

Module 2

Mortality

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Mortality

INTRODUCTION

Mortality - together with malnutrition (see Module 8: Nutrition) - are considered the most specific indicators of the health status of a refugee population.

The requirements for gathering valid mortality data are common to all surveillance systems:

1. the population needs to be relatively stable
2. it must be possible to obtain accurate population estimates (denominator) and a good coverage of mortality data (numerator), and
3. the monitoring must be sufficiently long to get enough events in order to calculate meaningful rates.

In protracted refugee situations, where it is possible to reach a good coverage of both deaths and population (numerator and denominator) prospective surveillance systems are the best choice for monitoring mortality data. This provides up-to-date information on mortality trends and can trigger quick action in response to acute crises.

In acute emergencies or in large geographical areas (where populations move in/out) these requirements are usually not met and retrospective methods of collecting mortality data remain the only feasible option. Retrospective methods for estimating mortality are usually based on cross-sectional surveys (more commonly a nutrition study). A detailed discussion is beyond the scope of this manual which focuses upon routine mortality surveillance within the HIS.

The comprehensive reporting of deaths has two important purposes:

1. Public Health Status

Mortality data provides the most specific and useful health information for monitoring the health status of a population. The crude mortality rate (CMR) has traditionally been used to assess the health impact or the magnitude of a public health emergency. Careful attention should be made to ensure that under-reporting of deaths does not occur. This is particularly the case for deaths which occur outside the camp, and deaths among certain population groups in the community (e.g. neonatal deaths).

2. Population Data

The comprehensive reporting of deaths is the basis on which camp population figures are updated each week. Accurate reporting is vital to ensure that each camp's demographic statistics and trends are tracked reliably.



2.1 WHAT ARE THE TOOLS USED FOR DATA COLLECTION?

The data collection tools are shown in the box below, and are classified as follows:

Primary Tools

Primary data sources are essential to routine monitoring within the HIS and are prerequisite to the calculation of indicators. They form the basis of the guidance and training within this manual, and are described in detail in Illustrated Guides at the end of the module.

Secondary Tools

Secondary data sources have important functions within the HIS but are not directly used in indicator calculation. They play vital roles in informing clinical decision-making and promoting service quality and performance. They are described in information boxes in the supporting text.



> Data collection and monitoring tools

Mortality

Primary Tools

1. Mortality Register
2. Mortality Report

Secondary Tools

1. Death Notification
2. Case investigation Records
3. Line Listing
4. Community Records*
5. Referral Facility records

* exact sources will depend on the specific practices within in each country, and can include records of shroud distributors, cemetery staff, community health workers, religious leaders and women's groups.



2.2 WHO IS RESPONSIBLE FOR COLLECTING THE DATA?

Mortality data should be routinely collected from both health facilities and community sources. Responsibility for gathering and reporting this information is shared among a number of key informants including guardians of burial places, community leaders, and health staff within health facilities and referral hospitals.

A Mortality Register should be used to record all deaths within each camp. It should be maintained centrally by the Camp Registrar and a mechanism established to ensure triangulation of information from all reporting sources each day (see 2.3.3 Death Certificates). At the end of each week, the Registrar should review all contributing sources and ensure that deaths have been reported in full and on time.

The Camp Registrar is responsible for completing the Mortality Report each week and for submitting a line listing of case-based mortality data to the Health Coordinator. Depending on specific agency guidelines, certain deaths should be investigated and the cause of circumstances of the death detailed in a separate narrative report (see Country Considerations box).



2.3 WHAT DATA SHOULD BE COLLECTED AND HOW?

A priority for the HIS is to produce reliable information on death rates. These indicators are of crucial importance to managers of the operation and are also of great interest to the media, donors and health agencies.

It is essential that a complete record of all deaths within each camp is maintained centrally in a Mortality Register. This includes deaths in the community, in health facilities, and in referral centres outside the camp.

2.3.1 Mortality Register

> Registration

The mortality register records basic identifying information of the deceased, the time, date and location of the death. The ration card number should be entered to facilitate retrieval and updating of data records in the UNHCR proGres database.

