. If there is evidence in the medical records of life after birth, with death occurring later, such a death is classified as a neonatal death. In many cases it is difficult to ascertain from those being interviewed whether the baby was alive after birth and died shortly thereafter or was stillborn. This causes many neonatal deaths to be labelled as stillbirths.

If the neonatal death can be attributed to a particular cause, the cause of death should be classified and recorded as "Neonatal death due to" whatever is the appropriate cause.

3.8.2.6 Diarrhoea

Some difficulties arise in differentiating noninfectious diarrhoea (K52.9) from diarrhoea and gastroenteritis presumed to be of infectious origin (A09). The distinction is important because it has major public health implications. Several sets of guidelines aimed at identifying specific diseases, such as cholera, have been formulated and are mentioned in the manuals of individual verbal autopsy tools.

3.8.2.7 External causes

The intent of an event that causes injury (such as a traffic accident, knife wound or punch) may be accidental, intentional self-harm or intentional harm to others (assault). In cases in which the intent remains unclear, the default means of describing the event is "accidental". In cases where thorough legal and medical enquiries have been made and no judgement about the intent was reached, the conditions are coded as Y10–Y34 "undetermined intent". The index for the external causes in volume 3 allows the appropriate code to be found rapidly.

Completely different parts of the chapter on external causes may apply when coding for the mechanism that finally kills a person who has been in contact with animals – for example, dying as a result of encountering a snake may be coded in different ways:

> Crushed by a snake code W59
> Bitten by a venomous snake X20

Exercise:

> *Look up the blocks W50–W64 and X20–X29 and identify the differences between them.*

In cases in which a mother or a child is injured and killed by an external cause, a code from chapter XV (Pregnancy, childbirth and the puerperium) or chapter XVI (Certain conditions originating in the perinatal period) may take priority for tabulating a single cause of death (see example below).

Example:

> Coding for the death of a mother and child
>
> > Hypothermia newborn P80.-
> > Adult: Exposure to excessive natural cold X31
> > Mother: Complication of anaesthesia O74.- or 89.-

Exercise:

> *Look up O74.- and O89.-. What is the difference between them?*

3.8.2.8 More special cases

Convulsions

When convulsions occur in people living in malaria-endemic areas, especially when they occur in children and have no apparent cause, many clinicians assign a diagnosis of R 56.0 (febrile convulsions). During coding, "febrile convulsions" is not used to represent the cause of death because this is a diagnosis of exclusion. Instead "convulsions" is used as the lead term. If the cause of death is unknown or undetermined, the code used is R99 (undetermined cause of mortality) rather than R69 (undetermined cause of morbidity).

Coding when only signs and symptoms have been recorded

ICD-10 allows diseases and health problems to be classified even in cases where only symptoms and signs have been recorded without a definitive clinical diagnosis. When there is no definitive diagnosis, the main symptom, abnormal finding or problem is selected to be the main condition. Any presenting symptom (when the cause of death could not be determined) is used for coding (for example, abdominal pain leading to unspecified disease). This process minimizes the number of deaths that are classified as R99 (undetermined cause of mortality).

3.9 Correspondence table between short verbal autopsy list and ICD-10 codes

WHO proposes that the list of categories presented in the following correspondence table be used during verbal autopsy. This list is the result of analysing existing verbal autopsy systems. Current individual verbal autopsy systems may use only a subset of the categories proposed below.

The correspondence table makes it possible to merge data from verbal autopsies on an international scale, and allows the categories to be coded using ICD-10. Thus, the results of different verbal autopsy systems may be compared with data from full vital registration and medical certification systems.

Some diagnoses mentioned in the correspondence table cannot be assigned using information gathered during the verbal autopsy interview, but they may be found in medical records or other sources.

The correspondence table contains verbal autopsy categories and their related ICD-10 codes. It has been designed to allow verbal autopsy categories to be used for coding as well as for tabulation.

When the information gathered through verbal autopsy allows for more detail than that given on the standard verbal autopsy list, the person assigning codes should use the full ICD-10. The correspondence table allows for fast and easy access to ICD-10. The hints ("Comments") in the right-hand column may help coders avoid several pitfalls.

If an ICD code with 4 characters is mentioned it means more detailed codes are available in ICD-10. A code ending in "9" and mentioning "unspecified" can usually be used interchangeably with the 3-character code.

If a 3-character category is mentioned alone, this means that ICD-10 cannot provide more detail (unless the additional subdivisions of some chapters are used to code the site of a disease and activity of an external cause). Volume 1 of ICD-10 should always be consulted to check whether better alternatives exist.

The information in the correspondence table that is relevant to diagnosis should be tested and updated as necessary by verbal autopsy projects in conjunction with WHO. The diagnostic information may be included in questionnaires, algorithms or case descriptions, and it may be useful to those who assign a diagnosis or design new diagnostic tools. The inclusion of diagnostic information ensures that categories are used in the same fashion by all verbal autopsy projects. The information relevant to diagnosis usually is of no relevance to those who assign a code or select the underlying cause of death (that is, to coders).

Correspondence table: cause-of-death list for verbal autopsy with corresponding broad ICD-10 codes

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-01	Infectious and parasitic diseases			**Important differences from ICD-10** In ICD-10, meningitis is found in chapter I (Certain infectious and parasitic diseases) and in chapter VI (Diseases of the nervous system) depending on the underlying infection. Acute respiratory infections are assigned to chapter X (Diseases of the respiratory system). Some infectious diseases occur as a consequence of other infectious diseases. For relevant combinations there exist appropriate categories in ICD-10.
VA-01.01	Intestinal infectious diseases (including diarrhoeal diseases)	A029	Salmonella infection, unspecified	**Relevant information** Increased liquidity of stool for < 3 weeks Blood in stool Mucus in stool Fever Abdominal pain/tenesmus Weight loss Vomiting
		A039	Shigellosis, unspecified	
		A049	Bacterial intestinal infection, unspecified	
		A059	Bacterial foodborne intoxication, unspecified	
		A069	Amoebiasis, unspecified	
		A079	Protozoal intestinal disease, unspecified	
		A084	Viral intestinal infection, unspecified	
		A09	Diarrhoea and gastroenteritis of presumed infectious origin	
VA-01.02	Typhoid and Paratyphoid	A014	Paratyphoid fever, unspecified	Diseases in VA-01.02 may be easily confused with other diarrhoeal diseases" in VA-01.0. **Relevant information** Stools like "puréed peas"

