



Rapid assessment method for older people (RAM-OP)

A manual



HelpAge

International

HelpAge International is a global network of organisations promoting the right of all older people to lead dignified, healthy and secure lives.

We would like to thank HIF (Humanitarian Innovation Fund) for financial support, guidance, encouragement and advice they have provided throughout the process of developing RAM-OP. Completing this work would have been even more difficult were it not for the support and friendship provided by the other members of our partners such as Valid International (VL) and Brixton Heath. We are indebted to them for their help. Finally, we would like to thank the HelpAge International offices in Ethiopia and Tanzania where a field test of RAM-OP has been carried out successfully.

Rapid assessment method for older people (RAM-OP)

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Published by HelpAge International

HelpAge International
PO Box 70156, London WC1A 9GB, UK

Tel +44 (0)20 7278 7778

Fax +44 (0)20 7387 6992

info@helpage.org

www.helpage.org

Registered charity no. 288180

Written by Dr Pascale Fritsch, Ernest Guevarra,
Katja Siling and Mark Myatt

Key contributors: Dr Juma Khudonazarov,
Paula Nyunt, Frances Stevenson
Filippo Dibari and Mark Myatt (Brixton Health)

Front and back cover photos by Inzajeano Latif

Design by TRUE www.truedesign.co.uk



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Foreword

The **Rapid Assessment Method for Older People (RAM-OP)** is a valuable new tool to help humanitarian and development workers to gather information on older people. Developed by HelpAge International in collaboration with Valid International and Brixton Health with funding from Humanitarian Innovation Fund, RAM-OP tells us about older people's nutrition and health status, their capacity to undertake activities of daily living, their access to water and sanitation and other essential services. Employing a field-tested approach, it uses a sample size of just 192 regardless of the size of the population being assessed and can be carried out in just two weeks including training, data collection, entry and analysis. This makes it a simple, low-cost and practical tool which can be used by a range of organisations wherever a crisis occurs.

Our world is ageing and populations are ageing fastest in countries that are most at risk of humanitarian crises. With their commitment to humanitarian principles, no humanitarian would dispute the right of older people to assistance. There is increasing awareness and understanding of the vulnerability and particular needs of older people relating to health, nutrition, protection, shelter, water and sanitation, income and livelihoods.

Yet needs assessments rarely cover the whole age spectrum including older age groups and, as a result, their needs are invisible. In conflicts and disasters where needs routinely outstrip resources, assessing and addressing the humanitarian needs of older people tends to be regarded as too complicated and costly to consider.

We hope the availability of a quick, practical, low-cost assessment method will encourage governments, UN agencies as well as national and international NGOs to assess the situation of older people in humanitarian crises and to provide an impartial, evidence-based response for everyone in need, including older people.

Frances Stevenson

Head of the Humanitarian Team, HelpAge International

Dr Juma Khudonazarov

Health and Nutrition Advisor, HelpAge International

Introduction

Older people (people in later life, usually defined by the UN as aged sixty years and older) are often vulnerable in emergencies, because they are often have variety specific unmet requirements, such as health and nutrition. Absence of evidence based data is the main reason for many organisations not considering older people as vulnerable. For instance, the need for easily digestible, nutrient- rich food for those who find it difficult to chew. Despite these potential vulnerabilities in humanitarian situations, older people are rarely identified as a group in need of specific nutritional or food assistance. In famine and displacement situations where populations are dependent on food distributions, older people often find the general ration inappropriate for their tastes and needs, and have difficulty in accessing distributions or transporting rations home.

In times of drought or food scarcity, older people tend to reduce their food intake by sharing or giving up their ration for the benefit younger family members. As a result, older people can become malnourished and in need of specifically targeted food interventions

RAM-OP (Rapid Assessment Method for Older People) is a multispectral, low-cost assessment that can identify and address the gaps in needs of older people to help support program design not only for health and nutrition, but also WASH, ADL, income, mental health, and disability including visual impairment.

Surveys and assessments almost always focus on children, and sometimes on pregnant and breastfeeding women. Humanitarian workers argue that assessing the nutritional status and needs of older people during crises is both costly and complicated, and consequently may go unidentified and unaddressed.

RAM-OP is considerably more cost-effective than other assessment methods, and is based on the following principles:

- Use of a familiar ‘household survey’ design, employing a two-stage cluster sample design optimised to allow the use of a small primary sample ($m \geq 16$ clusters) and a small overall ($n \geq 192$) sample.
- Assessment of multiple dimensions of older people’s needs (including prevalence of global, moderate and severe acute malnutrition) using, whenever possible, standard and well-tested indicators and question sets.
- Data analysis performed using modern computer-intensive methods to allow estimates of indicator levels to be made with useful precision using a small sample size.

The following tools are currently available under the General Public Licence / Free Documentation Licence and are free to copy and adapt:

- An English language manual and guidebook.
- A questionnaire available in English and French.
- Data entry and data-checking software available in English and French.
- Data analysis software.

We believe that the availability of a rapid, low-cost and user-friendly method will encourage governments, UN agencies, as well as international and local non-governmental organisations to actively assess the situation of older people in humanitarian contexts, and implement, monitor, and evaluate relevant and timely responses to address their needs.

Abbreviations

ADL	Activities of daily living
BH	Brixton Health
CMAM	Community Management of Acute Malnutrition
CSID	Community Screening Instrument for Dementia
CSAS	Centric systematic area sample
CSV	Comma separated value
DDC	Digital Data Collection
EAs	Census enumeration areas
FANTA	Food and Nutrition Technical Assistance
GHC	Global Health Cluster
GNC	Global Nutrition Cluster
GAM	Global acute malnutrition
HDDS	Household Dietary Diversity Score
HIF	Humanitarian Innovation Fund
MAM	Moderate acute malnutrition
MUAC	Mid-Upper Arm Circumference
NI	Nutrition in Emergency
NGO	Non Governmental Organisation
ODK	Open data kit
PSU	Primary Sample Units
PPS	Population proportional sampling
RAM-OP	Risk assessment methodology older people
SAM	Severe acute malnutrition
SMART	Standardized monitoring and assessment of relief and transitions
UNICEF	United Nations International Children's Emergency Fund
VL	Valid International
WHO	World Health Organization
WASH	Water, sanitation, and hygiene

Sampling

Sampling

1. The RAM-OP sample

RAM-OP uses a two-stage sample.

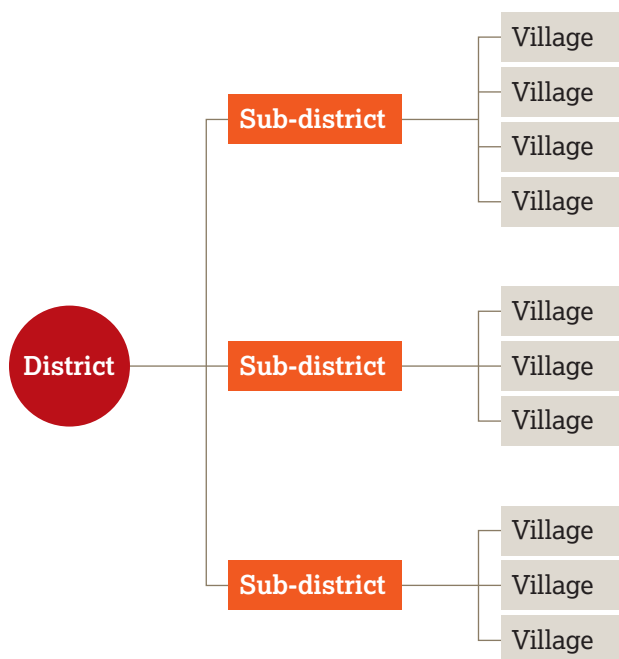
First stage sample: A sample of communities (e.g. villages or city blocks) in the survey area. A sampled community is also called a ‘primary sampling unit’ (PSU).

Second stage sample: Domestic dwellings within the communities selected in the first stage are sampled. All eligible individuals in the sampled dwelling are included.

1.1 First-stage sample

The first stage sample is a systematic spatial sample. Two methods can be used and both methods take the sample from all parts of the survey area:

List-based method: Communities to be sampled are selected systematically from a complete list of communities in the survey area. This list of communities is sorted by one or more non-overlapping factors such as district or sub-district:



Map-based method: Communities to be sampled are selected from the centres of squares drawn in a grid on a map. The map must be sufficiently detailed and large scale to show the position of every community in the survey area. This type of sample is known as a ‘centric systematic area sample’ – often referred to as a CSAS.

Note: ‘Population proportional sampling’ (PPS) is **not** used in RAM-OP surveys. Population estimates for all communities are **not** required for sampling purposes. Population estimates are required only for the selected communities. These are used during data analysis in order to weight results by population size. If this information is not available before the survey, it can be collected during the survey.

1.2 Second stage sample

The second stage uses the 'map-segment-sample' method that samples all parts of a selected community.

1.3 Implicit stratification

Both the first and second stage samples use a form of 'spatial stratification':

- The list-based method's first stage sample stratifies it by using non-overlapping spatial factors such as districts and sub-districts.
- The map-based (CSAS) method's first stage sample stratifies the sample by grid square.
- The map-segment-sample second stage within-community sample stratifies the sample by parts of the community being sampled.
- The first and second stage samples also ensure that a reasonably even spatial sample is taken from the entire survey area and from each of the sampled communities.

These sampling procedures provide 'implicit stratification' and tend to spread the sample properly among important sub-groups of the population such as rural, urban and peri-urban populations; administrative areas; ethnic sub-populations; religious sub-populations; and socio-economic groups. This often improves the precision of estimates made from survey data.

The use of implicit stratification improves the efficiency of a two-stage cluster sample and allows RAM-OP to use relatively small sample sizes compared to other methods, such as SMART surveys. The use of modern computer-intensive data analysis techniques also allows RAM-OP to make better use of the available sample than is often the case with other methods.

2. RAM-OP survey sample size

The following shorthand symbols will be used when describing sample designs :

m = Number of primary sampling units (PSUs).

n = Size of the sample of individuals or households in a PSU.
May also mean the overall survey sample size (this meaning will be made clear in the text).

N = Population.

The ideal overall RAM-OP survey sample size is at least $n = 192$ individual subjects, collected in two stages:

First stage sample of about $m = 16$ communities (or PSUs).

Second stage sample of about $n = 12$ eligible subjects, sampled from each of the communities included in the first stage sample.

The overall sample size from $m = 16$ communities and $n = 12$ eligible subjects is therefore about:

$$m \times n \approx 16 \times 12 \approx 192$$

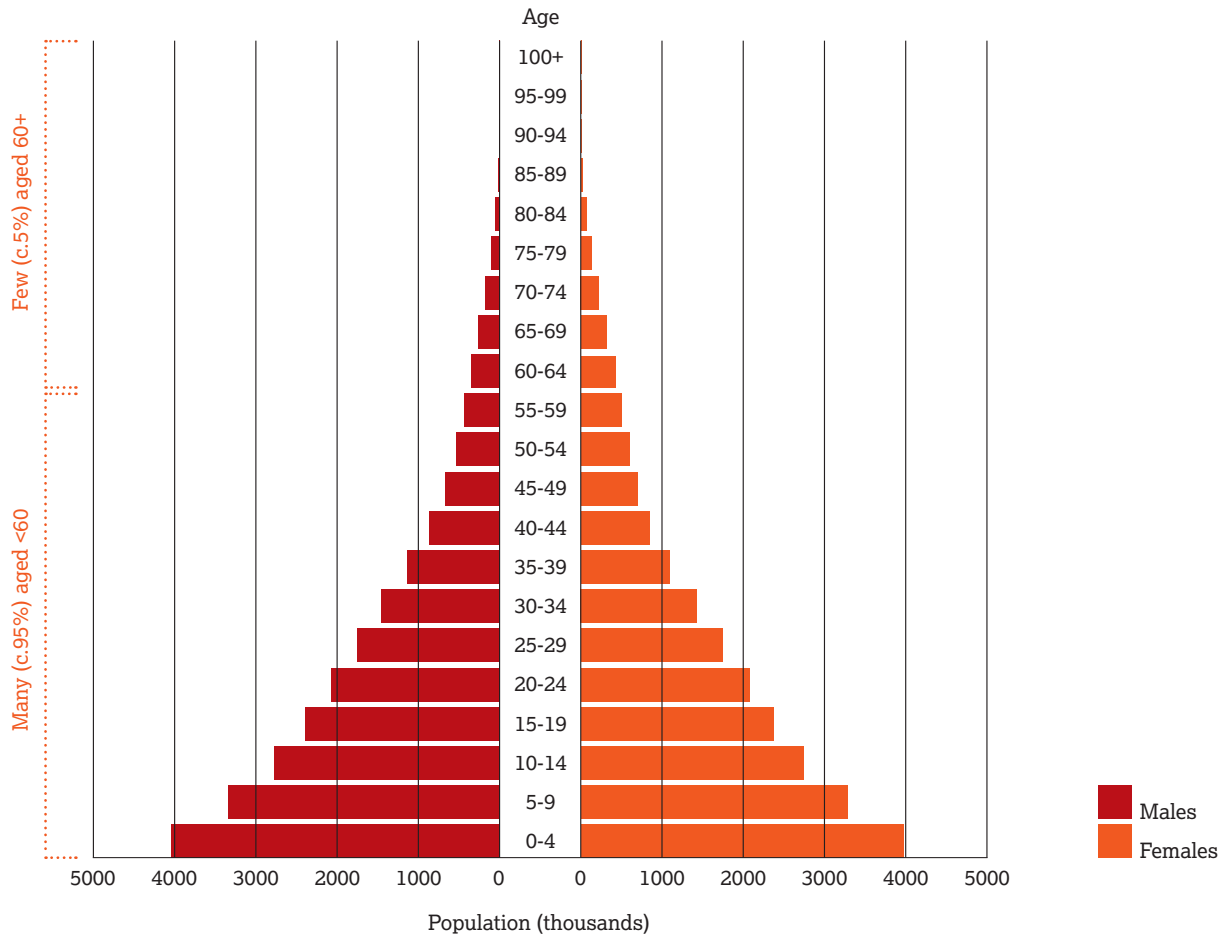
It is **not** recommended that fewer than $m = 16$ communities are sampled.

3. RAM-OP survey sampling

Sampling fewer than $m = 16$ communities will tend to reduce the precision with which estimates can be made. If you have the resources to sample more than $m = 16$ communities then you should do so. A sample of $m = 24$ communities and $n = 8$ eligible subjects, for example, will tend to yield more precise estimates than a sample with $m = 16$ communities and $n = 12$ eligible subjects.

Do **not** be tempted to increase the size of the within-community sample in order to achieve an overall sample size of $n = 192$ from fewer than $m = 16$ communities. Doing so will tend to reduce the precision with which estimates are made.