Location should indicate the name of the health-facility or hospital where the death occurred, or the site within the community. All deaths should be reported in the weekly statistics of the camp of origin of the deceased.

> Cause of death

The direct (or immediate) cause of death should be stated, followed by any underlying causes. As a general rule, a single reason should be given as the direct cause of death and this may be “due to or as a consequence of” a sequence of (normally one or two) underlying conditions.



> Country Considerations

How is cause of death classified?

The cause of death should be clearly indicated in the mortality register, according to the following classification.

la	Direct cause of death
lb	Underlying cause of death
ll	significant conditions not related to primary cause of death (can be more than one)

An example:

Diagnosis	Duration
la Malnutrition	1 month
lb Watery Diarrhoea	7 days
ll Severe Dehydration	7 days
Diabetes	2 years

Note

It is recommended that a diagnosis of **HIV/AIDS** or **malnutrition** take precedence over other co-morbidity as the direct cause of death. Other associated conditions should be classified as an underlying causes of death.

For cases where death is associated with both HIV/AIDS and malnutrition, **HIV/AIDS** should take precedence as the direct cause of death.

A single cause of death should be selected from the “direct” or “underlying” column for reporting purposes. It is recommended that a diagnosis of **HIV/AIDS** or **malnutrition** take precedence over other co-morbidity as the reported cause of death. Other associated conditions should be classified as underlying causes of death. In circumstances where a death is associated with both HIV/AIDS and malnutrition, **HIV/AIDS** should take precedence as the reported cause of death.

Case definitions should be referred to at all times, to ensure consistent interpretation and reporting of information (for more details see Module 3: Morbidity).

2.3.2 Investigation of deaths

Depending on the requirements of each health agency, certain direct causes of death should prompt a more detailed investigation of the exact cause and circumstances surrounding the death. The investigation should be led by a multidisciplinary team comprised of health agency staff, UNHCR, government counterparts and community leaders. The outcome should be documented

in a narrative report, covering terms of reference that have been established in advance (see Country Considerations box).

Guidance on when to begin an investigation into a death, the team composition, methods of enquiry, and the procedure for producing a final report should be clearly stated by each agency. Depending on the cause of death under review, the investigation may also be linked with wider outbreak alert and response efforts (see Module 3 Part 2: Outbreak Alert and Response). The need to conduct a case investigation or issue an outbreak alert should be recorded in the Mortality register.

2.3.3 Death Notification

Death notification forms should be issued by the health agency for every death reported within the camp. This acts as both a legal record of death and as a means of triangulating data within the hospital and community mortality sources. No burial should take place without evidence of a death certificate that has been issued by the main camp hospital/dispensary. The unique death notification reference number should also be entered into the Mortality register. This will help to prevent under-reporting of deaths that occur in the community but might not otherwise be reported to a health agency.



2.4 HOW AND WHEN SHOULD THE DATA BE REPORTED?

At the end of each week, the Camp Registrar should report the number of deaths in the corresponding table in the Mortality Report.

The dates of the reporting weeks are shown in the Reporting Calendar. It is important that all staff are aware of these dates, and that copies the calendar are distributed to all locations.

2.4.1 Weekly Report

The Registrar is responsible for using the Mortality Register to complete the Mortality Report. Each entry should be carefully retrieved from the register, and appropriately disaggregated by age (< 5, ≥5), status (refugee or national) and cause of death. It is not possible to report an exhaustive list of cause-specific deaths in the HIS. Each country must identify the priority diseases and health events that present the most significant threat to the health of the refugee and host population. Based on this selection, a mortality list of core diseases and health events should be agreed upon.

The weekly reporting form allows up to six additional causes of death to be specified and written in 'free-cells' in the mortality list. Strong coordination is required between Health agencies to ensure that the same causes of death are monitored across different camps. This will help safeguard the consistency of information within each country operation. For guidance on which causes of mortality to select, see Module 3: Morbidity.



> Country Considerations

What is the procedure for investigating deaths?

It should be compulsory to undertake a case-investigation for certain deaths which occur within each camp (see List 1). Guidance on when to begin an investigation, team composition, the methods of enquiry, and the procedure for producing a final report should be clearly stated within each agency.