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-01.03	Tuberculosis	A159	Respiratory tuberculosis, unspecified, confirmed bacteriologically and histologically	Chronic diseases frequently have similar features to some types of cancer; for example, lung cancer and pulmonary tuberculosis share most signs and symptoms. This increases the risk of misclassification during verbal autopsy for such cases.
		A169	Respiratory tuberculosis, unspecified, without mention of bacteriological or histological confirmation	
		A179	Tuberculosis of nervous system, unspecified	
		A189		
		A192	Acute miliary tuberculosis, unspecified	
		A199	Miliary tuberculosis, unspecified	
VA-01.04	Tetanus (excluding tetanus neonatorum)	A34	Obstetrical tetanus	Neonatal tetanus (tetanus of the newborn) is assigned to VA-10 The same group should be used for any other infection occurring in the newborn.
		A35	Other tetanus	
VA-01.05	Pertussis (whooping cough)	A379	Whooping cough, unspecified	
VA-01.06	Arthropod-borne viral fevers and viral haemorrhagic fevers	A90	Dengue fever (classical dengue)	
		A91	Dengue haemorrhagic fever	
		A929	Mosquito-borne viral fever, unspecified	
		A93	Other arthropod-borne viral fevers, NEC	
		A94	Unspecified arthropod-borne viral fevers	
		A95	Yellow fever, unspecified	
		A96	Arenaviral haemorrhagic fever, unspecified	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		A98	Other specified viral haemorrhagic fevers	
		A99	Unspecified viral haemorrhagic fever	
VA-01.07	Measles	B059	Measles	Measles NOS **Relevant information** Skin rash (maculopapular, starts on face and proceeds downward and outwards) required for diagnosis Fever, high-grade Cough Red, swollen eyes Not vaccinated against measles Photophobia
VA-01.08	Viral hepatitis	B159	Hepatitis A	The signs and symptoms of viral hepatitis are nonspecific; the clinical picture is extremely variable; and, unless fulminant disease develops, the illness is often asymptomatic until or unless sequelae occur. If interviewee mentions that the deceased had a partner with hepatitis B, it may help in reaching a diagnosis.
		B169	Acute hepatitis B	
		B179	Other specified acute hepatitis	
		B189	Chronic viral hepatitis, unspecified	
		B199	Unspecified viral hepatitis	
VA-01.09	HIV/AIDS	B209	HIV disease resulting in unspecified infectious or parasitic disease	HIV/AIDS may cause specific malignant tumours (for example, Kaposi sarcoma). In such cases it should be coded here and in ICD-10 using the appropriate category under B21.
		B219	HIV disease resulting in unspecified malignant neoplasm	
		B227	Human immunodeficiency virus [HIV] disease resulting in multiple diseases classified elsewhere	
		B238	Human immunodeficiency virus [HIV] disease resulting in other specified conditions	
		B24	Unspecified human immunodeficiency virus [HIV] disease	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-01.10	Malaria	B509	*Plasmodium falciparum* malaria, unspecified	**Relevant information** Fever, high grade Fever, on and off Unconsciousness Black urine Convulsions Low urine output Nausea Shaking or chills
		B50.0	Cerebral malaria	
		B519	*Plasmodium vivax* malaria	
		B529	*Plasmodium malariae* malaria	
		B538	Other parasitologically confirmed malaria	
		B54	Unspecified malaria	
VA-01.10	Leishmaniasis	B559	Leishmaniasis, unspecified	
VA-01.11	Meningitis	G009	Bacterial meningitis, unspecified	Other diseases of the brain can be found under VA-04.03 and VA-08. Several other infections may manifest with meningitis or encephalitis, but in these cases the mention of the infection is more specific than the mention of meningitis. For a detailed list of such diseases see the "dagger codes" (†) mentioned in ICD-10 under G02* and G05*. **Relevant information** Headache Stiff neck Neck pain Fever Vomiting Confusion Drowsiness No fall or injury to the head
		G039	Meningitis due to other and unspecified causes	
		G049	Encephalitis, myelitis and encephalomyelitis, unspecified	
VA-01.12	Influenza	J09	Influenza due to identified avian influenza virus	
		J109	Influenza due to other identified influenza virus	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		J119	Influenza, virus not identified	
VA-01.13	Acute lower respiratory infections (including pneumonia and acute bronchitis)	J129	Viral pneumonia, unspecified	Other respiratory infections are mentioned under VA-05.02. **Relevant information** Cough for < 3 weeks Fever Dyspnoea < 3 weeks Increased sputum production < 3 weeks Purulent sputum < 3 weeks Chest pain Oedema
		J159	Bacterial pneumonia, unspecified	
		J180	Bronchopneumonia, unspecified	
		J181	Lobar pneumonia, unspecified	
		J182	Hypostatic pneumonia, unspecified	
		J189	Pneumonia, unspecified	
VA-01.98	Other specified infectious and parasitic diseases	B889	Infestation, unspecified	
VA-01.99	Infectious diseases, unspecified	B99	Other and unspecified infectious diseases	
VA-02	Neoplasms			
VA-02.01	Malignant neoplasm of lip, oral cavity and pharynx	C002	Malignant neoplasm: external lip, unspecified	The specific aspects to take into account when coding neoplasms are: • the site of the tumour • the behaviour of the tumour. A table of neoplasms is included in volume 3 of ICD-10. It contains the codes for each anatomical site of tumour. For each site, there are five possible code numbers divided according to the behaviour of the tumour. If the diagnosis you are coding does not allow the behaviour of the tumour to be described, you should look up the morphology description. It will provide guidance as to how the tumour should be coded (for example, "Mesonephroma - see Neoplasm,
		C005	Malignant neoplasm: lip, unspecified, inner aspect	
		C009	Malignant neoplasm: lip, unspecified	
		C029	Malignant neoplasm: tongue, unspecified	
		C039	Malignant neoplasm: gum, unspecified	
		C049	Malignant neoplasm: floor of mouth, unspecified	
		C059	Malignant neoplasm: palate, unspecified	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		C069	Malignant neoplasm: mouth, unspecified	malignant"). You would therefore use the code for malignant primary tumour or malignant secondary tumour, depending on the diagnosis. During verbal autopsy, information about morphology is unlikely to be available. In this case you must assign the code for "uncertain or unknown" behaviour for the specified site. If you know the tumour was malignant and you cannot establish a site, use code C80. If you know neither the behaviour nor the site then code D48.9, "Neoplasm of uncertain or unknown behaviour, unspecified". Some tumours may look like congenital malformations. Some typical signs of tumours are: growth or change in the appearance of the tumour and weight loss. HIV/AIDS can cause specific malignant tumours, (for example, Kaposi sarcoma). In such a case it should be coded to VA-1.8 and in ICD-10 to the appropriate category under B21.
		C089	Malignant neoplasm: major salivary gland, unspecified	
		C099	Malignant neoplasm: tonsil, unspecified	
		C109	Malignant neoplasm: oropharynx, unspecified	
		C119	Malignant neoplasm: nasopharynx, unspecified	
		C139	Malignant neoplasm: hypopharynx, unspecified	
		C140	Malignant neoplasm: pharynx, unspecified	
VA-02.02	Malignant neoplasm of oesophagus	C159	Malignant neoplasm: oesophagus, unspecified	**Relevant information** Difficulty swallowing solid food Weight loss Hoarseness Fatigue
VA-02.03	Malignant neoplasm of stomach	C165	Malignant neoplasm: lesser curvature of stomach, unspecified	**Relevant information** Mass in upper abdomen

