

Selected further reading

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Annex 1

Techniques for surveys during rapid assessment

The use of informal household surveys for rapid health assessment

Although large household surveys are time-consuming exercises, smaller surveys can be carried out more quickly in emergencies. During the initial assessment of an emergency, limited surveys using non-probability sampling of affected populations may provide an estimate of the extent of damage and immediate health needs for guiding emergency decisions. However, the results of these surveys may be difficult to compare to those of subsequent, more statistically valid ones.

Larger, statistically valid household surveys are a valuable tool during later stages of the emergency, when there is more time available to refine the initial estimates, based on the rapid health assessment. Given the variety of situations in which rapid household surveys may be conducted, each one must be designed specifically. This annex does not provide assistance in deciding what information to collect, writing interview questions, choosing a representative sample, and analysing the resulting data, all of which require skilled personnel. It does give a broad overview of some issues involved in conducting surveys during rapid health assessment.

The process of selecting a sample

The purpose of conducting a survey is to describe key characteristics of the population under study, such as the proportion of houses damaged by an earthquake or the proportion of children vaccinated against measles. To derive an accurate estimate, the survey sample must be representative of the overall population. Therefore, if the affected population is very large or dispersed over a large area, the survey sample should be taken from as wide an area as is practical and not restricted to a small sub-area, which may not be typical of the population as a whole. Moreover, surveys should avoid sampling only the most accessible members of the affected population (e.g. those living along roads, near markets or in the centre of town).

The first step of any survey is to define the area under study. It is usually best to draw a rough map of the area that would include as much detail as possible about where people live, relative population concentrations, and major geographical features, such as roads and rivers. Use local informants to provide overall information about an area, as well as information on which areas are most and least affected. Investigators may wish to draw their sample from areas showing a wide

range of severity of impact. It is a good idea to ask different people their opinion. The next step is to decide how to select the sample and its size. This decision depends on a number of factors including:

- the size of the area under study;
- the number of investigators available;
- the amount of time available for the survey;
- the availability of transport;
- the distribution of the affected population (e.g. isolated households, villages, and camps); and
- the different circumstances facing people in various parts of the emergency-affected area.

The simplest and quickest survey can be done by choosing a sample of 50 households at random. Data collection in this survey may take two or three people only one afternoon or less to complete. More extensive surveys may be necessary, but will require more people and time to complete.

Cluster sampling is a technique developed to save on survey costs. It involves selecting random starting points and then subsequently choosing systematically. For example, in a rural area, 30 villages are chosen randomly from a list of all the villages in the affected area. Then in each village, a house is chosen at random and subsequent houses chosen by selecting the houses closest to that house. To select households spread over a larger area of the village, the team may choose to select every fifth or every tenth house until the required number of houses in that village is surveyed.

The number of households visited in each cluster depends on what is to be assessed. In the standard cluster survey used to assess vaccination levels, seven households are chosen in each cluster. Such a survey may require three to five teams of interviewers and take three days or more to complete. In some assessments, as many as 700 children must be found to estimate health parameters with the necessary degree of precision. Depending on the amount of travel needed, these surveys may require 10 or more teams and more than a week to complete. These large surveys may not be appropriate for rapid health assessment in sudden emergencies, such as natural emergencies or sudden population displacement, where information about the population is needed very quickly.

Annex 2

List of reference values for rapid health assessment in developing countries

1. General		
Cut-off values for emergency warning		More than
Health status		
• daily crude death rate		1/10 000 population
• daily under-5 death rate		2/10 000 children under 5
Nutrition status		
• acute malnutrition (weight-for-height < -2Z scores) in under-5s		10% of children under 5
• growth faltering rate in under-5s		30% of monitored children
• low weight at birth (less than 2.5 kg)		7% of live births
Standard structure of population		Average in the population
• 0-1 year		4%
• 0-5 years		18%
• fertile women		24%
• pregnant women		5%
• expected births		4.4 per 100 population per year
2. Vital needs		
Water	Indicator	Average requirement
• quantity	no. of litres/person/day	20 litres/person/day
• quality	no. of users/water point	200 people/water point
(1 cubic metre = 1 tonne = 1000 litres)		(not more than 100 metres from housing)
Food	kcal (MJ) content	Ration, kg/person/month
• cereals	350 (1.46)/100 g	10.5
• pulses	335 (1.40)/100 g	1.8
• oil	860 (3.59)/100 g	1.2
• sugar	400 (1.67)/100 g	1.2
kcal value of recommended ration, person/day		2100 kcal (8.79 MJ)
Total kg/person/month for feeding		14.7 kg

Sanitation		
Latrine, ideally one per family; minimum, one seat per 20 people (6–50 m from housing)		
Refuse disposal: one communal pit (2 m × 5 m × 2 m) per 500 people		
Household fuel		Average need
Firewood		15 kg/household/day
<i>Note:</i> with one economic stove per family, the needs may be reduced:		5 kg/stove/day
Space for accommodation		
• Individual requirements (shelter only)		4 m ² /person
• Collective requirements, including shelter, sanitation, services, community activities, warehousing and access		30 m ² /person
3. Health needs and care		
Prevalent health hazards		Expected attack rate in emergency situations
• Acute respiratory infections in children under 5		10%/month in cold weather
• Diarrhoeal diseases in children under 5 (other than dysentery and cholera)		50%/month
• Malaria, in total non-immune population		50%/month
Essential primary health care activities	Target	Optimal coverage of target
• under-5 clinic and growth monitoring	all children of 0–59 months	100% of under-5s per month
• antenatal clinic	all pregnancies	50% of pregnancies per month
• tetanus toxoid	all pregnancies	30% of pregnancies per month
• assisted deliveries	all deliveries	1/12 of total annual deliveries per month
• BCG	all new births	1/12 of total annual births per month
• DTP1–TT1	all children 0–1 year	1/12 of total group per month
• DTP2–TT2	all children 0–1 year	1/12 of total group per month
• DTP3	all children 0–1 year	1/12 of total group per month
• Measles	all children 9–12 months	1/12 of total group per month
• STD/HIV prevention (by condoms)	all sexually active males	12 condoms per man per month
Health personnel requirements		Output of one person/hour of work
Activity		
• vaccination		30 vaccinations
• under-5 clinic and growth monitoring		10 children
• antenatal clinic		6 women
• assisted delivery		1 delivery
• outpatient department consultation		6 consultations
• outpatient department treatment (dressings, etc)		6 treatments
<i>Note:</i> one person/day = 7 hours of field work		
Health workers emergency requirements (e.g. refugee camp) for vaccinations, growth monitoring, antenatal clinic, assisted delivery, outpatient department consultations and treatments, registry and clerical duties		60 staff × 10 000 population