List 1. Causes of death recommended to be followed by prompt case investigation

> Maternal deaths*
> Violent deaths
> Cause of death unknown or uncertain
> Accidental death
> Doubtful stillbirth
> Deaths related to surgery or anaesthetic
> Deaths within 24 hours of admission to hospital

Investigating the cause of death can help to identify gaps in services and the need improve referral procedures for certain types of emergency. By reviewing cases, health care providers can strengthen their skills in identifying early warning signs of emergencies.

Points to be investigated include:

> time of onset of life-threatening illness;
> time of recognition of the problem and time of death;
> timeliness of actions;
> access to care, or logistics of referral; and
> quality of medical care until death.

The information may come from grave watchers, hospital/health post staff or from community reports. Verbal autopsy, which has been used in certain refugee situations, has proved relatively successful when medical records are unavailable.

* Note: Camp staff should investigate deaths due to pregnancy (direct maternal mortality) and deaths of pregnant women caused by the effects of pregnancy on pre-existing conditions (indirect maternal mortality). Both types of information are essential, since direct mortality is often underestimated. The goal is to determine which deaths were caused by pregnancy or childbirth, or by complications or the management thereof, and how deaths can be prevented in the future.

In addition to the tabulated information, a line listing of deaths should be appended to the weekly report. The line listing should include further case-based details obtained from the mortality register: including the name, sex, exact age and status (refugee or national) of the deceased, the direct and underlying causes of death, and other significant conditions of note. Where applicable, case investigation reports should be included with this weekly line listing.

An Illustrated Guide to the Weekly Mortality Report, and an explanation of how the information should be reported from daily sources, is given at the end of the module.

2.4.2 Monthly Report

At the end of each week the paper-based report forms can be directly entered into the computer. The database will then automatically combine these into a monthly report composed of 4 or 5 weekly reports, depending on the reporting calendar. More information on data management and is given in Part 3 of the manual.



2.5 HOW SHOULD THE DATA BE INTERPRETED AND USED?

The indicators for mortality are shown opposite. Each is classified according to the five core objectives of the HIS. A summary of each indicator, including formulae, units of expression, and the corresponding standard (where available) is given in the Standard and Indicator Guide.

It is essential that staff are familiar with how these indicators are calculated, and understand how they should be used to evaluate programme performance and to inform public health decision making. A group exercise on how to calculate and interpret the indicators, using sample data, is given on the CD-ROM which accompanies this manual.



> Indicator Summary

Mortality

Objective	Indicator	Source
2. Monitor trends in health status and continually address health care priorities	Crude Mortality Rate*	UNHCR
	Under Five Mortality Rate*	UNHCR
	Infant Mortality Rate*	UNHCR
	Neonatal Mortality Rate	UNHCR
	Maternal Mortality Rate**	UNHCR

* Disaggregated by sex

** Due to the instability of this indicator, MMR is only reviewed annually. However, systematic documentation and investigation of all maternal deaths should be undertaken on a routine basis.

> Illustrated Guide to Mortality Register

A

DEATH REGISTRATION								
Serial No.	Ration Card No.	Name	Age [†]	Sex (M / F)	Status (Ref / Nat)	Address	Date of death	Location Home / Hospital / Other (specify)

A

DEATH REGISTRATION:**Serial No.:**

> Enter sequence number in register

Ration Card No.:

> Enter ration number for the deceased

Name:

> Print name of deceased

Age:

> Enter age (in years) for children under five, ensure that age in years and months is entered accurately

Sex:

> Enter Male (M) / Female (F)

Status:

> Classify as Refugee (Ref) / National (Nat)

Address:

> Enter Camp Address (Refugee) / Nearest Village (National)

Date of death:

> Enter date (dd/mm/yy)

Location:

> Enter Home / Hospital / Other (Specify)

NOTES

For children under five, ensure that age in years and months is entered accurately

All deaths should be reported in the weekly statistics of the camp of origin of the deceased.