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				Pain in upper abdomen > 3 weeks Weight loss Vomiting after eating > 3 weeks Early satiety Fatigue
		C166	Malignant neoplasm: greater curvature of stomach, unspecified	
		C169	Malignant neoplasm: stomach, unspecified	
VA-02.04	Malignant neoplasm of small and large intestine	C179	Malignant neoplasm: small intestine, unspecified	**Relevant information** Mass in abdomen Difficulty passing stool > 3 weeks Changes in bowel habits Increased liquidity (or frequency > 3 times a day) of stool for > 3 weeks alternates with constipation Black tarry stools Red blood in stool Weight loss Abdominal pain (colicky) Paleness Fatigue
		C189	Malignant neoplasm: colon, unspecified	
VA-02.05	Malignant neoplasm of rectum and anus	C19	Malignant neoplasm of rectosigmoid junction	
		C20	Malignant neoplasm of rectum	
		C210	Malignant neoplasm: anus, unspecified	**Relevant information** Persistent anal ulceration Anal mass Anal pain Difficulty passing stool > 3 weeks Weight loss

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-02.06	Malignant neoplasm of liver and hepatic duct	C229	Malignant neoplasm: liver, unspecified	**Relevant information** Mass in abdomen (upper abdomen) Mass in abdomen growing quickly (upper abdomen) Abdominal pain (left quadrant), severe, permanent Ascites Weight loss Fatigue Yellow eyes Yellow skin Itchy skin Pain (right upper abdomen, radiating to the back)
VA-02.07	Malignant neoplasm of trachea, bronchus and lung	C33 C349	Malignant neoplasm of trachea Malignant neoplasm: bronchus or lung, unspecified	Tumours coded under VA 02.07 may cause symptoms similar to infections in this part of the body. The duration of cough may allow interviewer to distinguish between infection and tumour. **Relevant information** Cough > 4 weeks Dyspnoea > 4 weeks Weight loss Blood in sputum Chest pain History of cigarette smoking Hoarseness Difficulty opening one eye Swelling of head and neck Headache Fatigue
VA-02.08	Malignant neoplasm of breast	C509	Malignant neoplasm of breast, unspecified	**Relevant information** Breast mass Ulceration of breast skin > 3 weeks Ulceration of nipple > 3 weeks Red, painful breast skin > 3 weeks

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				Weight loss New retraction of nipple Discharge from nipple Fatigue
VA-02.09	Malignant neoplasm of cervix	C539	Malignant neoplasm of cervix uteri, unspecified	**Relevant information** Irregular vaginal bleeding Mass in lower abdomen Vaginal discharge > 3 weeks (bloody/purulent/nonpruritic) Pain in lower abdomen Weight loss Early onset of sexual activity Multiple sexual partners Fatigue Low urine output Back pain (severe)
VA-02.10	Malignant neoplasm of uterus (excluding cervix)	C55	Malignant neoplasm of uterus, part unspecified	**Relevant information** Irregular vaginal bleeding Vaginal bleeding in postmenopausal woman Mass in lower abdomen Pain in lower abdomen Weight loss Age > 45 years Has not had children Fatigue
VA-02.11	Malignant neoplasm of ovaries	C56	Malignant neoplasm of ovary	**Relevant information** Mass in lower abdomen Unilateral mass in lower abdomen Ascites (water in abdomen, increasing abdominal circumference) Pain in lower abdomen Weight loss Pelvic pressure Old age