Here, for example, is a population pyramid for a typical developing country:

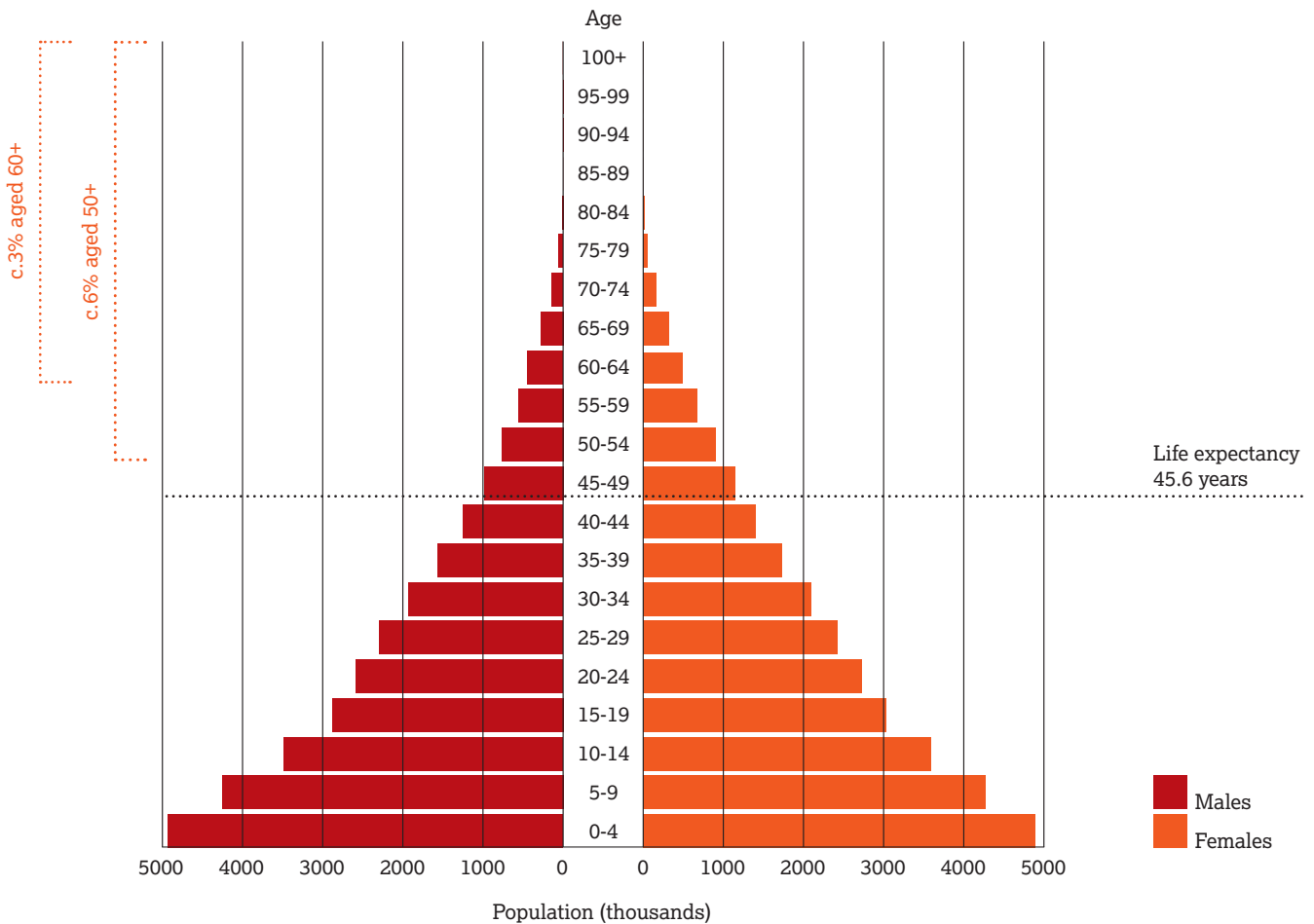


If the average community population is $N = 300$ then there will be fewer than 15 people aged 60 years and older in about half of the selected communities. This is because about half of the selected communities are likely to have a population below the average population.

4. Eligibility

Using the UN definition of older people means your sample will usually be restricted to people aged 60 years and older. However, in a setting with high life-expectancy (usually middle- and high-income countries), you may want to restrict eligibility to persons aged 65 years or older, for example. A local definition of older people is likely to be available.

In a setting with very low life-expectancy, usually low-income countries and in emergency settings, there may be very few people aged 60 years or older.



It is common in such settings for there to be a local definition of older people. This will usually be 'persons aged 50 years or older' or 'persons aged 55 years or older'.

5. Age distribution, eligibility criteria and sample design

The age distribution of the population and the survey eligibility criteria will affect the sample design in terms of the number of communities that you will need to sample (m) and the number of older persons (n) that can be sampled from each community.

The ideal overall sample size is at least $n = 192$ (usually collected as $n = 12$ eligible subjects sampled from $m = 16$ communities). If older people make up a very small proportion (i.e. much less than 5 per cent) of the total population and / or the average population of communities is small then you will usually need to sample more than $m = 16$ communities in order to get about $n = 192$ older people in the overall sample. This is likely to occur when there are fewer than 20 to 25 older people in a community of average size.

You can calculate the number of older people that you would expect to be living in a community of average size using the following formula:

$$n_{\text{population (aged 60+)}} = \text{average village population} \times \frac{\text{percentage of population}_{\text{(aged 60+)}}}{100}$$

If this is below about 20 people then you should reconsider how you will collect the required overall sample size. Three approaches may be used:

- **Relax the eligibility criteria:** You may decide to define older people as 'persons aged 50 years or older' or 'persons aged 55 years or older'. This approach may double the size of the eligible population and make the sample easier to collect, but is only reasonable if life-expectancy is low.
- **Increase the number of communities you sample:** You may choose to collect your sample as $n = 7$ eligible subjects sampled from $m = 30$ communities, giving an expected overall sample size of $n = 210$. This would be a very good sample. The disadvantage of this approach is that survey costs rise with the number of communities sampled.
- **Take a 'top-up' sample only when you need to:** The basic procedure when a selected community is small and likely to contain fewer than $n = 12$ older people is to collect data on all older people in the selected community using a door-to-door census. If the within-community sample size is much smaller than the required one then a 'top-up' sample is taken from the nearest neighbouring community using the map-segment-sample method (or a door-to-door census if this community is also small). The advantage of this approach is that travelling time and survey costs are more manageable.

If the proportion of older people is not very small and/or communities are large then you should have no problems achieving the overall sample size.

6. Practical sampling

6.1 First stage sample – list-based sampling

The first stage sample can be drawn from a complete list of **all** communities in the survey area, sorted by one or more non-overlapping spatial factors (such as administrative units or electoral wards). Population proportional sampling (PPS) is **not** used since this would concentrate the sample in the larger communities.

Example sample

There are 67 villages in the survey area and 16 villages need to be sampled:

$$\text{Sampling interval} = \frac{N_{\text{villages}}}{16} = \frac{67}{16} = 4.19 = 4 \text{ (always round down)}$$

Villages sorted by
chiefdom (sub-district)

Chiefdom	Village	Number
Barupi	Benguema	1
	Fabaina	2
	Koya	3
	Gbendembu	4
	Songo	5
	Madonkeh	6
	Urugli	7
	Barupi	8
Egabeva	Redpu	9
	Borioboolagah	10
	Portei	11
	Tombo	12
	Ashu	13
	Foulah	14
	Juba-Kaningo	15
	Sattia	16
	Dinga-Dinga	17

We need a random starting point between 1 and the sampling interval (in this example: between 1 and 4)

Apply sampling interval

Apply sampling interval

Apply sampling interval

Continue applying the sampling interval until the end of the list is reached

Note: This procedure will sometimes select more than 16 communities.

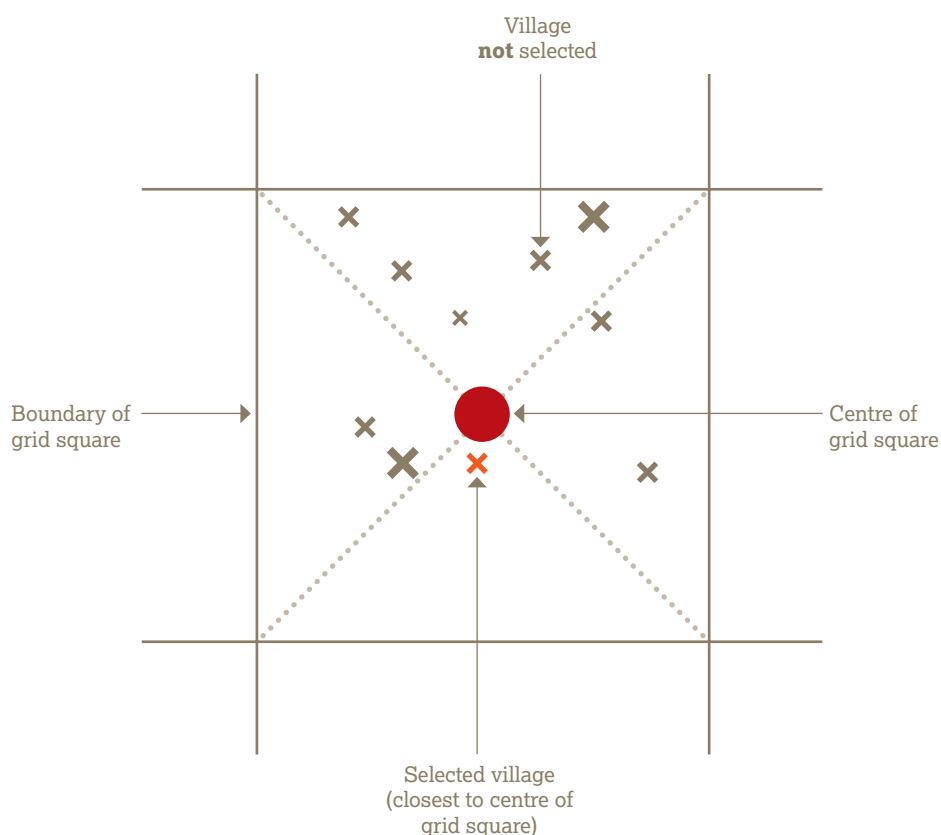
In this example, 17 villages (i.e. at positions 2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42, 46, 50, 54, 58, 62, and 66 in the list) will be selected. When this happens you should sample **all** of the selected communities.

The village list **must** be sorted by a **non-overlapping** spatial factor such as chiefdom or sub-district.

6.2 First stage sample – map-based sampling

An alternative to list-based sampling is map-based sampling. The map-based (CSAS) sample selects communities from the centre of squares of a grid drawn over a map. The map must be sufficiently detailed and large scale to show the position of **all** communities in the survey area.

The number of grid squares covering the survey area should be the same as (or very similar to) the number of communities that you plan to sample. You may need to experiment with different grid sizes to achieve this. Figure 1 shows an example map and grid with $m = 16$ grid squares. The sample is drawn by selecting the community that is closest to the centre of each grid square.



If two or more villages are equidistant from the centre of a grid square then a single village is picked at random, by tossing a coin for example. Figure 2 shows the sample selected by this process for the area shown in Figure 1.

Both the list-based and the map-based (CSAS) sampling methods spread the sample of communities evenly across the entire survey area. Each community has an equal chance of being included in the sample. Population proportional sampling (PPS) is **not** used since this would concentrate the sample in the larger communities.

The same method can be used when sampling urban contexts. Figure 3 shows a sample drawn from a list of census enumeration areas sorted by administrative district. Figure 4 shows a sample drawn using the map-based (CSAS) method. In both cases the primary sampling units (PSUs) are census enumeration areas.