B

CLASSIFICATION OF DEATH:**Direct cause:**

> As a general rule, a single reason should be given as the direct cause of death

Underlying cause(s):

> The direct cause of death may be "due to or as a consequence of" a sequence of (normally one or two) underlying conditions

Reporting cause:

> A single cause of death should be selected from the "direct" or "underlying" column for reporting purposes (see notes below)

NOTES

It is recommended that a diagnosis of **HIV/AIDS** or **malnutrition** take precedence over other co-morbidity as the direct cause of death. Other associated conditions should be classified as an underlying causes of death.For cases where death is associated with both HIV/AIDS and malnutrition, **HIV/AIDS** should take precedence as the direct cause of death.

B CLASSIFICATION OF DEATH			C CASE FOLLOW-UP			
Direct cause of death*	Underlying cause(s) of death**	Reported cause of death***	Case investigation requested? (Y / N)	Outbreak Alert issued? (Y / N)	Death Notification issued? (Y / N)	→ If YES, enter reference number

C CASE FOLLOW-UP:

Case investigation requested?:

> Enter Yes (Y) / No (N)

Outbreak Alert issued?:

> Enter Yes (Y) / No (N)

Death Notification issued?:

> Enter Yes (Y) / No (N)

If YES (Y) enter reference number from Death Notification in end column.

NOTES

1. Case Investigation

Depending on the requirements of each health agency, certain primary causes of death should invoke a more detailed investigation of the exact cause and circumstances surrounding the death. Guidance on when to begin an investigation, the team composition, methods of enquiry, and the procedure for producing a final report should be clearly stated by each agency.

2. Outbreak Alert

Depending on the cause of death under review, the investigation may also be linked with wider outbreak alert and response efforts (see Module 3 Part 2: Outbreak Alert and Response). The need to conduct a case investigation or issue an outbreak alert should be recorded in the Mortality register

3. Death Notification

Death notification forms should be issued by the health agency for every death reported within the camp. This acts as both a legal record of death and as a means of triangulating data within the hospital and community mortality sources. No burial should take place without evidence of a death certificate that has been issued by the main camp hospital/ dispensary.

> Illustrated Guide to Mortality Report

Health Information System

Reporting Form

2.0 Mortality

A

Organisation: _____

Location: _____

Reporting period: _____

B

2.1 Mortality by Age

	Refugee			National	
	< 1	≥ 1 to < 5	≥ 5	< 5	≥ 5
Male					
Female					

2.2 Mortality by Cause

	Refugee				National	
	< 5		≥ 5		< 5	≥ 5
	Male	Female	Male	Female		
1. Malaria (confirmed)						
2. LRTI						
3. Watery diarrhoea						
4. Bloody diarrhoea						
5. Tuberculosis						
6. Measles						
7. Meningitis						
8. AIDS						
9. Maternal death						
10. Neonatal death						
11. Acute malnutrition						
12.						
13.						
14.						
15.						
16.						
17.						
18. Unknown						
19. Other						

2.3 Maternal Death Investigation

Number of maternal deaths reported	
Number of maternal deaths investigated	

A **HEADER:**

Organisation:

Print name of health partner

Location:

Print name of Camp and Reporting Unit

Reporting period:

Enter number of week and month (e.g. Week 1 March)

NOTES

The dates of the reporting weeks are shown in the Reporting Calendar. It is important for all staff to be aware of these dates, and for copies of the calendar to be distributed to all departments in each health facility.

The Health Manager is responsible for coordinating the complete and timely submission of all sections contributing to the weekly report.

B **MORTALITY:**

Complete Table 2.1 and 2.2 with the number of age and cause-specific deaths from the mortality register.

Complete Table 2.3 with the number of maternal deaths reported the number that were subsequently investigated.

NOTES

All deaths should be issued with death certificates.

Data in the mortality register should be cross-checked with other sources of mortality data (e.g. cemetery records, shroud distributions) to ensure consistent and full reporting.

Numbers 12 - 17 are 'free-cells' which permit additional causes of death to be added to the mortality list and monitored. These should be agreed upon close coordination with other health agencies to guarantee the consistency and comparability of information within each country operation.