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-02.12	Malignant neoplasm of prostate	C61		
VA-02.13	Malignant melanoma of skin	C43		
VA-2.14	Malignant neoplasm of lymphoid, haematopoietic and related tissue	C96.9	Malignant neoplasm of lymphoid, haematopoietic and related tissue	
VA-02.98	Other specified neoplasms		No such category exists in ICD	Select the appropriate code with the aid of the ICD index.
VA-02.99	Neoplasm of uncertain or unknown behaviour, unspecified	D489	Neoplasm of uncertain or unknown behaviour, of other and unspecified sites	
VA-03	Nutritional and endocrine disorders			Endocrine disorders comprise several very different diseases each of which has specific factors. The diseases of major public health importance are listed in specific categories of the VA mortality classification system (for example, diabetes mellitus). Several other endocrine diseases may be classified under "other specified endocrine diseases".
VA-03.01	Nutritional anaemia	D509 D519 D529 D539	Iron deficiency anaemia, unspecified Vitamin B12 deficiency anaemia, unspecified Folate deficiency anaemia, unspecified Nutritional anaemia, unspecified	**Relevant information** Pale skin Pale sclerae Pale palms Exertional dyspnoea Dizziness Palpitations Tires easily
VA-03.02	Severe malnutrition	E40 E41 E42	Kwashiorkor Nutritional marasmus Marasmic kwashiorkor	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		E43	Unspecified severe protein-energy malnutrition	**Relevant information** Decreased food intake Breastfeeding stopped Ascites Reddish hair Swollen legs Skin flakes off Very thin Very small Difficult to feed
VA-03.03	Diabetes mellitus	E10 E11 E12 E13 E14	Insulin-dependent diabetes mellitus Non-insulin-dependent diabetes mellitus Malnutrition-related diabetes mellitus Other specified diabetes mellitus Unspecified diabetes mellitus	In ICD-10, the block on diabetes mellitus (E10-E14) uses insulin-dependent diabetes mellitus and non-insulin-dependent diabetes mellitus as preferred terminology. With progress in medical science the usage of the terms has changed. Type 1 diabetes is equivalent to insulin-dependent diabetes mellitus, and type 2 is equivalent to non-insulin-dependent diabetes mellitus. Complications of the diabetes are identified at the fourth character level.
VA-03.98	Other specified endocrine disorders	E348	Other specified endocrine disorders	Other diseases of metabolism are assigned to VA-98, except for pregnancy-related (VA-09.-) or disorders n the newborn (VA-10.-). Other endocrine disorders are specified in ICD-10 in the block E20-E35.
VA-03.99	Endocrine disorders, unspecified	E349	Endocrine disorder, unspecified	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-04	Diseases of the circulatory system			This group covers the organs and systems involved in the circulation of blood and lymph, but not the blood itself. Anaemia is covered in Group VA-3; most of the diseases of the blood are assigned to VA-98. Tumours of the blood are assigned to VA-2.-
VA-04.01	Hypertensive diseases	I10	Hypertensive heart and renal disease, unspecified	Note: hypertension related to pregnancy is coded under VA-09.02. **Relevant information** Dyspnoea > 4 weeks (difficulty breathing) Difficulty breathing in recumbent position Noisy breathing Swollen ankles or legs Neck vein distension Ascites Cough Increased passing of urine at night Exercise intolerance
		I11.9	Hypertensive heart disease NOS	
		I12.9	Hypertensive renal disease NOS	
		I13.9	Hypertensive heart and renal disease, unspecified	
		I15.9	Secondary hypertension, unspecified	
VA-04.02	Ischaemic heart disease	I209	Angina pectoris, unspecified	VA-04.02 (or I209 in ICD-10) applies to life-threatening forms of angina pectoris.
		I219	Acute myocardial infarction, unspecified	
		I249	Acute ischaemic heart disease, unspecified	
		I259	Chronic ischaemic heart disease, unspecified	
VA-04.03	Cerebrovascular disease	I679	Cerebrovascular disease, unspecified	Other diseases of the brain are assigned to VA-08.02. **Relevant information** Suddenly unable to move arm and/or leg on one side Sudden weakness of arm and/or leg on one side Sudden sensory changes Sudden face palsy on one side Confusion
		I607	Subarachnoid haemorrhage from intracranial artery, unspecified	
		I609	Subarachnoid haemorrhage, unspecified	
		I612	Intracerebral haemorrhage in hemisphere, unspecified	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		I619	Intracerebral haemorrhage, unspecified	Headache Sudden loss of speech Loss of consciousness Age > 45 years Has hypertension Is a smoker Weight loss No head injury (except subdural haematoma)
		I629	Intracranial haemorrhage (nontraumatic), unspecified	
		I639	Cerebral infarction, unspecified	
		I698	Sequelae of other and unspecified cerebrovascular diseases	
VA-04.04	Chronic rheumatic heart diseases	I059	Mitral valve disease, unspecified	Congenital heart valve disease codes are found in VA-98 and ICD-10 chapter XVII (Congenital malformations, deformations and chromosomal abnormalities). Codes for rheumatoid heart disease are found in VA-98 and ICD-10 category M053.
		I069	Rheumatic aortic valve disease, unspecified	
		I079	Tricuspid valve disease, unspecified	
		I089	Multiple valve disease, unspecified	
		I099	Rheumatic heart disease, unspecified	
VA-04.05	Congestive heart failure	I500	Congestive heart failure	"Heart failure" should be used only if there is strong evidence that problems with the heart were the cause of death. If this is not the case, prefer VA-99.
VA-04.98	Other specified diseases of circulatory system		Select the appropriate category from ICD	"Cardiac arrest" should be used only if there is strong evidence that problems with the heart were the cause of death. If this is not the case, prefer VA-99. Every effort should be made to identify the reason for cardiac arrest. It is important to note that any condition that causes death ultimately causes cardiac arrest. Its mention in statistical reports is of little help in deciding on measures to improve health. You would also use this category to code diseases of the blood vessels. Note that dracunculiasis (guinea-worm disease) should be coded under infectious diseases.