Figure 1: Drawing a square grid over the map

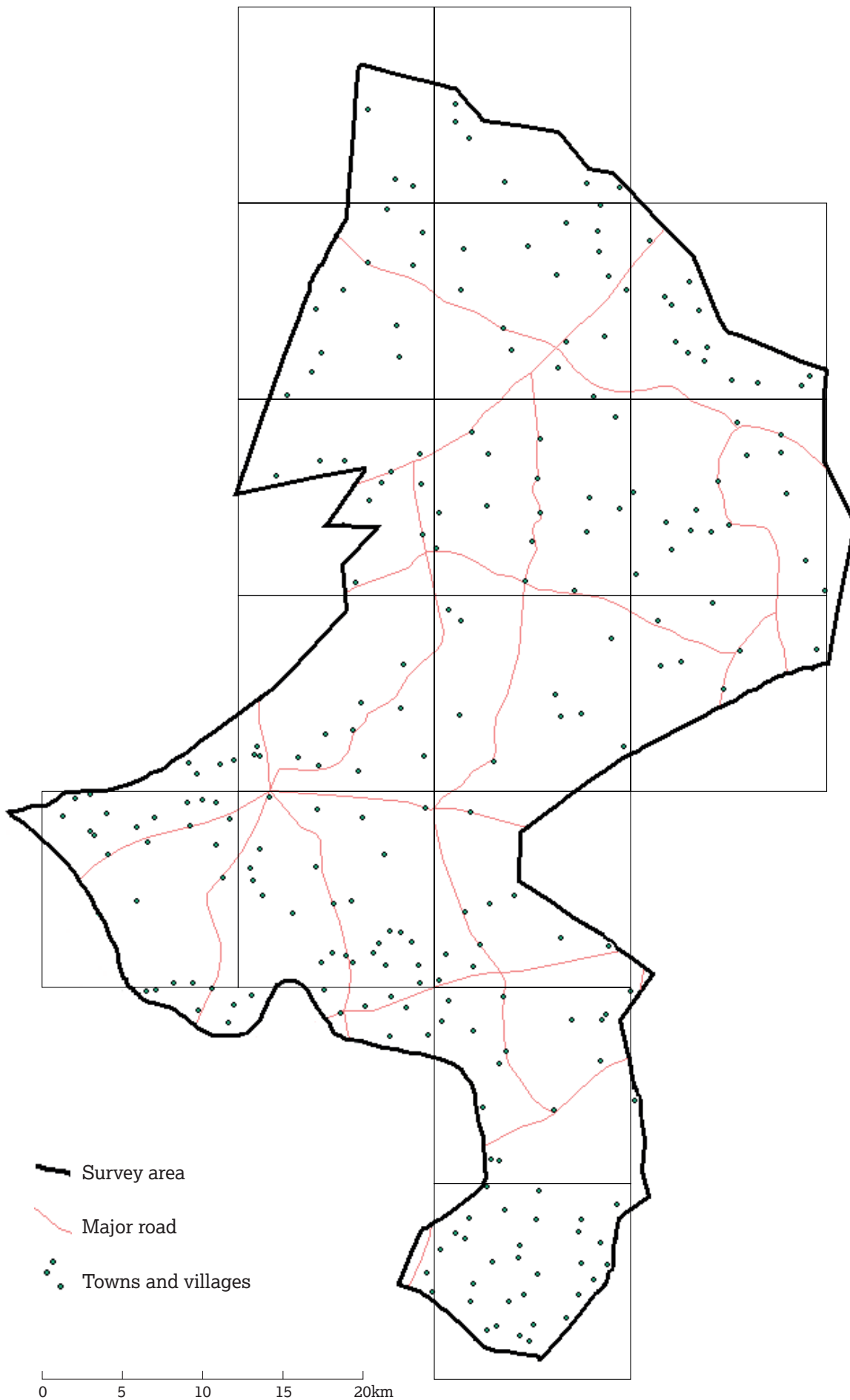


Figure 2: Drawing the first-stage CSAS sample

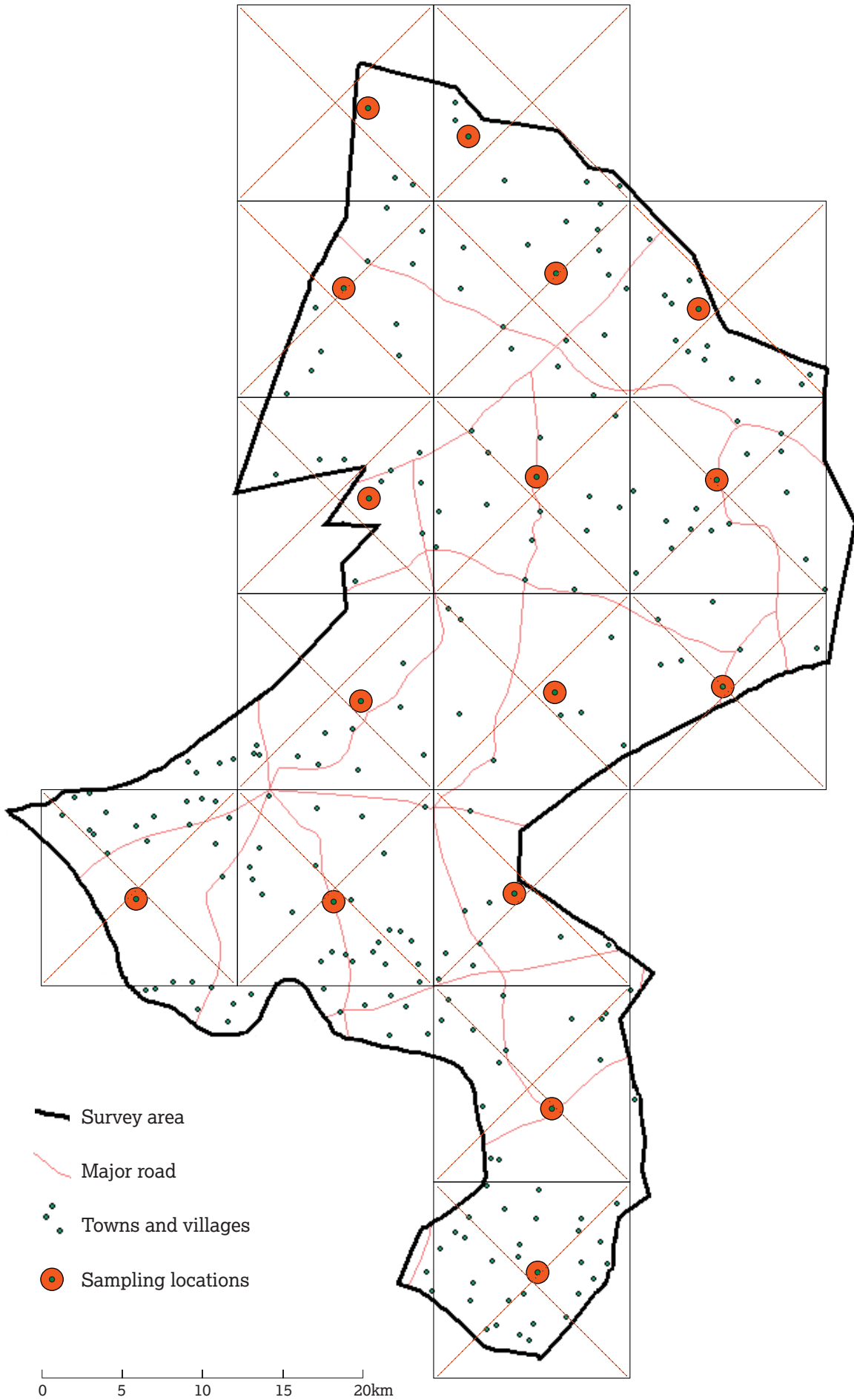


Figure 3: Example of an urban sample (list-based)

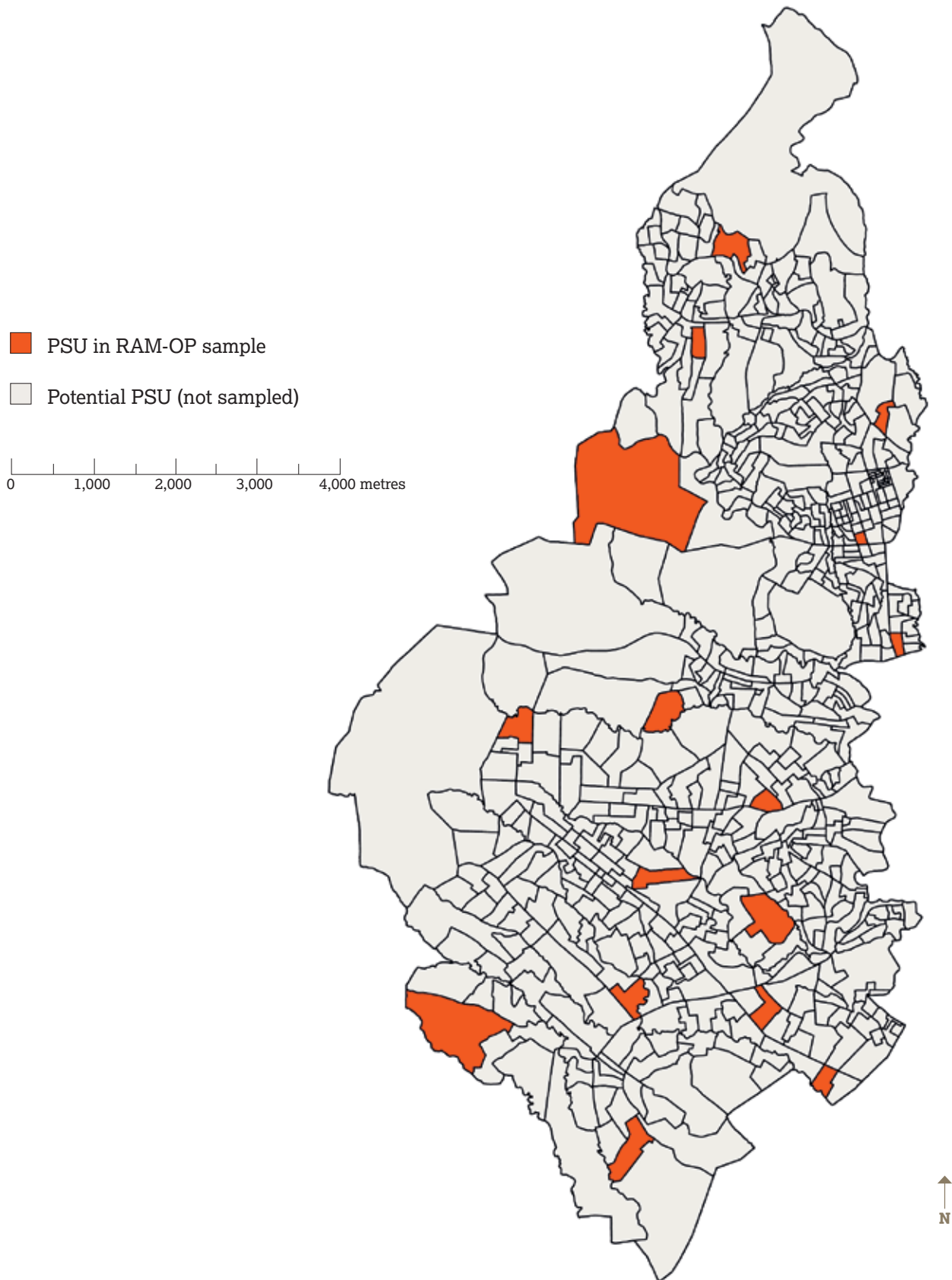
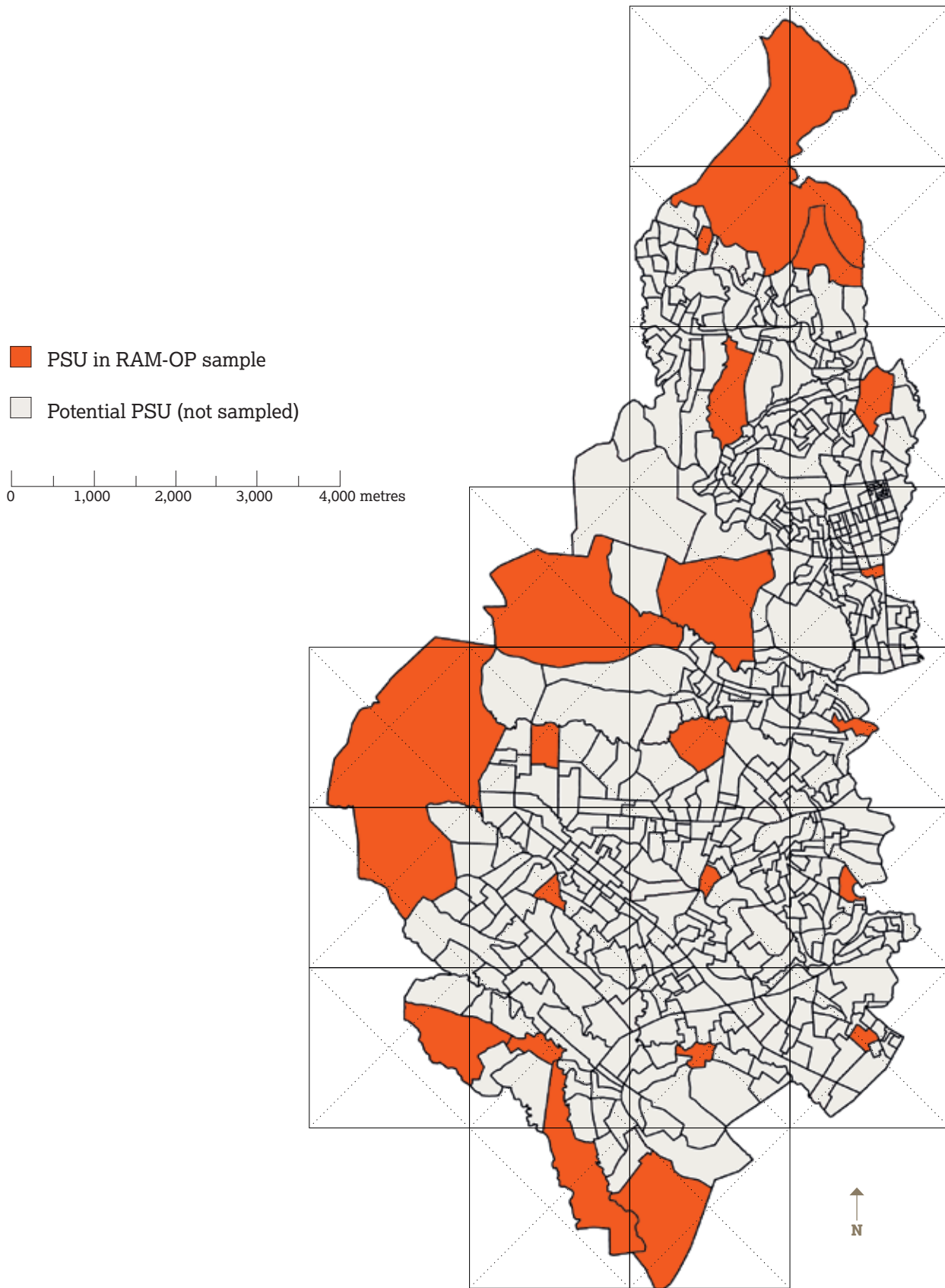


Figure 4: Example of an urban sample (map-based)



Note: In this example 21 blocks have been selected. It can be difficult to achieve exactly the number of blocks that you need when using this type of sample. It is best to select more rather than fewer blocks than you need

Here we would take our sample as $n = 10$ individuals from $m = 21$ blocks (overall $n = 210$).

7. Practical sampling

7.1 Second stage (within community) sample

The second stage (within community) sample uses a map-segment-sample approach:

Map: Make a rough map of the community to be sampled. It is helpful to think of communities as being made of ribbons (i.e. lines of dwellings located along roads, tracks, or rivers) and clusters of dwellings. Here is an example of a ribbon of dwellings:



Here is an example of a cluster of dwellings:



Segment: Divide the community into ribbon and cluster segments defined by the physical layout of the community being sampled.

Sample: Ribbons and clusters are sampled in different ways:

- Ribbons are sampled using systematic sampling.
- Clusters are sampled using a random walk method.

Both of these methods are described in section 7.7 and 7.8.

Note: If a selected small community is likely to have fewer than the required number of eligible persons then **all** eligible persons in that community are sampled by going door-to-door.

7.2 Mapping the community – single and multiple clusters

Some communities consist of a single cluster of dwellings:



or a set of clusters of dwellings:



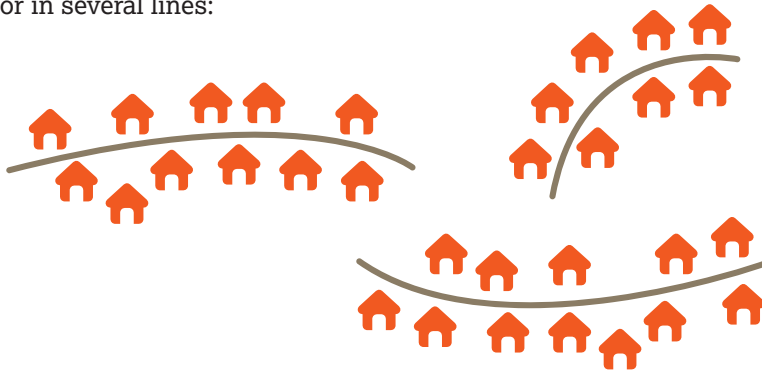
For communities (or parts of communities) structured in this way, use the random walk method.