Health supplies requirements	Needed
<i>Essential drugs and medical equipment</i>	
• The WHO emergency health kit	1 kit for 10 000 population/3 months
<i>Nutritional rehabilitation</i>	Needs of each under-5 patient
• oil	90 g/day
• milk	120 g/day
• sugar	70 g/day
<i>Safe drinking-water</i>	amount
a) to prepare 1 litre of stock solution 1%	use 1 litre of water, plus: 15 g calcium hypochlorite 70% or 33 g bleaching powder ^a 30% or 250 ml sodium hypochlorite 5% or 110 ml sodium hypochlorite 10%
b) to disinfect drinking-water with the stock solution:	use 0.6 ml or three drops of solution per litre of water; use 60 ml of solution per 100 litres of water.
(Note: allow the chlorinated water to stand at least 30 minutes before using)	
4. Needs for epidemic response	
• Cholera	
Likely maximum attack rate	6% over 4 months
100% cases needing ORS	6.5 packets/patient
20% cases needing IV fluids	3 litres/patient
20% cases needing antibiotics:	1 tab per course
doxycycline	
300 mg, 1 dose	
• Meningococcal meningitis	
100% cases treated with oily suspension chloramphenicol	6 amps per course
100% population to be vaccinated	1 dose/person
• Measles	
Likely maximum attack rate in non-immunized under-12s	10%
100% non-immunized under-12s to be vaccinated	1 dose/child
100% under-12s to be given vitamin A	• children 6 months to 1 year 100 000 IU/child
	• children 1 year and over 200 000 IU/child
• Typhus	
100% population to be deloused	
Individual spraying with permethrin 1%	• adult 30 g • infant and child 15 g
5. Essentials of logistics	
<i>Weights and volumes</i>	
• Food	individual ration per month 14.7 kg
per week	amount per 10 000 people 36.8 tonnes
(1 tonne of food grains/beans in standard 50 kg bags occupies 2 m ³)	
• Drugs and supplies.	1 WHO emergency health kit 860 kg, 4 m ³

^a Chlorinated lime or bleaching powder is a white powder which is a mixture of calcium hydroxide, calcium chloride and calcium hypochlorite. It typically contains 20–35% available chlorine.

• Vaccines	1000 doses of measles	3 litres
	1000 doses of DTP	2.5 litres
	1000 doses of BCG	1 litre
	1000 doses of polio	1.5 litres
	1000 doses of tetanus	2.5 litres
• Food for therapeutic feeding.	standard under-5 patient ration	2 kg/week
• Family-size tents	35-60 kg unit	1 tonne, 4.5 m ³
• Blankets	compressed	1 tonne, 4.5 m ³
	loose	1 tonne, 9 m ³
<i>Warehouse requirements</i>	<ul style="list-style-type: none"> • approximately 25 m² for 1000 population • 1.2 m³ for 1 tonne of bagged food grains stacked 6 m high 	
<i>Average truck capacity</i>	<ul style="list-style-type: none"> • 50 tonnes 	
<i>Small aircraft capacity</i>	<ul style="list-style-type: none"> • 3 tonnes 	

Sources WHO/EHA, UNHCR Emergency Tools Series, draft 1992; UNICEF *Assisting in Emergencies*, 1986

SELECTED WHO PUBLICATIONS OF RELATED INTEREST

Prices in Swiss francs*

Coping with natural disasters: the role of local health personnel and the community.

1989 (97 pages) 18.–

**Management of severe malnutrition:
a manual for physicians and other senior health workers.**

1999 (60 pages) 23.–

Health laboratory facilities in emergency and disaster situations.

WHO Regional Publications, Eastern Mediterranean Series, No. 6

1994 (169 pages) 16.–

A guide to the development of on-site sanitation.

1992 (237 pages) 47.–

Mental health of refugees.

1996 (134 pages) 30.–

Climate change and human health.

1996 (305 pages) 30.–

Our planet, our health.

Report of the WHO Commission on Health and Environment.

1992 (282 pages) 45.–

Health consequences of the Chernobyl accident.

Results of the IPHECA pilot projects and related national programmes. Summary report

1995 (38 pages) 11.–

Field guide on rapid nutritional assessment in emergencies.

WHO Regional Office for the Eastern Mediterranean.

1995 (63 pages) 12.–

Guidelines for cholera control.

1993 (61 pages) 15.–

The use of essential drugs.

Eighth report of the WHO Expert Committee

(including the revised Model List of Essential Drugs)

WHO Technical Report Series, No. 882, 1998 (77 pages) 19.–

Safety measures for use in outbreaks of communicable diseases.

1986 (99 pages) 17.–

Further information on these and other WHO publications can be obtained from
Marketing and Dissemination, World Health Organization, 1211 Geneva 27, Switzerland.

*Prices in developing countries are 70% of those listed here