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-04.99	Diseases of circulatory system, unspecified	I99	Other and unspecified disorders of circulatory system	
VA-05	Respiratory disorders			This group addresses diseases and disorders of the respiratory organs and some external agents, such as those that arise from occupational exposure.
VA-05.01	Chronic obstructive lung disease	J40 J41 J42 J439 J441 J449 J47	Bronchitis, not specified as acute or chronic Simple and mucopurulent chronic bronchitis Unspecified chronic bronchitis Emphysema, unspecified Chronic obstructive pulmonary disease with acute exacerbation, unspecified Chronic obstructive pulmonary disease, unspecified Bronchiectasis	Relevant information Dyspnoea > 21 days Cough most times of the year for > 2 years Sputum Smoking Noisy breathing Increase in chest size Disease slowly progressing Weight loss Blue tinge to skin
VA-05.02	Asthma	J45.9 J46	Asthma, unspecified Status asthmaticus	
VA.05.03	Other specified diseases of the respiratory system	J988	Other specified respiratory disorders Assign more specific codes when more information is available.	Respiratory infections are excluded from this group. They are mentioned in VA-1. In ICD-10 some respiratory infections, such as pneumonia, are part of chapter X (Diseases of the respiratory system). Pneumonia has been grouped in VA-01.02. Tumours of the respiratory tract are assigned to group VA-2.-

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-05.98	Respiratory failure, not elsewhere classified	J969	Respiratory failure, unspecified	Every effort should be made to identify the reason for respiratory failure. Any condition that causes death ultimately causes respiratory failure. Asphyxia of the newborn is grouped in VA-10.05. This should not be confused with ICD-10 code R99 (ill-defined causes of death including, for example, respiratory arrest) or VA-99.
VA-05.99	Respiratory disorder, unspecified	J989	Respiratory disorder, unspecified	
VA-06	Gastrointestinal disorders			The intestinal tract starts with the teeth and ends with the anus. For this reason, in addition to diseases of the teeth and mouth, those directly relating to the stomach, the gut and the liver are mentioned here.
VA-06.01	Gastric and duodenal ulcer	K259 K269 K279	Gastric ulcer, unspecified as acute or chronic, without haemorrhage or perforation Duodenal ulcer, unspecified as acute or chronic, without haemorrhage or perforation Peptic ulcer, unspecified as acute or chronic, without haemorrhage or perforation	**Relevant information** Pain in epigastrium (stomach) Vomiting blood Vomiting coffee-ground material Black tarry stools Possible weight loss No mass palpable No ascites No increased bleeding from small wounds
VA-06.02	Chronic liver disease	K721 K739 K746 K769	Chronic hepatic failure Chronic hepatitis, unspecified Other and unspecified cirrhosis of liver Liver disease, unspecified	A liver disease likely to be caused by infectious hepatitis should be coded to VA-1.7. In ICD-10 the code for chronic viral hepatitis is B18. The notion of unspecified chronic liver disease cannot be described within ICD-10. Accordingly, all unclear cases should be coded to K76.9 (liver disease,

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				unspecified) if the symptoms allow the liver to be assessed as the cause.
VA-06.03	Paralytic ileus and intestinal obstruction **without hernia**	K566 K567	Other and unspecified intestinal obstruction Ileus, unspecified	**Relevant information** Abdominal pain (severe, cramping, periumbilical) Vomiting (severe) Vomiting faeces Distended, hard abdomen Not passing any stool
VA-06.04	Peritonitis	K65		Not to be confused with “abdominal pain”.
VA-06.05	Hernias	K409 K419 K429 K439 K449 K45.- K469	Inguinal hernia (unilateral) NOS Femoral hernia (unilateral) NOS Umbilical hernia NOS Ventral hernia NOS Diaphragmatic hernia NOS Other abdominal hernia Abdominal hernia NOS	If there is information about gangrene or obstruction, select a more specific code from ICD-10, such as K40.4 (unilateral or unspecified inguinal hernia, with gangrene).
VA-06.06	Acute abdomen	R10.0	Acute abdomen	**Relevant information** Abdominal pain (severe) Hard abdomen Nausea Vomiting No diarrhoea
VA-06.98	Other diseases of intestine	K63.8	Other specified diseases of intestine Assign more specific codes when more information is available.	Any other diseases relating to teeth, oesophagus, stomach, gut, liver, biliary system and pancreas must be coded here.
VA-06.99	Disease of intestine, unspecified	K639	Disease of intestine, unspecified	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-07	Renal disorders			This group includes only diseases of the kidneys. Urinary infections and other diseases of the urinary tract are assigned to VA-98. Tumours of the kidney should be assigned to VA-2.-.
VA-07.01	Renal failure	N19 N179 N189	Unspecified renal failure Acute renal failure, unspecified Chronic renal failure, unspecified	Most disorders of the kidneys and the urinary tract are not characterized by a specific clinical picture; this increases the chance of misclassification occurring within the group of renal diseases as well as among other disease categories. Nephrolithiasis is listed because it has distinct clinical features and is likely to be diagnosed during verbal autopsy.
VA-07.98	Other specified renal disorders	N288	Other disorder of kidney and ureter Assign more specific codes when more information is available.	
VA-07.99	Disorders of kidney and ureter, unspecified	N289	Disorder of kidney and ureter, unspecified	
VA-08	Mental and nervous system disorders			
VA-08.01	Alzheimer disease	G30.9	Alzheimer disease, unspecified	
VA-08.02	Epilepsy	G406 G407 G409 G419	Grand mal seizures, unspecified (with or without petit mal) Petit mal, unspecified, without grand mal seizures Epilepsy, unspecified Status epilepticus, unspecified	**Relevant information** Convulsions and/or fits Loss of consciousness, with falling No fever No stiff neck No recent head injury
VA-08.96	Other specified disorders of the nervous system	G549 G589	Nerve root and plexus disorder, unspecified Mononeuropathy, unspecified	If there is more information available use the more specific codes of ICD-10.

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		G909	Disorder of autonomic nervous system, unspecified	Diseases arising from the blood vessels of the brain are assigned to VA-04.03. Some diseases of the muscles are coded here (G70–G73); myositis should be coded to VA-12. Meningitis is a disorder of the nervous system usually caused by an infection. For this reason it has been placed in the VA group for infectious diseases. In ICD-10 meningitis can be found in chapter I (Certain infectious and parasitic diseases) and in chapter VI (Diseases of the nervous system) depending on the underlying infection.
		G939	Disorder of brain, unspecified	
		G959	Disease of spinal cord, unspecified	
		G969	Disorder of central nervous system, unspecified	
VA-08.97	Nervous system disorders, not otherwise classified	G98	Other disorders of nervous system, not elsewhere classified	
VA-08.98	Specified mental disorders	F00 - F98	No single code for "other specified mental disorder" exists in ICD-10. The appropriate code must be selected from the categories mentioned in the right-hand column.	Mental disorders cannot generally be assessed using diagnostic criteria during verbal autopsy. However if the deceased was treated for a mental disorder in hospital, then it may be possible to retrieve a diagnosis from medical records. In these cases select the appropriate code in ICD-10 and assign the VA code. The relevant ICD-10 codes are listed below. F00–F09 Organic, including symptomatic, mental disorders F10–F19 Mental and behavioural disorders due to psychoactive substance use F20–F29 Schizophrenia, schizotypal and delusional disorders F30–F39 Mood [affective] disorders F40–F48 Neurotic, stress-related and somatoform disorders F50–F59 Behavioural syndromes associated with physiological disturbances and physical factors