7.3 Mapping the community – ribbon communities

Ribbon communities have dwellings arranged in a line:



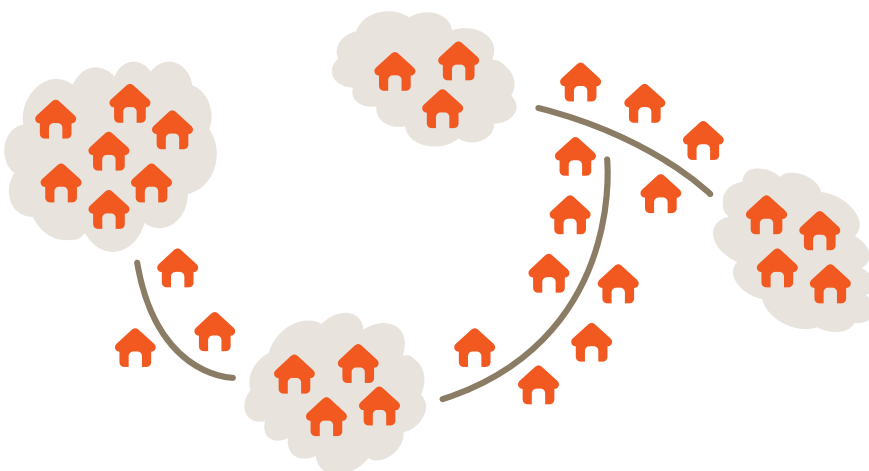
or in several lines:



For communities (or parts of communities) structured in this way, use a systematic sampling method.

7.4 Mapping the community – mixed communities

Some communities are a mixture of clusters and ribbons:



For mixed communities use a mixture of the random walk method (in the clusters) and systematic sampling (along the ribbons).

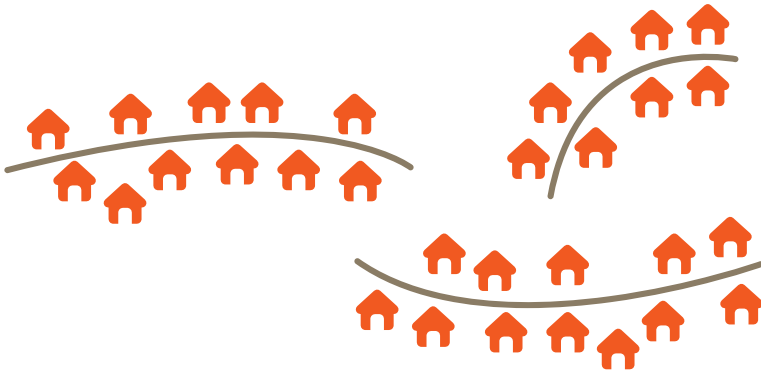
With simple communities, segmentation is not required and a single sample is taken from the entire community using the appropriate sampling method.

7.5 Segmentation

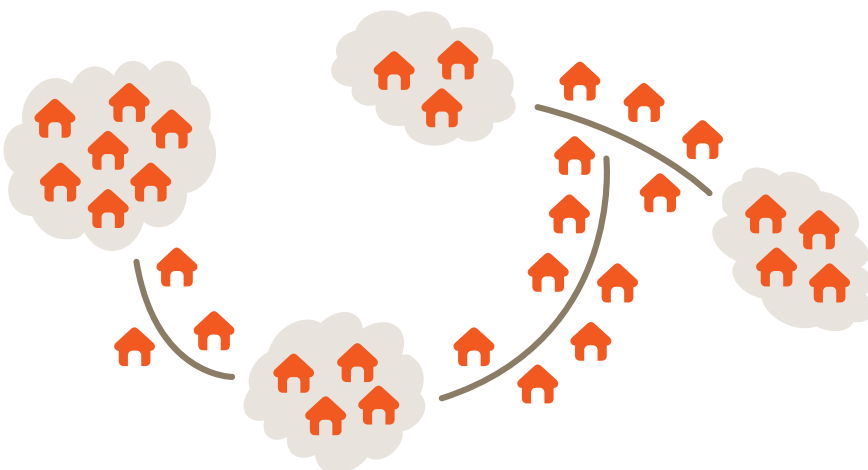
For more complicated communities, divide the community into several parts or segments, such as a community made up of several clusters:



or a community made up of several ribbons:



or a mixed community:



Take a small sample from each segment using the appropriate sampling method.

For example, with a community made up of three segments:



we would take one third of the overall sample from each segment.

If the within-community sample size is 12 eligible subjects, four eligible subjects would be sampled from each segment (i.e. $12 \div 3 = 4$). Dividing the sample up in this way means that every part of the community will be sampled and not just one part of the community.

Use the random walk method to sample the clusters and the systematic sampling method to sample the ribbons.

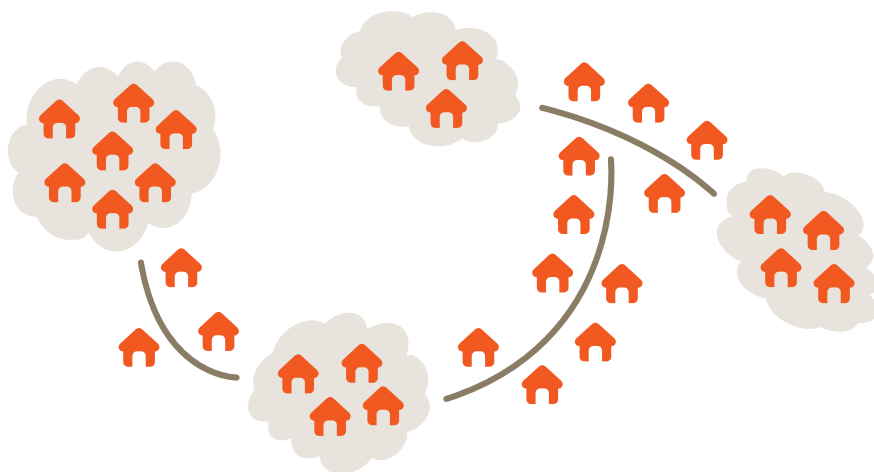
Segments should be either ribbons or clusters but should **never** contain both a ribbon and a cluster. This is because clusters and ribbons are sampled in different ways.

A dwelling can only belong to one segment. Segments should **not** overlap.

7.6 Sampling dwellings

All segments should be sampled.

If, for example, there are five segments in a community:



and the within-community sample size is 12 eligible subjects, then you would plan to sample two eligible subjects from each segment (i.e. $12 \div 5 = 2.4$ **rounded down** to two) and, if necessary, return to the **largest** segment to complete the sample. **All** segments should be sampled, even if this means taking a larger sample than planned.

7.7 Random walk sampling

The **random walk** method is used to sample dwellings in **cluster segments**.

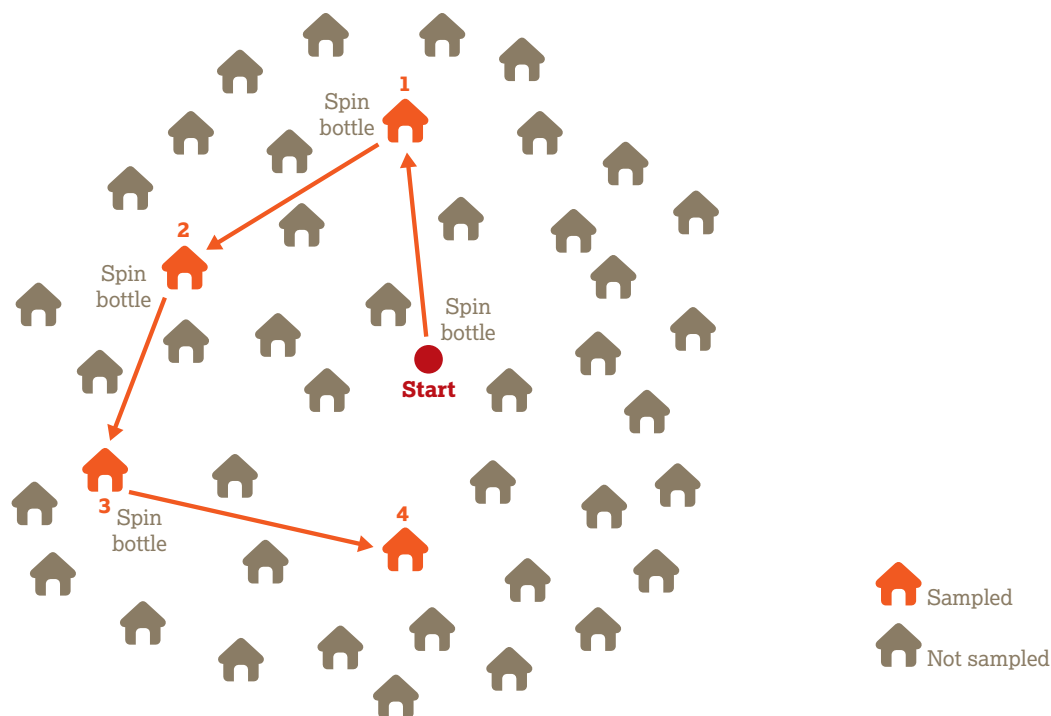
Key steps:

1. Move to the approximate centre of the cluster.
2. Select a **random direction** by spinning a bottle on the ground. The neck indicates the **sampling direction**. This is the direction you should walk in order to sample a dwelling. Walk in the sampling direction counting the dwellings that you pass. Sample the **third dwelling**. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling with an eligible person. Sample **all** eligible persons in the selected dwelling.
3. Apply the survey questionnaire for **all** eligible persons in the selected dwelling.
4. Select the next dwelling to sample by spinning a bottle and walking in the indicated direction. Count the dwellings you pass. Sample the **third** dwelling. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling with an eligible person. Sample all eligible persons in the selected dwelling. If you reach the edge of the cluster segment then return to the centre of the cluster and repeat step (2) above. Remember to keep count of the number of eligible persons sampled from the segment.
5. Stop sampling the segment when you have the required number of eligible persons from the segment. Since you sample **all** eligible persons in a selected dwelling, you may sample a few more eligible persons than expected. This is acceptable. Always sample **all** eligible persons in a selected dwelling.

If, when you have sampled all segments, you have not sampled 12 eligible persons, you should return to the **largest** segment to finish sampling using the appropriate sampling method.

The random walk method is illustrated in Figure 5.

Figure 5: Random walk sampling in a cluster segment



7.8 Systematic sampling

The **systematic sampling** method is used to sample houses in **ribbon segments**.

Key steps:

1. Move to one end of the ribbon segment.
2. Walk to the other end of the segment counting the houses that you pass.
3. Calculate the **step size** by dividing the number of dwellings in the segment by the required sample size for the segment. Use the **whole number** part of the result only. Do **not** round up.
4. Pick a random number between one and the step size. This is your **starting point**. Select the first dwelling to sample by walking along the segment counting the dwellings that you pass and sample the dwelling indicated by the starting point. If there are no eligible persons in the selected dwelling then sample the nearest dwelling in any direction with an eligible person. Sample **all** eligible persons in the selected dwelling.
5. Select the next dwelling to sample by walking along the segment. Count the dwellings that you pass. Sample the dwelling indicated by the **step size**. If there are no eligible persons in the selected dwelling then sample the **nearest** dwelling in any direction with an eligible person. Sample **all** eligible persons in the selected dwelling.
6. Stop sampling in the segment when you reach the end of the ribbon segment. This may mean that you sample extra eligible persons. This is acceptable. Do **not** stop sampling from a ribbon until you reach the end of the ribbon.

If, when you have sampled all segments, you have not sampled 12 eligible persons, you should return to the **largest** segment to finish sampling using the appropriate sampling method.

The systematic sampling method is illustrated in Figure 6.

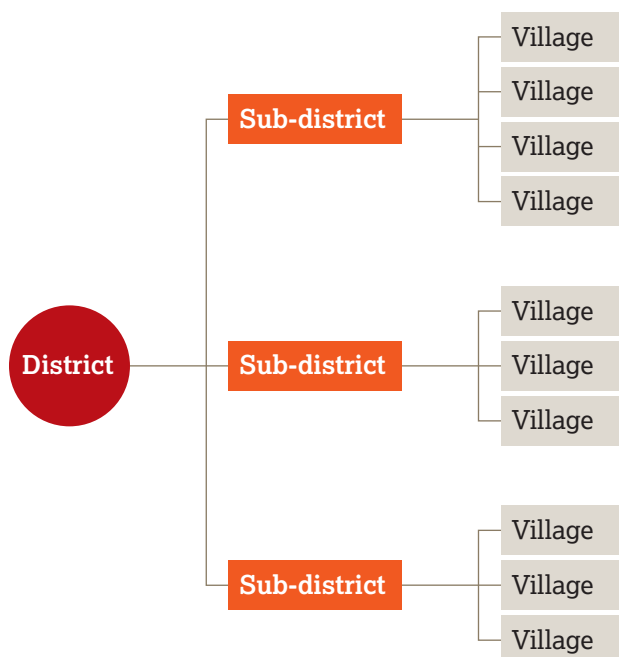
Figure 6: Systematic sampling in a ribbon segment



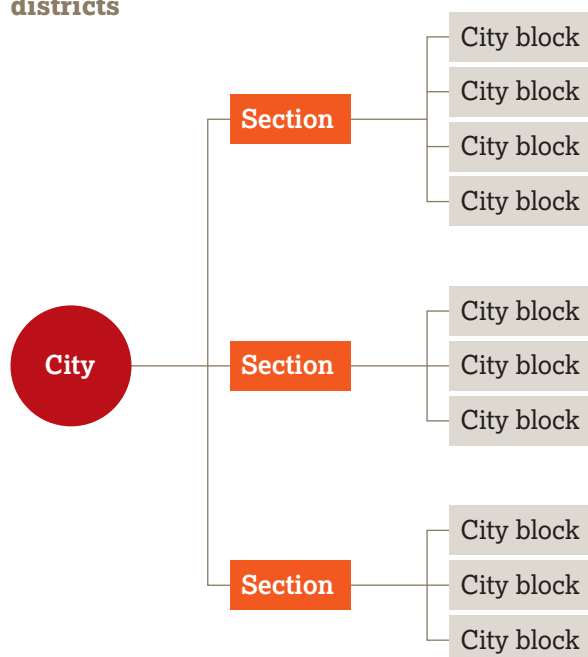
7.9 Sampling in urban settings

In urban areas the first stage sample is taken by replacing sub-districts with 'sections' and villages with 'city blocks'. Examples of sections may be administrative districts/sub-districts or electoral wards.

Rural districts



Urban and peri-urban districts



Census enumeration areas (EAs) are usually city blocks. Central statistics offices can usually provide lists of EAs by section and large-scale maps of EAs selected for sampling (See Figure 7 and Figure 8). These maps make it easy to locate EAs and their boundaries. The sample of EAs can be decided using list-based or map-based (CSAS) sampling.

In these settings, eligible persons may be sampled by going door-to-door. All dwellings in the selected block are sampled and all eligible persons in the selected dwellings are sampled (meaning all eligible persons in a selected block are sampled).

If city blocks are large then a type of systematic sampling may be used. With this method a rough map of the streets in the block is made and the number of doorways on each street is counted and copied onto the rough street map (as shown in Figure 9). The total number of doorways on all streets is calculated. A step size (see section 7.8) is calculated by dividing the total number of doorways on all streets by the number of dwellings to be sampled. A systematic sample along a route around the block that includes all streets in the block is taken. Streets can be sampled in any order. If you find that you have sampled all streets but have not yet sampled the required number of eligible persons then you should return to the street with the largest number of houses to collect the remainder of the sample.