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				F60–F69 Disorders of adult personality and behaviour F70–F79 Mental retardation F80–F89 Disorders of psychological development F90–F98 Behavioural and emotional disorders with onset usually occurring in childhood and adolescence
VA-08.99	Mental disorders, unspecified	F99	Mental disorder, not otherwise specified	Specified mental disorders can be coded under VA-12.
VA-09	Pregnancy-, child-birth and puerperium-related disorders		**Remember it is the mother's record you are coding.**	These codes should be used for the mother. There is a separate group for the newborn (VA-10). Some infectious diseases must be coded to VA-1.-. **When coding, remember the definitions for maternal deaths in this manual.**
VA-09.01	Ectopic pregnancy	O009	Ectopic pregnancy, unspecified	
VA-09.02	Spontaneous abortion	O019	Hydatidiform mole, unspecified	ICD-10 coders should be very careful in distinguishing the letter "O" from the number "0" in this chapter. Before beginning coding, refer to the last pages of volume 1 in ICD-10 for definitions related to obstetric deaths. Throughout this chapter in ICD-10 there are quite a few notes, some of which refer either to morbidity or mortality guidelines in volume 2. Make sure you read these before assigning a code from this chapter. Maternal conditions assigned to the ICD-10 categories O96–O99 are not included in this VA group. They are grouped under VA-12.
		O029	Abnormal product of conception, unspecified	
		O033	Spontaneous abortion, incomplete, with other and unspecified complications	
		O038	Spontaneous abortion, complete or unspecified, with other and unspecified complications	
VA-09.03	Medical abortion	O043	Medical abortion, incomplete, with other and unspecified complications	
		O048	Medical abortion, complete or unspecified, with other and unspecified complications	
VA-09.04	Other and unspecified abortion	O053	Other abortion, incomplete, with other and unspecified complications	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		O058	Other abortion, complete or unspecified, with other and unspecified complications	
		O063	Unspecified abortion, incomplete, with other and unspecified complications	
		O069	Unspecified abortion, complete or unspecified, without complication	
		O079	Other and unspecified failed attempted abortion, without complication	
VA-09.05	Hypertensive disorders of pregnancy	O16	Unspecified maternal hypertension	**Relevant information** Pregnant > 5 months Delivery < 6 weeks ago Swollen upper extremity and/or face Convulsions Visual disturbances Hypertension First birth Gastric pain Headache No fever
		O109	Unspecified pre-existing hypertension complicating pregnancy, childbirth and the puerperium	
		O11	Pre-existing hypertensive disorder with superimposed proteinuria	
		O12	Gestational [pregnancy-induced] oedema and proteinuria without hypertension	
		O13	Gestational [pregnancy-induced] hypertension without significant proteinuria	
		O149	Gestational [pregnancy-induced] hypertension with significant proteinuria	
		O159	Eclampsia, unspecified as to time period	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-09.06	Antepartum haemorrhage	O441 O459 O469	Placenta praevia with haemorrhage Premature separation of placenta, unspecified Antepartum haemorrhage, not elsewhere classified	**Relevant information** Labour pain Pregnancy > 8 months Severe vaginal bleeding shortly before delivery
VA-09.07	Postpartum haemorrhage	O709 O719 O72.-	Perineal laceration during delivery, unspecified Obstetric trauma, unspecified Postpartum hemorrhage	**Relevant information** Delivery < 3 days ago Pregnancy > 8 months Severe vaginal bleeding Be careful in tabulations: the notion of postpartum haemorrhage in VA is much broader than in ICD-10.
VA-09.08	Intrapartum haemorrhage	O679	Intrapartum haemorrhage, unspecified	
VA-09.09	Obstructed labour	O649 O654 O659 O664 O665 O669	Obstructed labour due to malposition and malpresentation, unspecified Obstructed labour due to fetopelvic disproportion, unspecified Obstructed labour due to maternal pelvic abnormality, unspecified Failed trial of labour, unspecified Failed application of vacuum extractor and forceps, unspecified Obstructed labour, unspecified	**Relevant information** The woman died during labour and was undelivered. Length of labour > 24 hours This diagnosis is more likely after delivery of stillborn fetus.
VA-09.10	Puerperal sepsis	O85 O868	Puerperal sepsis Other specified puerperal infections	**Relevant information** Vaginal delivery > 1 day ago Caesarean section > 1 day ago High fever
VA-09.98	Other specified direct maternal causes		Select the appropriate category from ICD-10.	This category includes several conditions that occur during pregnancy but normally are coded to other chapters, such as diabetes mellitus, and some infections

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				and conditions of the mother that are caused by the fetus. Please refer to the definition of "direct maternal causes" earlier in this manual.
VA-09.99	Other direct maternal causes, unspecified	O95	Obstetric death of unspecified cause	Refer to mortality rules and guidelines in volume 2 of ICD-10 if you want to assign this code.
VA-10	Perinatal causes of death		**Remember it is the baby's record you are coding.**	These codes are to be used for the newborn. There is a separate group for the mother (VA-9). **When coding, remember the definitions for perinatal causes in this manual.**
VA-10.01	Tetanus neonatorum	A33	Tetanus neonatorum	**Relevant information** Baby able to suck normally in the first 2 days of life Stopped sucking Not able to open mouth Had convulsions or spasms Had back arching
VA-10.02	Prematurity (including respiratory distress)	P010 P011 P07 P22–P25	Fetus and newborn affected by incompetent cervix Fetus and newborn affected by premature rupture of membranes Disorders related to short gestation and low birth weight, not elsewhere classified Respiratory distress of newborn and more specific conditions	**Relevant information** Pregnancy lasted < 8 months Baby very small at birth Dry, peeling skin and loss of subcutaneous tissue Difficulty breathing started on the first day of life Not able to feed since birth Maternal disease present (pre-eclampsia or eclampsia, diabetes mellitus, other severe medical problem) Mother had antepartum haemorrhage