The number of blocks to be sampled will depend on the expected number of eligible persons in each block. You should aim for an overall sample size of about $n = 192$. You should **not** sample fewer than $m = 16$ blocks.

Figure 7: Enumeration area map for a city block in Freetown, Sierra Leone

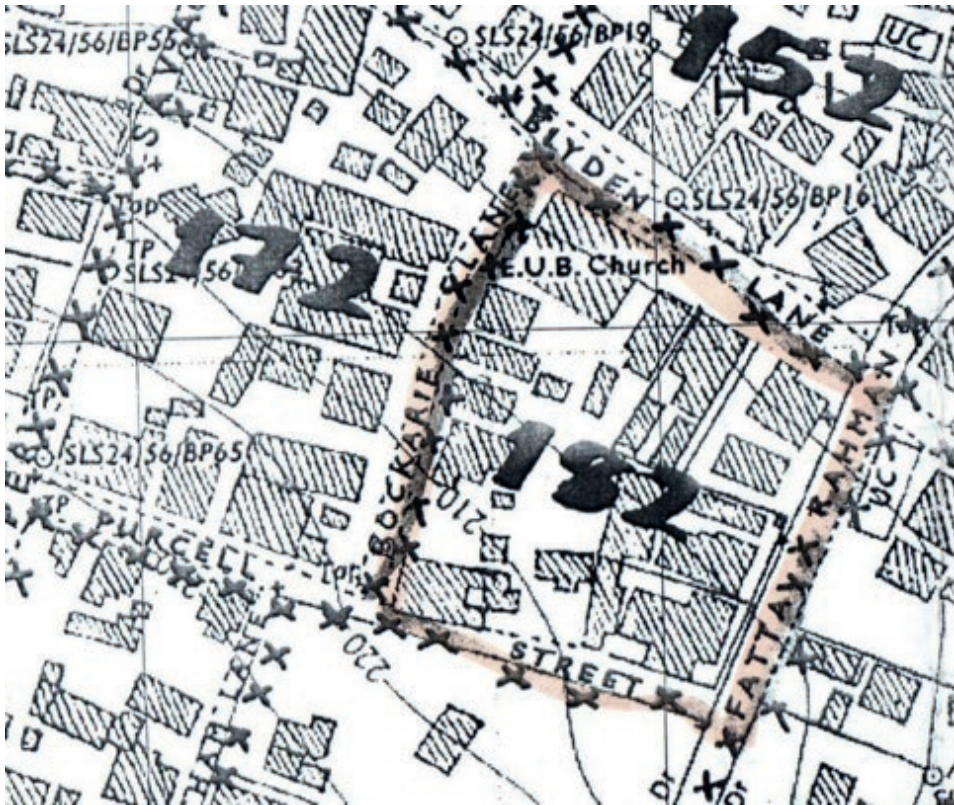


Figure 8: Enumeration area map for a city block in Addis Ababa, Ethiopia

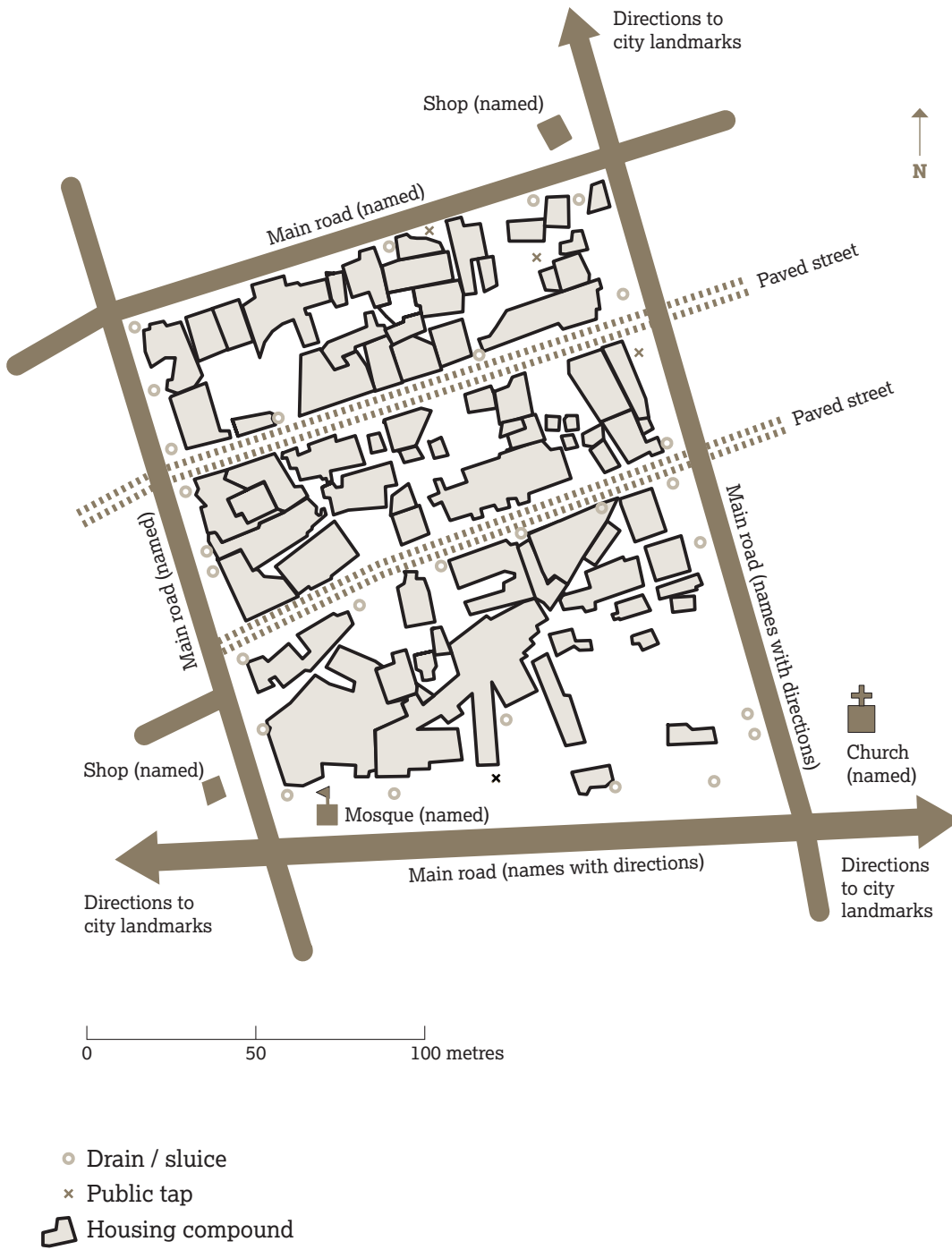


Figure 9: Systematic sampling in a city block

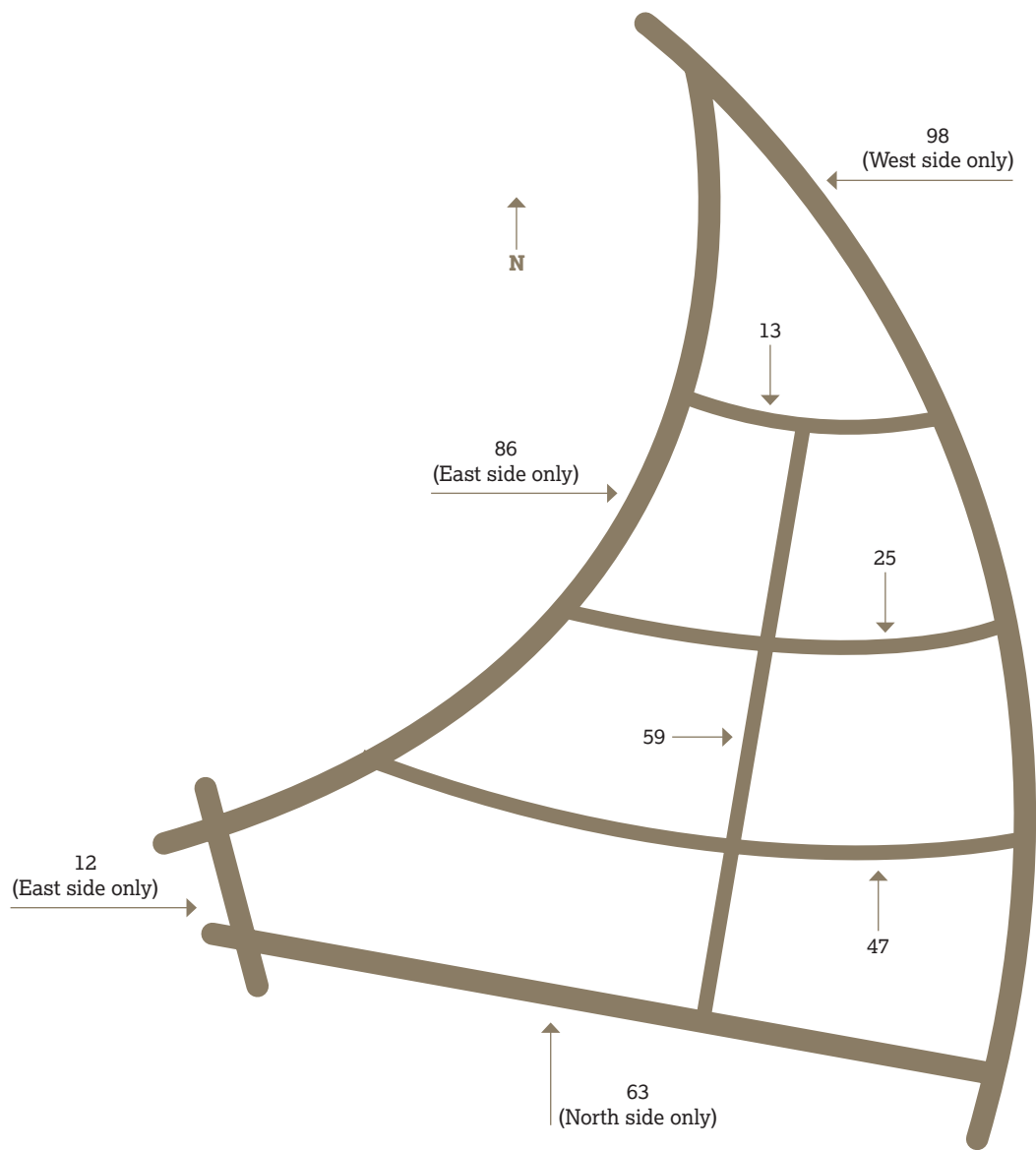
Example

There are: $98 + 13 + 25 + 59 + 47 + 63 + 12 + 86 = 403$ doorways

We want to select 12 houses. The step size is:

$$\text{Step size} = \frac{403}{12} = 33$$

so we sample every 33rd doorway.



When useful lists and maps are not available then satellite images available through free services such as Google Earth (<http://earth.google.com>) may be used.

The quality (resolution) of the images available from these services is variable but is usually good enough to allow you to segment the town into small areas of approximately equal size and density (approximately the same number of dwellings) in each:



When creating segments using maps or satellite images it is a good idea to use main roads, rivers, canals, railway lines, public parks, etc. as boundaries. This simplifies the segmentation process and also simplifies fieldwork by making areas and their boundaries easier to locate and sample.

The first stage sample can be list-based (such as where each area is numbered in a systematic north to south and east to west order and a systematic sample taken) or map-based (CSAS).

Larger scale “maps” of blocks to be sampled can also be made using satellite imagery (see Figure 10).

Figure 10: A large scale “map” of a city block made from satellite imagery



Indicators

Indicators

8. The RAM-OP indicator set

RAM-OP surveys collect and report data for a broad range of indicators relevant to older people, including:

- demography and situation
- food intake
- presence of severe food insecurity
- activities of daily living
- mental health and well-being
- dementia
- health and health-seeking behaviour
- sources of income
- water, sanitation and hygiene
- anthropometry and screening coverage
- visual impairment
- disability.

Data for a small group of miscellaneous indicators are also collected and reported.

The RAM-OP indicator set has a modular design. Each module covers one of the indicators from the list given above using a dedicated set of questions and measurements in the form of a survey questionnaire. These are designed to elicit information on a set of sub-indicators. Whenever possible, RAM-OP uses standard and validated indicators and questions

Indicators are described in the following sections, showing the relevant section of the questionnaire used to collect and record the data required, and flowcharts of the process used to derive indicators from the collected data. Standard symbols are used. For example:

sum = a1 + a2 Assign a value / perform a calculation



A non-standard symbol is used to show **recode operations**. A recode operation shows changes that are made to data so that it can be used to derive indicators without having to show many decision nodes in the flowchart. They are also used to specify what should be done with missing or out-of-range values. For example:

Recode d1 (respondent)		
Old values	New values	Notes
1	1	Subject
2	2	Family carer
3	3	Other carer
4	4	Other
Others	1	Subject

No change

← *For others values (including missing values) we assume the respondent is the subject*

Recode d2 (age)		
Old values	New values	Notes
888	NA	DK / refused

← *Set data for don't know / refused to NA = not available / missing data*

8.1 Demography and situation

Demography and situation indicators are used to describe the survey sample and are derived from the following section of the questionnaire:

Demography and situation

d1	Who is answering these questions?	1 = Subject 2 = Family carer 3 = Other carer 4 = Other	<input type="checkbox"/>
d2	How old are you (age in years)?	888 = DK / Refused	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
d3	Sex	1 = Male 2 = Female	<input type="checkbox"/>
d4	Marital status	1 = Single (never married) 2 = Married 3 = Living together 4 = Divorced 5 = Widowed 6 = Other	<input type="checkbox"/>
d5	Do you live alone?	1 = Yes 2 = No	<input type="checkbox"/>

Sex of the subject and marital status of the subject are also reported.