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		P529	Intracranial (nontraumatic) haemorrhage of fetus and newborn, unspecified	
		P590	Neonatal jaundice, unspecified	
		P612	Anaemia of prematurity	
		P77	Necrotizing enterocolitis of fetus and newborn	
VA-10.03	Low birth weight	P059	Slow fetal growth, unspecified	
VA-10.04	Birth trauma	P109	Unspecified intracranial laceration and haemorrhage due to birth injury	
		P119	Birth injury to central nervous system, unspecified	
		P129	Birth injury to scalp, unspecified	
		P139	Birth injury to skeleton, unspecified	
		P149	Birth injury to peripheral nervous system, unspecified	
		P159	Birth injury, unspecified	
VA-10.05	Birth asphyxia and perinatal respiratory disorders	P021 P024 P026 P029	Fetus and newborn affected by complications of placenta, cord and membranes	**Relevant information** Not able to cry or breathe at birth Needed assistance to breathe Aged < 7 days at death Not able to suck since birth No fever If death occurred after first day of life, had some of the following symptoms: convulsions, irritability, stiff limbs, lethargy or unresponsiveness Mother had antepartum haemorrhage Obstetric complications (intrapartum haemorrhage, obstructed labour, malpresentation)
		P039	Fetus and newborn affected by complication of labour and delivery, unspecified	
		P209	Intrauterine hypoxia, unspecified	
		P219	Birth asphyxia, unspecified	
		P249	Neonatal aspiration syndrome, unspecified	
		P509	Fetal blood loss, unspecified	
		P90	Convulsions of newborn	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		P919	Disturbance of cerebral status of newborn, unspecified	
VA-10.06	Neonatal Pneumonia	P239	Congenital pneumonia, unspecified	
VA-10.07	Congenital viral diseases	P359	Congenital viral disease, unspecified	
VA-10.08	Bacterial sepsis of newborn	P369	Bacterial sepsis of newborn, unspecified	**Relevant information** Age at onset of symptoms > 1 day Fast breathing, chest indrawing or grunting lasting at least 1 day before death Fever Body cold to touch Lethargic or unresponsive Stopped sucking Pus discharge from umbilicus Skin rash with pus Convulsions Mother had fever and/or diarrhoea during labour
VA-10.09	Congenital malformations of the nervous system	Q00 Q019 Q02 Q039 Q049 Q059 Q069 Q079	Anencephaly and similar malformations Encephalocele, unspecified Microcephaly Congenital hydrocephalus, unspecified Congenital malformation of brain, unspecified Spina bifida, unspecified Congenital malformation of spinal cord, unspecified Congenital malformation of nervous system, unspecified	**Relevant information** Visible major congenital malformation of head or spine, such as head not formed, head very small or very large, defect or mass at the back of head or spine Other major congenital defects: no anus, major limb defects, abdominal or thoracic defects
VA-10.10	Congenital malformation, other and unspecified	Q899 Q999	Congenital malformation, unspecified	Several chromosomal anomalies show up as malformations. During verbal autopsy an underlying chromosomal anomaly would not normally be

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
			Chromosomal abnormality, unspecified Select a more specific code when more information exists	revealed; instead the manifestation would be coded – that is, the malformation.
VA-10.97	Stillbirths	P95	Fetal death of unspecified cause Deadborn fetus NOS Stillbirth NOS	Ensure that the death was not the result of sudden infant death syndrome (VA10.12) or did not follow any other type of live birth. **Relevant information** Never breathed, cried or moved (even a little) after birth Stillbirth was fresh or macerated Congenital malformations present Maternal disease present (pre-eclampsia or eclampsia, diabetes mellitus, other severe medical problem) Mother had antepartum haemorrhage Obstetric complications present (intrapartum haemorrhage, obstructed labour, malpresentation)
VA-10.98	Other specified disorders related to perinatal period	P022	Fetus and newborn affected by other and unspecified morphological and functional abnormalities of placenta Select a more specific code when more information exists.	
VA-10.99	Other diseases related to the perinatal period, unspecified	P969	Condition originating in the perinatal period, unspecified	
VA-11	External causes of death			External causes not appearing in this group should be coded to VA-12.
VA-11.01	Pedestrian injured in traffic accident	V09	Pedestrian injured in other and unspecified transport accident	Consult V01-V08 for more detailed codes.
VA-11.02	Other transport accident	V19	Pedal cyclist injured in other and unspecified transport accident	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		V29	Motorcycle rider injured in other and unspecified transport accident	Possible codes in ICD-10 are V10-V99. Injuries should be recorded wherever possible and tabulated together with external causes. In these cases, take care to report the external cause and injury in separate fields in order to avoid counting deaths twice. Codes from ICD-10 chapter XIX (Injury, poisoning and certain other consequences of external causes) should not be used for tabulating single underlying cause of death. The cause of the injury has priority. Conditions mentioned in chapters I-XVIII as being due to external causes take priority over the external cause.
		V39	Occupant of three-wheeled motor vehicle injured in other and unspecified transport accident	
		V49	Car occupant injured in other and unspecified transport accident	
		V59	Occupant of pick-up truck or van injured in other and unspecified transport accident	
		V69	Occupant of heavy transport vehicle injured in other and unspecified transport accident	
		V79	Bus occupant injured in other and unspecified transport accident	
		V80	Rider or occupant injured in transport accident	
		V90	Accident to watercraft causing drowning and submersion	
		V91	Accident to watercraft causing other injury	
		V92	Water-transport-related drowning and submersion without accident to watercraft	
		V93	Accident on board watercraft without accident to watercraft, not causing drowning and submersion	
		V940	Other and unspecified water transport accident, merchant ship	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		V941	Other and unspecified water transport accident, passenger ship	
		V942	Other and unspecified water transport accident, fishing boat	
		V943	Other and unspecified water transport accident, other powered watercraft	
		V944	Other and unspecified water transport accident, sailboat	
		V945	Other and unspecified water transport accident, canoe or kayak	
		V946	Other and unspecified water transport accident, inflatable craft (nonpowered)	
		V947	Other and unspecified water transport accident, water-skis	
		V948	Other and unspecified water transport accident, other unpowered watercraft	
		V949	Other and unspecified water transport accident, unspecified watercraft	
		V95	Accident to powered aircraft injuring occupant	
		V99	Unspecified transport accident	
VA-11.03	Accidental fall	W19	Unspecified fall	Possible codes in ICD-10 are W00-W19.
VA-11.04	Accidental drowning and submersion	W74	Unspecified drowning and submersion	Possible codes in ICD-10 are W65-W74.
VA-11.05	Accidental exposure to smoke, fire and flames	X09	Exposure to unspecified smoke, fire and flames	Possible codes in ICD-10 are X00-X09.