Each of the questions yields a separate indicator:

Recode d1 (respondent)		
Old values	New values	Notes
1	1	Subject
2	2	Family carer
3	3	Other carer
4	4	Other
Others	1	Subject

Respondent types reported as separate indicators

Recode d2 (age)		
Old values	New values	Notes
888	NA	DK / refused

*Mean age is reported
Age groups (50-59; 60-69; 70-79; 80-89; 90+) are reported as separate indicators*

Recode d5 (living alone)		
Old values	New values	Notes
1	1	Yes
2	0	No

Living alone is reported

8.2 Food intake

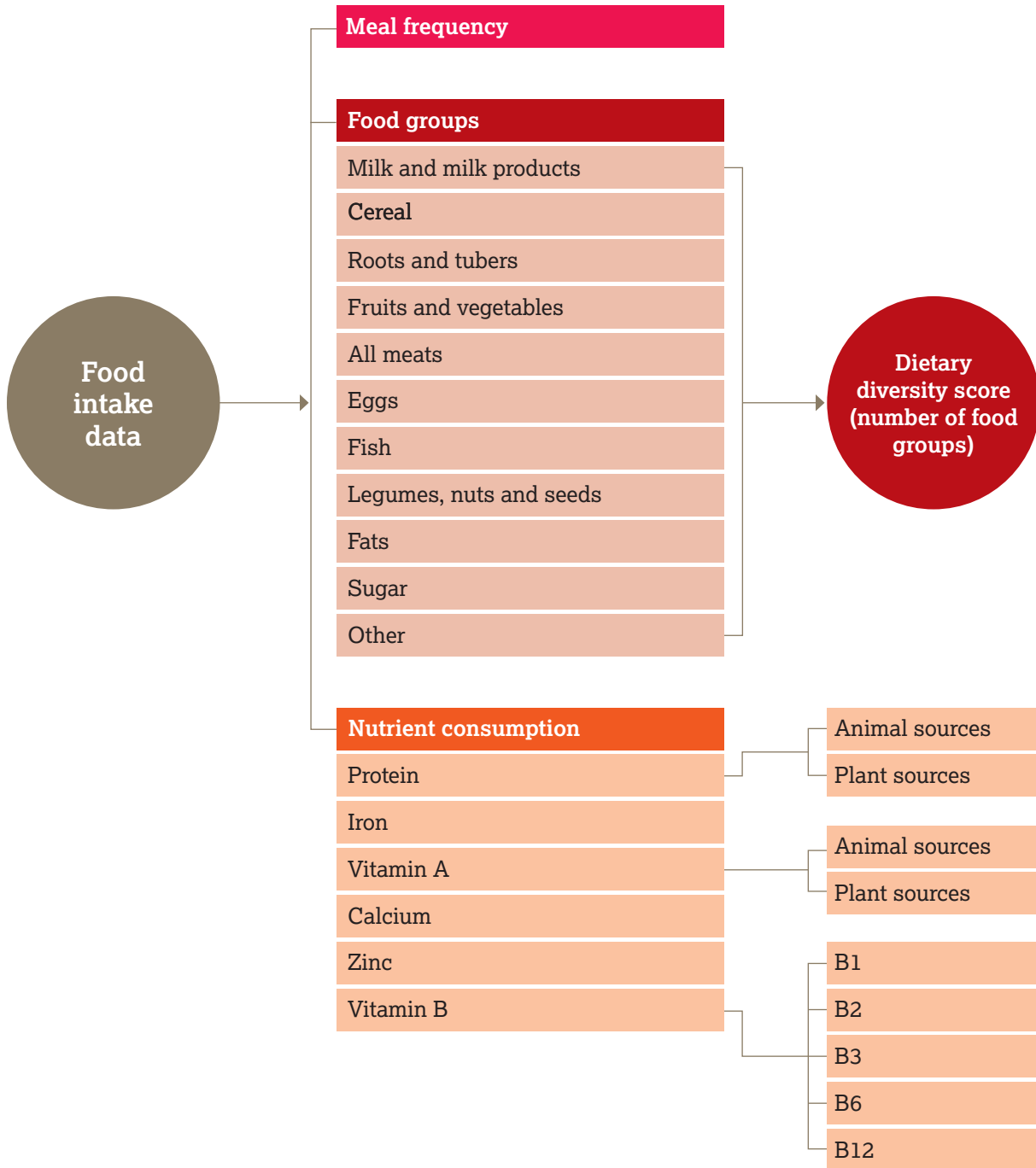
Food intake indicators are derived from the following part of the questionnaire. This data can be queried to yield a large number of useful indicators.

Food intake

f1	How many meals did you eat since this time yesterday (Ask about breakfast, lunch, dinner, and snacks)?	Number of meals	<input type="checkbox"/>
f2	Since this time yesterday did you eat any of the following foods:		
f2a	Tinned, powdered or fresh milk?	1 = Yes 2 = No	<input type="checkbox"/>
f2b	Sweetened or flavoured water, "soda" drink, alcoholic drink, beer, tea or infusion, coffee, soup, or broth?	1 = Yes 2 = No	<input type="checkbox"/>
f2c	Any food made from grain such as millet, wheat, barley, sorghum, rice, maize, pasta, noodles, bread, pizza, porridge?	1 = Yes 2 = No	<input type="checkbox"/>
f2d	Any food made from fruits or vegetables that have yellow or orange flesh such as carrots, pumpkin, red sweet potatoes, mangoes, and papaya?	1 = Yes 2 = No	<input type="checkbox"/>
f2e	Any food made with red palm oil or red palm nuts?	1 = Yes 2 = No	<input type="checkbox"/>
f2f	Any dark green leafy vegetables such as cabbage, broccoli, spinach, moringa leaves, cassava leaves?	1 = Yes 2 = No	<input type="checkbox"/>
f2g	Any food made from roots or tubers such as white potatoes, white yams, false banana, cassava, manioc, onions, beets, turnips, and swedes?	1 = Yes 2 = No	<input type="checkbox"/>
f2h	Any food made from lentils, beans, peas, groundnuts, nuts, or seeds?	1 = Yes 2 = No	<input type="checkbox"/>
f2i	Any other fruits or vegetables such as banana, plantain, avocado, cauliflower, coconut?	1 = Yes 2 = No	<input type="checkbox"/>
f2j	Liver, kidney, heart, black pudding, blood, or other organ meats?	1 = Yes 2 = No	<input type="checkbox"/>
f2k	Any meat such as beef, pork, goat, lamb, mutton, veal, chicken, camel, or bush meat?	1 = Yes 2 = No	<input type="checkbox"/>
f2l	Fresh or dried fish, shellfish, or seafood?	1 = Yes 2 = No	<input type="checkbox"/>
f2m	Cheese, yoghurt, or other milk products?	1 = Yes 2 = No	<input type="checkbox"/>
f2n	Eggs?	1 = Yes 2 = No	<input type="checkbox"/>
f2o	Any food made with oil, fat, butter, or ghee?	1 = Yes 2 = No	<input type="checkbox"/>
f2p	Any mushrooms or fungi?	1 = Yes 2 = No	<input type="checkbox"/>
f2q	Grubs, snails, insects?	1 = Yes 2 = No	<input type="checkbox"/>
f2r	Sugar, honey and foods made with sugar or honey such as sweets, candies, chocolate, cakes, and biscuits?	1 = Yes 2 = No	<input type="checkbox"/>
f2s	Salt, pepper, herbs, spices, or sauces (hot sauce, soy sauce, ketchup)?	1 = Yes 2 = No	<input type="checkbox"/>

There are three related sets of diet-related indicators:

- meal frequency
- food groups consumed and dietary diversity
- indicators of nutrient consumption.



The data on the number of meals taken in the previous 24 hours forms a 'meal frequency score'.

Food intake data from each subject is combined into a 'dietary diversity score'. The dietary diversity score is a crude measure of food security and ranges between zero (i.e. no food groups) and 11 (i.e. 11 food groups). Higher values of the dietary diversity score are associated with better food security.

The meal frequency score and the dietary diversity score are derived from:

Swindale A, Bilinsky P, *Household Dietary Diversity Score (HDDS) for measurement of household food access: Indicator guide*. Washington DC, Food and Nutrition Technical Assistance (FANTA) Project, 2006

Kennedy G, Ballard T, Dop MC, *Guidelines for measuring household and individual dietary diversity*, Rome, Food and Agricultural Organization, 2010

The data on the types of food consumed in the previous 24 hours are analysed in order to determine the content of specific micronutrients in the diet that are important for older people. This also follows Swindale & Bilinsky (2006) and Kennedy et al (2010), and:

World Health Organization, *The management of nutrition in major emergencies*, Geneva, WHO, 2000

8.3 Meal frequency

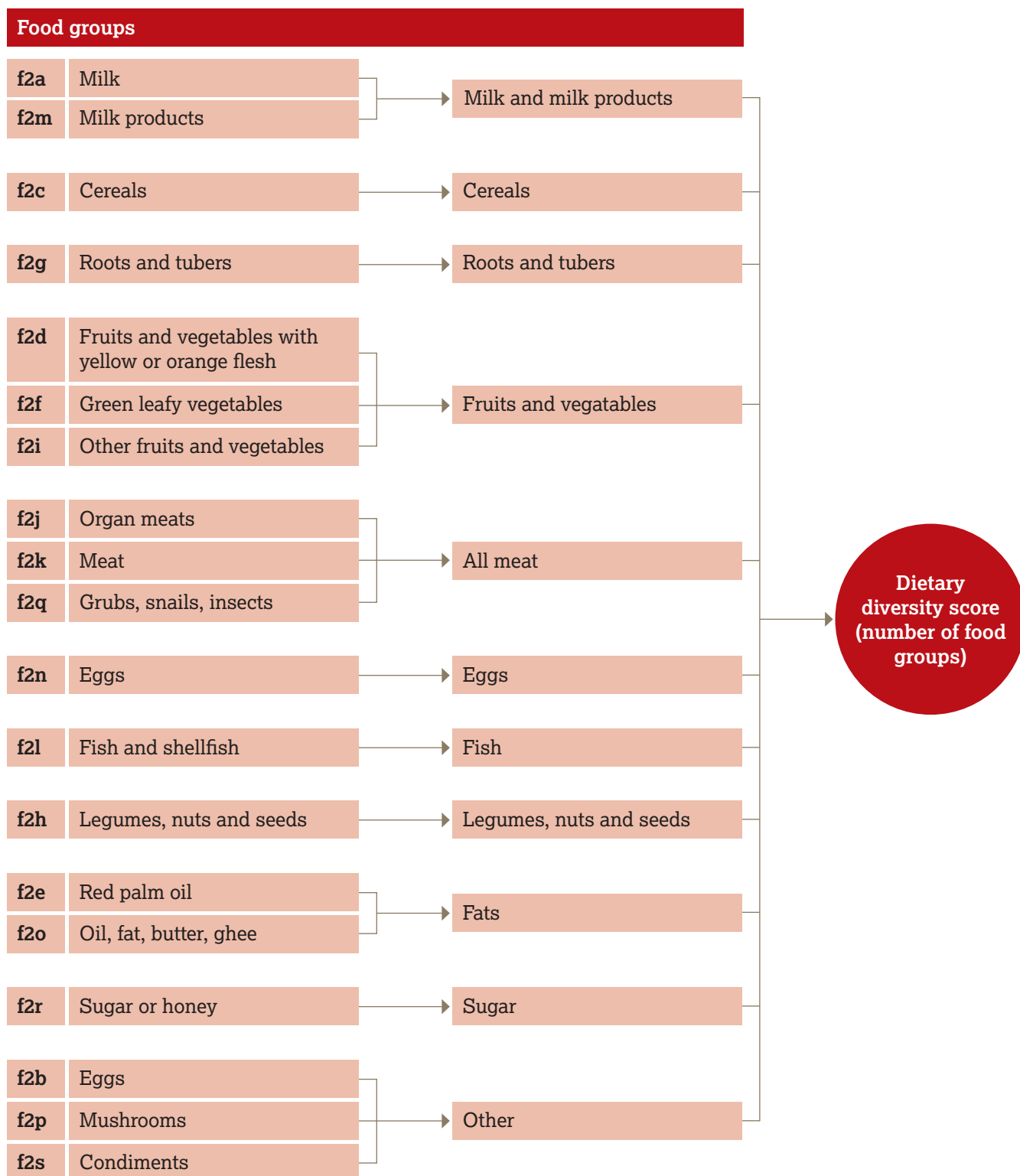
The meal frequency score indicator is the answer given to the first food intake question:



Meal frequency is a crude measure of food security. Higher values of meal frequency are associated with better food security.

8.4 Food groups and dietary diversity

Questions relating to the consumption of individual food items and food types are combined to create food groups, and the number of food groups consumed are counted to create a dietary diversity score:



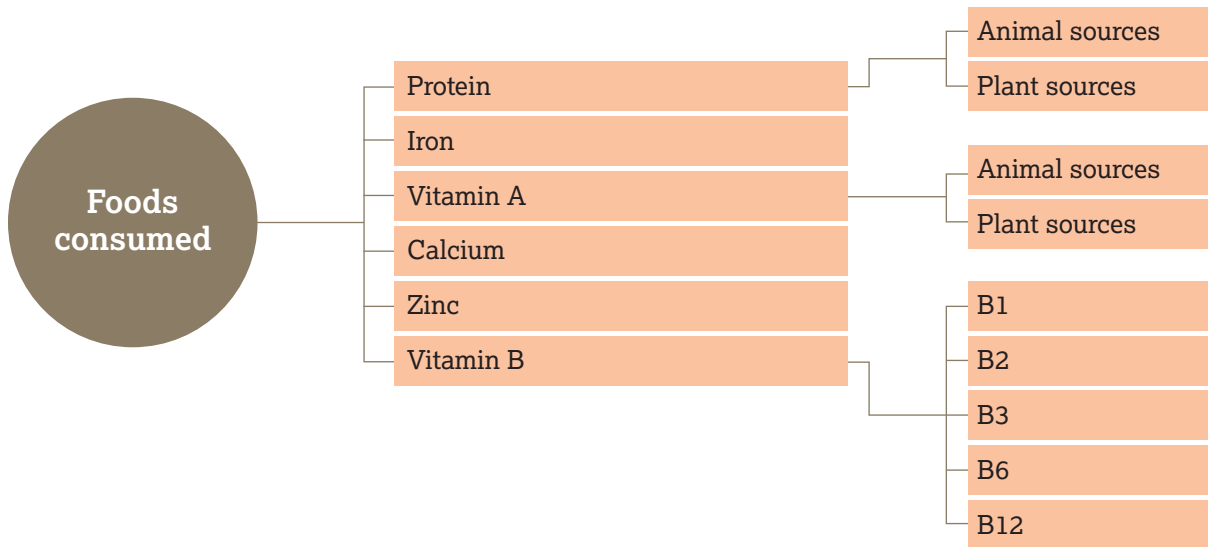
The consumption of the 11 individual food groups and the dietary diversity score are reported separately.

The dietary diversity score is a crude measure of food security. The dietary diversity score ranges between 0 (no food groups) and 11 (11 food groups). Higher values of the dietary diversity score are associated with better food security.