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-11.06	Contact with venomous animals and plants	X29	Contact with unspecified venomous animal or plant	Possible codes in ICD-10 are X20-X29.
VA-11.07	Exposure to force of nature	X39	Exposure to other and unspecified forces of nature	Possible codes in ICD-10 are X30-X39.
VA-11.08	Accidental poisoning and exposure to noxious substance	X44	Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	Possible codes in ICD-10 are X40-X49.
		X49	Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances	
VA-11.09	Lack of food and/or water	X53	Lack of food	
		X54	Lack of water	
VA-11.10	Intentional self-harm	X64	Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	Possible codes in ICD-10 are X60-X84.
		X69	Intentional self-poisoning by and exposure to other and unspecified chemicals and noxious substances	
		X74	Intentional self-harm by other and unspecified firearm discharge	
		X84	Intentional self-harm by unspecified means	
VA-11.11	Assault	X90	Assault by unspecified chemical or noxious substance	Possible codes in ICD-10 are X85-Y09.
		X92	Assault by drowning and submersion	
		X95	Assault by other and unspecified firearm discharge	
		Y05	Sexual assault by bodily force	
		Y06	Neglect and abandonment	

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
		Y07 Y09	Other maltreatment syndromes Assault by unspecified means	
VA-11.12	Legal intervention	Y357	Legal intervention, means unspecified	
VA-11.13	War deaths	Y369	War operations, unspecified	
VA-11.97	Accident, unspecified	X599	Exposure to unspecified factor causing other and unspecified injury	
VA-11.98	Other specified event, undetermined intent	Y33	Other specified events, undetermined intent	
VA-11.99	Unspecified event, undetermined intent	Y34	Unspecified event, undetermined intent	
VA-12	Misadventure to patient during surgical and medical care	Y69	Unspecified misadventure during surgical and medical care	Possible codes in ICD-10 are Y60-Y69. This category excludes: breakdown or malfunctioning of medical device (during procedure) (after implantation) (ongoing use) (Y70-Y82); surgical and medical procedures as the cause of abnormal reaction of the patient, without mention of misadventure at the time of the procedure (Y83-Y84).
VA-13	Drugs, medicaments and biological substances causing adverse effects in therapeutic use	Y579 Y599	Drug or medicament, unspecified Vaccine or biological substance, unspecified	Possible codes in ICD-10 are Y40-Y59.

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
VA-98	Other specified causes of death		**This element of the verbal autopsy tool does not map to any single element of ICD-10**	This group covers all diseases that could not be assigned to another group or category in the verbal autopsy tool. Please note that ICD-10 codes starting with A or B are all assigned to VA-1; all ICD-10 codes starting with C are assigned to VA-2. **Diseases of the eye and its adnexa** A set of codes is provided by ICD-10 (H00-H59). H54 blindness and low vision is an important category, which has a table detailing impairment categories. **Diseases of the ear and mastoid process** A set of codes is provided by ICD-10 (H60-H95). H90 classifies conductive and sensorineural hearing loss by unilateral and bilateral impairment. **Diseases of the skin and subcutaneous tissue** In ICD-10 the chapter relating to diseases of the skin and subcutaneous tissue has many exclusions and inclusions. They are listed at the start of chapters, blocks and categories and usually apply to all the levels below the heading. Remember that exclusion notes identify elements or codes classified elsewhere. If you have to code a disease of the skin you should use ICD-10 to check whether it should be assigned to a specific verbal autopsy group rather than to VA-98. The preface of chapter XII (Diseases of the skin and subcutaneous tissue) provides a good overview. **Diseases and conditions relating to the spine, joint, muscles and connective tissue of the body including deformities acquired after birth**

Verbal autopsy code	Verbal autopsy title	ICD code	ICD title	Comments
				Deformities or congenital malformations must be coded to the group VA-10.- (Perinatal causes of death). The same applies to coding with ICD-10 chapter XII. **Urinary system and the male and female reproductive systems** For the purposes of verbal autopsy renal disorders must be coded to the group VA-7.-. **Obstetric deaths** The obstetric conditions assigned to ICD-10 categories O96-O99 are included here. Other maternal conditions are grouped under VA-9. Prior to beginning coding, refer to pages at the end of volume 1 of ICD-10 for definitions related to obstetric deaths. **Symptoms, signs and abnormal clinical and laboratory findings** ICD-10 chapter XVIII should not be used to code underlying causes of death. If a sign is the only thing reported as a result of a verbal autopsy interview, it should be coded. Nevertheless, some R-codes are used; These are usually R95 for sudden infant death syndrome (VA-10.12) and R99 for unspecified cause of death (VA-13).
VA-99	Unspecified causes of death	R99	Other ill-defined and unspecified causes of mortality	Use this code when the answers provided during the interview do not allow you to assign any specific cause of death or a symptom (VA-98). In this instance, do not leave the certificate blank: assign this code.

VA, verbal autopsy; NEC, not elsewhere classified; NOS, not otherwise specified; HIV, human immunodeficiency virus; AIDS, acquired immunodeficiency syndrome.