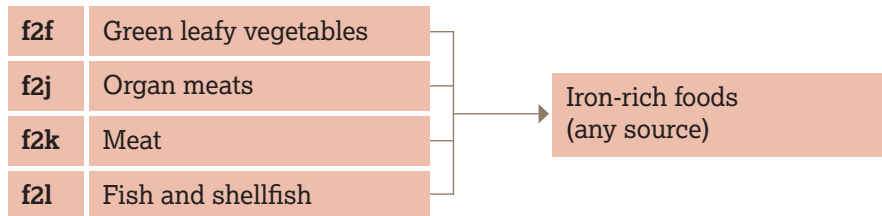
8.5 Indicators of nutrient consumption

Overview

Questions and combinations of questions relating to the consumption of individual food items and food types can be used to determine whether the reported diet is likely to provide sufficient nutrients of various types:



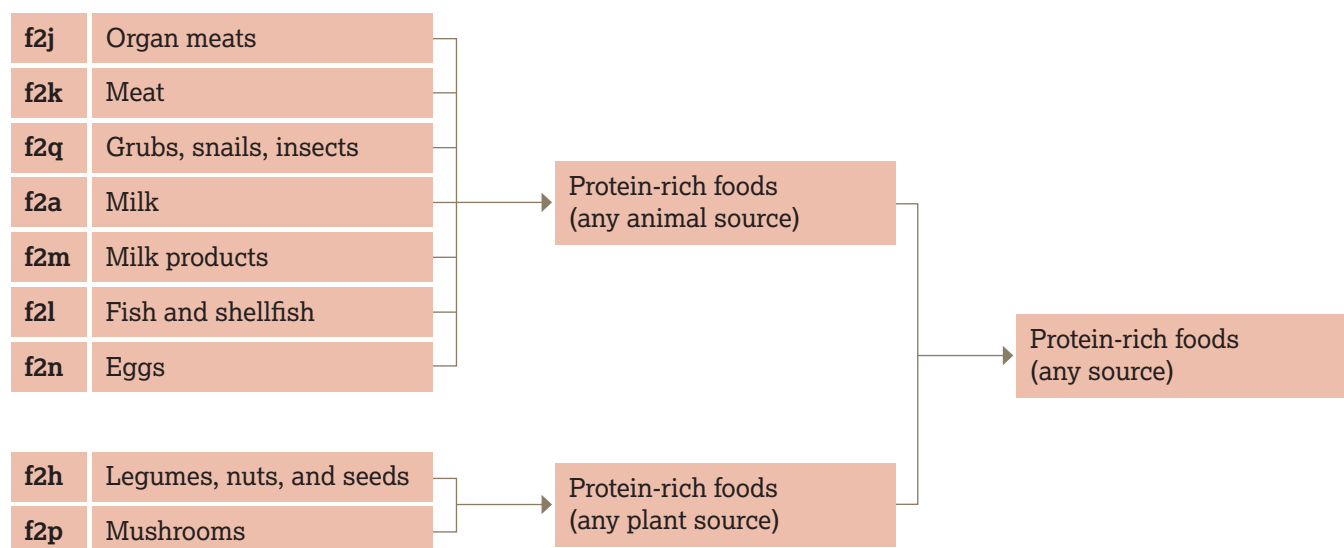
Each indicator is formed using logical 'or' operations (i.e. the indicator is true if **any** of the constituent foods are consumed). For example, the indicator for the consumption of iron rich foods:



requires the consumption of one or more of green leafy vegetables, organ meats, meat, or fish and shellfish. Consumption of **any** of these foods is sufficient to indicate that the person being surveyed consumes iron rich food.

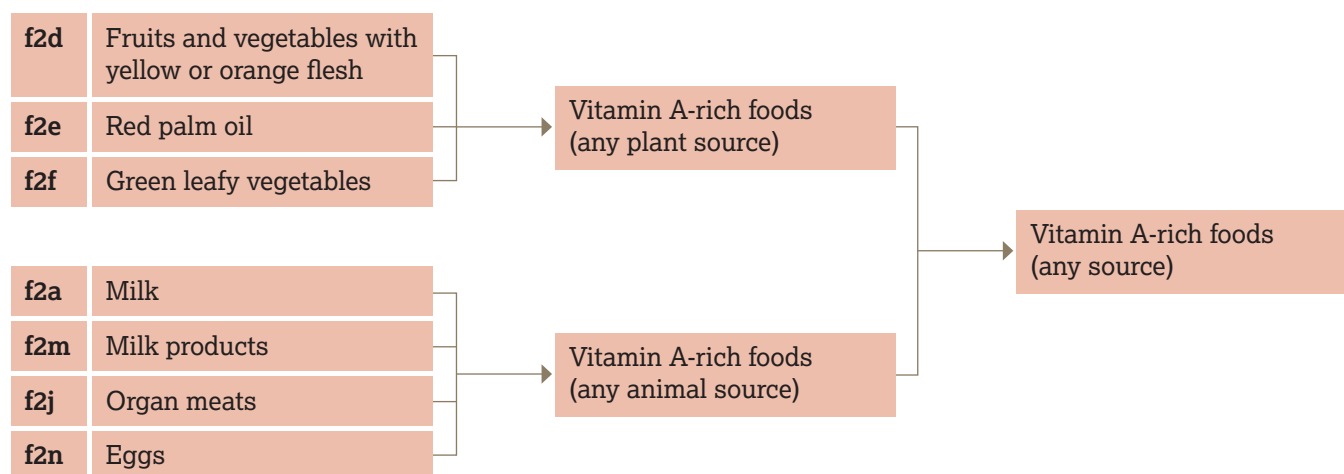
Protein-rich foods

Indicators of consumption of protein-rich foods from animal sources, plant sources and any or all sources are calculated as:



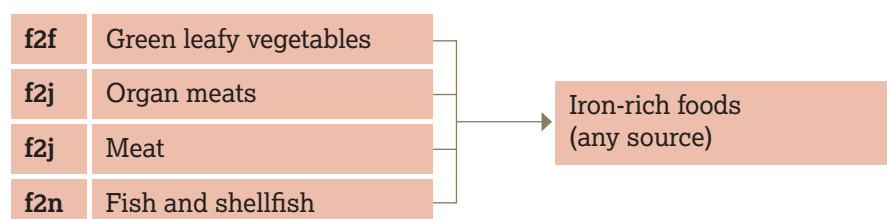
Vitamin A-rich foods

Indicators of consumption of vitamin A-rich foods from animal sources, plant sources and any or all sources are calculated as:



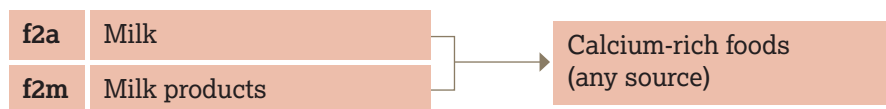
Iron-rich foods

An indicator of consumption of iron-rich foods from any or all sources is calculated as:



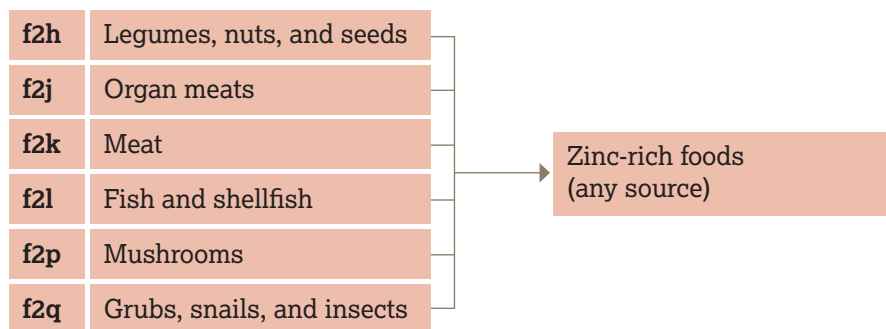
Calcium-rich foods

An indicator of consumption of calcium-rich foods from any or all sources is calculated as:



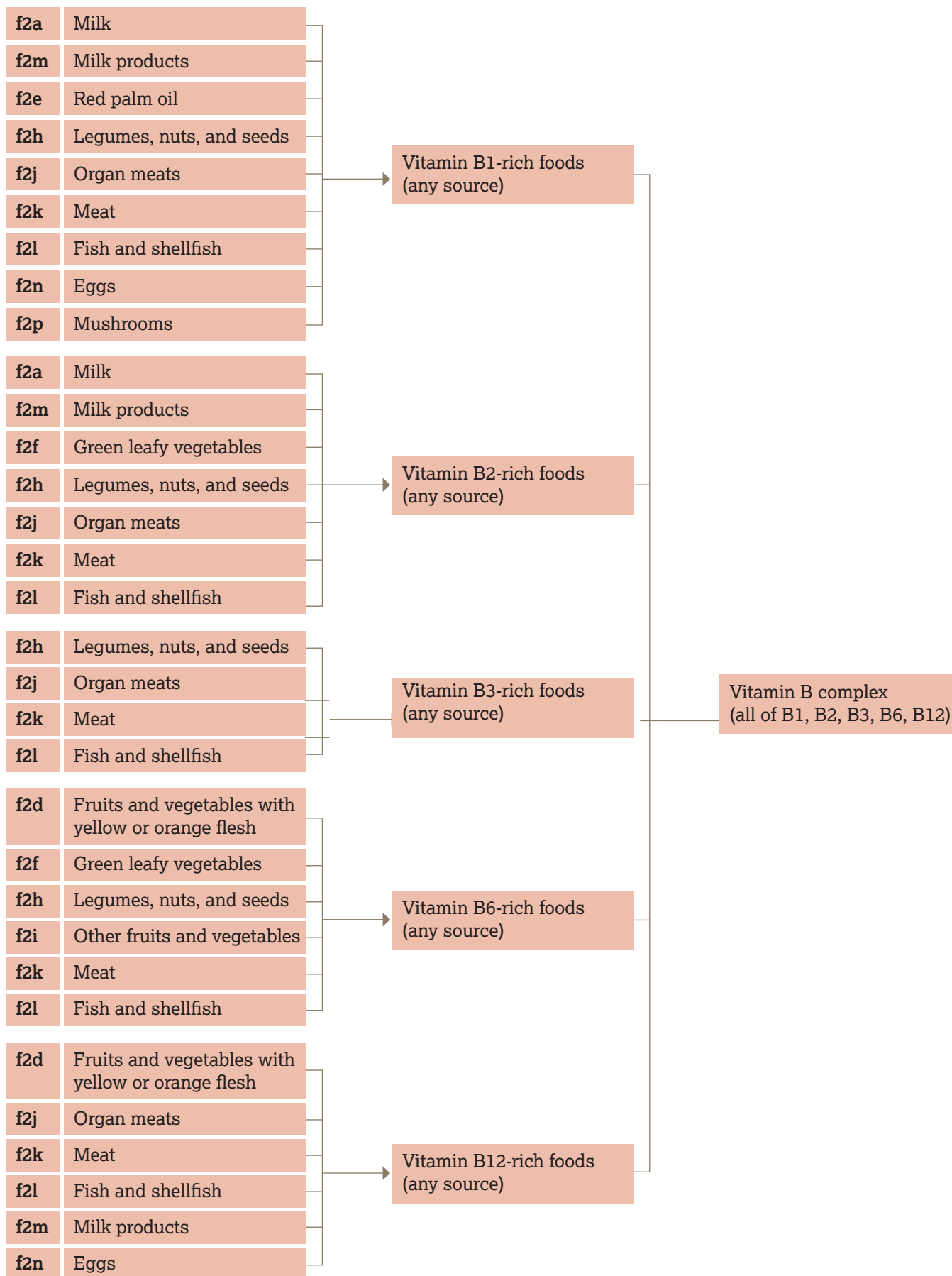
Zinc-rich foods

An indicator of consumption of zinc-rich foods from any or all sources is calculated as:



Vitamin B-rich foods

An indicator of consumption of vitamin B-rich foods from any or all sources is calculated as:



Note that the vitamin B complex indicator requires that at least one food from each of the B1, B2, B3, B6, and B12-rich food combinations is consumed.

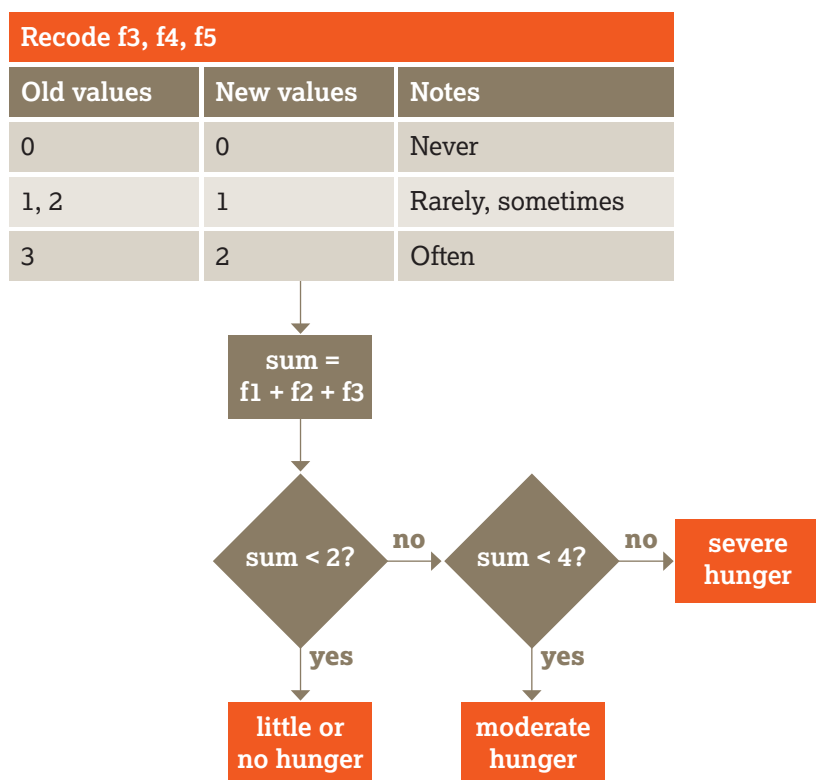
Severe food insecurity

An indicator of severe food insecurity (hunger) is derived from this questionnaire component:

Hunger, ration, relief

f3	In the past four weeks, how often was there ever no food to eat of any kind in your home because of lack of resources to get food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>
f4	In the past four weeks, how often did you go to sleep at night hungry because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>
f5	In the past four weeks, how often did you go a whole day and night without eating anything at all because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>

and is calculated as:



This indicator is the ‘Household Hunger Scale’ (HHS) and is a simple, well-validated and widely used indicator of severe food insecurity, derived from:

Ballard T, Coates J, Swindale A, Deitchler M, *Household Hunger Scale: indicator definition and measurement guide*, Washington DC, FANTA-2 Bridge, FHI 360, 2011

Ruel MT, Ballard TJ, Deitchler M, *Measuring and tracking the access dimension of food security: available indicators and recommendations for future investments*, Global Nutrition Report 2014: Technical Note 6, Washington DC, International Food Policy Research Institute, 2014

8.6 Disability

Indicators of disability across six different domains are derived from this questionnaire component:

Disability (Washington Group)

wg1	Do you have difficulty seeing, even if wearing glasses?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg2	Do you have difficulty hearing, even if using a hearing aid?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg3	Do you have difficulty walking or climbing steps?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg4	Do you have difficulty remembering or concentrating?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg5	Do you have difficulty with self-care such as washing all over or dressing?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg6	Using your usual (customary) language, do you have difficulty communicating, for example understanding or being understood?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>

Individual *disability* indicators are reported for each domain (i.e. vision, hearing, mobility, remembering, self-care, and communication) of disability in the Washington Group's short set of question designed to identify people with a disability in a census or survey format:

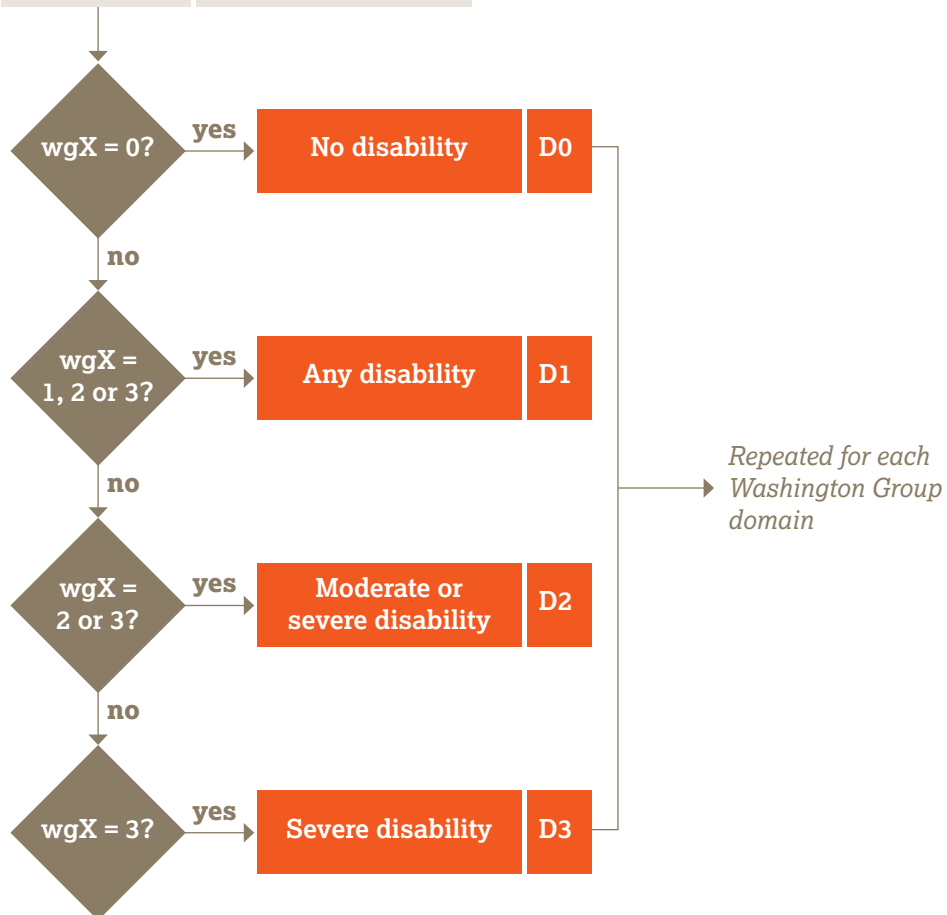
www.washingtongroup-disability.com

www.cdc.gov/nchs/washington_group/wg_documents.htm

Overall disability prevalence indicators are also reported.

Indicators of disability in each domain are calculated as:

Recode wg1, wg2, wg3, wg4, wg5, wg6		
Old values	New values	Notes
9	0	Not applicable
N/A	0	Missing



Overall disability prevalence indicators are calculated as:

P0 = 1 if no domain has D1 = 1, else = 0 (no disability in any domain)

P1 = 1 if at least one domain has D1 = 1, else = 0

P2 = 1 if at least one domain has D2 = 1, else = 0

P3 = 1 if at least one domain has D3 = 1, else = 0

PM = 1 if at more than one domain has D1 = 1, else = 0 (M stands for “Multiple”)

8.7 Activities of daily living

Indicators of how well the subject copes with activities of daily living are derived from this questionnaire component:

Activities of daily living

a1	Do you need help with bathing more than one part of your body or getting in or out of the tub or shower?	1 = Yes 2 = No	<input type="checkbox"/>
a2	Do you need help getting dressed partially or completely (not including tying of shoes)?	1 = Yes 2 = No	<input type="checkbox"/>
a3	Do you need help going to the toilet or cleaning yourself after using the toilet or do you use a commode or bed-pan?	1 = Yes 2 = No	<input type="checkbox"/>
a4	Do you need someone (i.e. not a walking aid) to help you move from a bed to a chair?	1 = Yes 2 = No	<input type="checkbox"/>
a5	Are you partially or totally incontinent of bowel or bladder?	1 = Yes 2 = No	<input type="checkbox"/>
a6	Do you need partial or total help with eating?	1 = Yes 2 = No	<input type="checkbox"/>
a7	Is someone taking care of you or helping you with everyday activities such as shopping, cooking, bathing and dressing?	1 = Yes 2 = No	<input type="checkbox"/>

Individual 'independence' indicators are reported for each dimension (i.e. bathing, dressing, toilet, mobility, continence, and eating) of daily living activities.

A composite indicator of the degree of independence (i.e. how well the person can cope with activities of daily living) is also reported. This indicator is the 'Katz Index of Independence in Activities of Daily Living' (or the 'Katz Index of ADL' for short) and is a simple, well-validated, and widely used indicator of how well the subject can cope with activities of daily living. The Katz Index of ADL ranges between zero (complete dependence) and six (independence):

Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW, 'Studies of illness in the aged. The Index of ADL: A standardized measure of biological and psychosocial function', *Journal of the American Medical Association*, 185(12), 1963, pp.914-9

Katz S, Down TD, Cash HR, Grotz RC, 'Progress in the development of the index of ADL', *The Gerontologist*, 10(1), 1970, pp.20-30

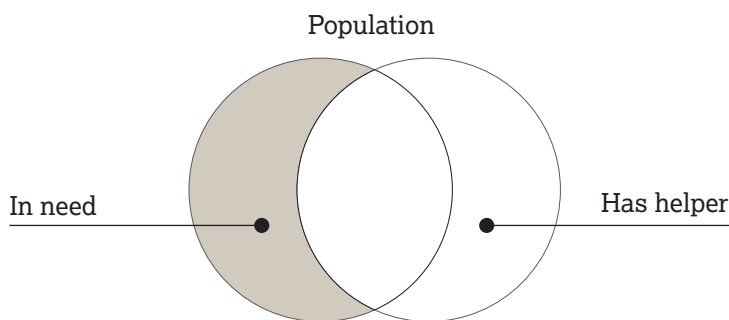
Katz S, Assessing self-maintenance: Activities of daily living, mobility and instrumental activities of daily living, *Journal of the American Geriatrics Society*, 31(12), 1983, pp.721-726

The seventh question of this module, which is not part of the Katz Index of ADL, is reported separately and indicates whether the subject has someone to help with daily living activities:

Activities of daily living

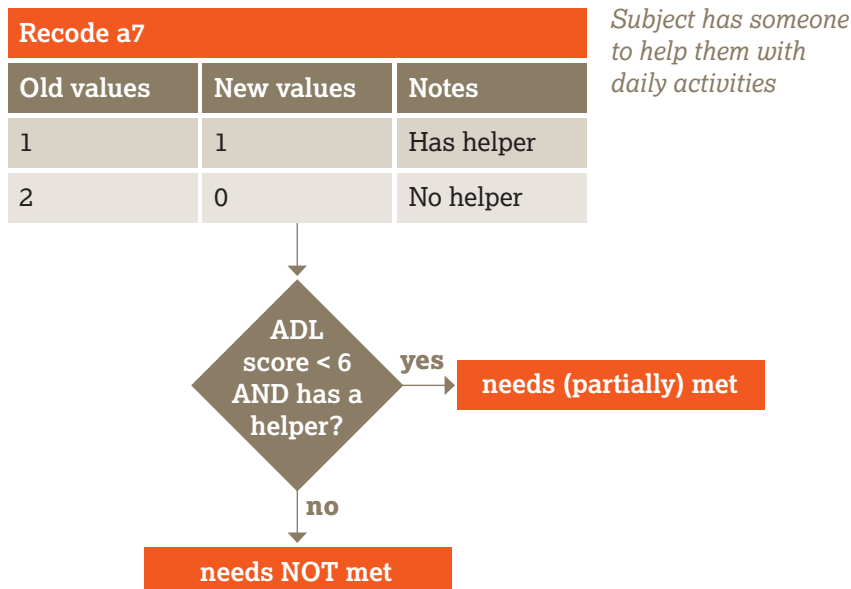
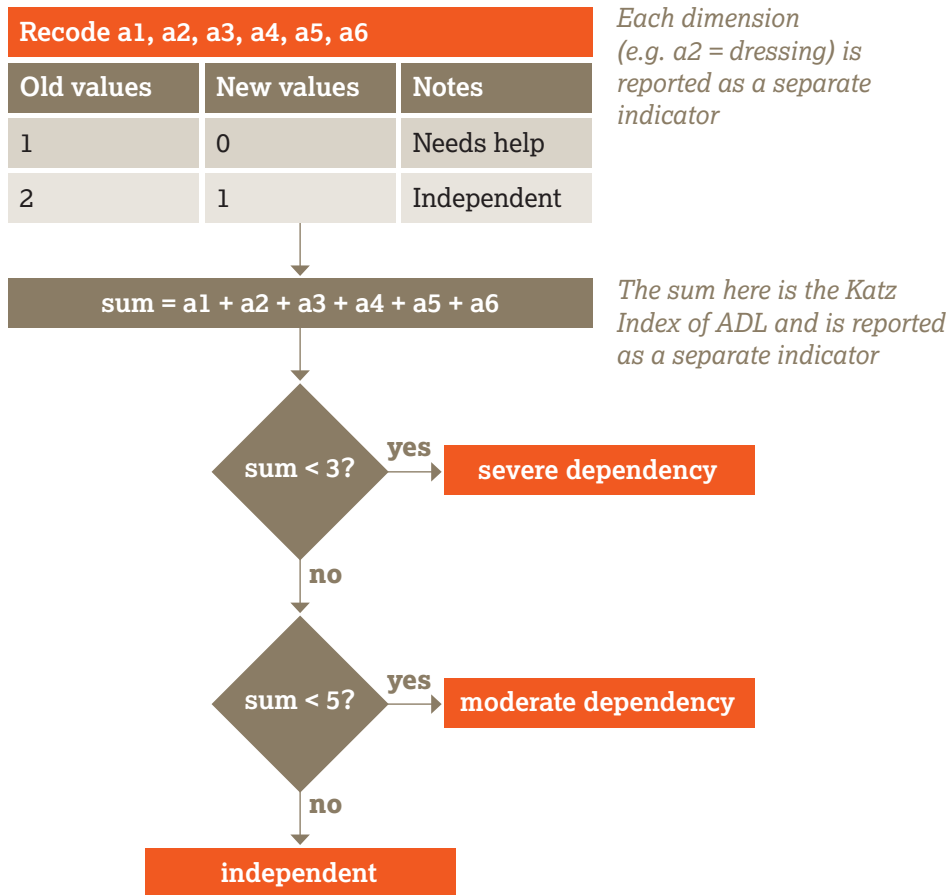
a1	Do you need help with bathing more than one part of your body or getting in or out of the tub or shower?	1 = Yes 2 = No	<input type="checkbox"/>
a2	Do you need help getting dressed partially or completely (not including tying of shoes)?	1 = Yes 2 = No	<input type="checkbox"/>
a3	Do you need help going to the toilet or cleaning yourself after using the toilet or do you use a commode or bed-pan?	1 = Yes 2 = No	<input type="checkbox"/>
a4	Do you need someone (i.e. not a walking aid) to help you move from a bed to a chair?	1 = Yes 2 = No	<input type="checkbox"/>
a5	Are you partially or totally incontinent of bowel or bladder?	1 = Yes 2 = No	<input type="checkbox"/>
a6	Do you need partial or total help with eating?	1 = Yes 2 = No	<input type="checkbox"/>
a7	Is someone taking care of you or helping you with everyday activities such as shopping, cooking, bathing and dressing?	1 = Yes 2 = No	<input type="checkbox"/>

It is not possible to know if the help available completely meets a person's needs, but the proportion of subjects needing help with one or more activities of daily living who also report not having someone to help them can be identified:



(The shaded area contains only those in need and without a helper).

This is an indicator of unmet need.



8.8 Mental health and well-being

Indicators of mental health and well-being are derived from this questionnaire component:

Mental health and wellbeing

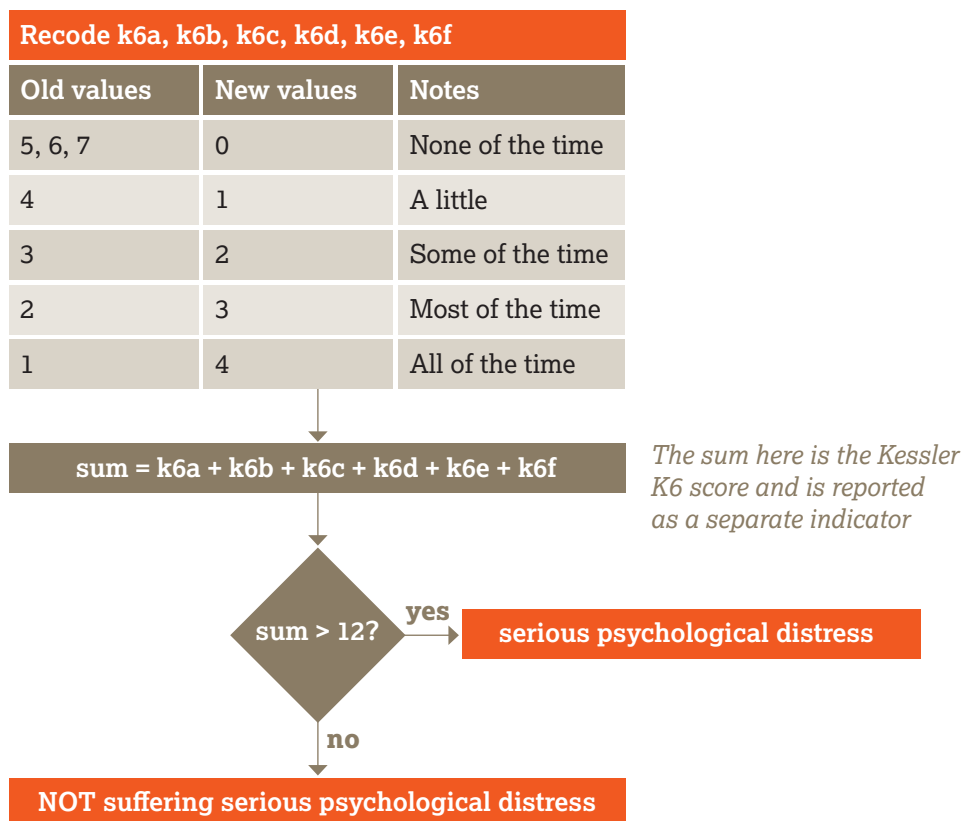
k6a	About how often during the past four weeks did you feel nervous – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6b	During the past four weeks, about how often did you feel hopeless – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6c	During the past four weeks, about how often did you feel restless or fidgety – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6d	During the past four weeks, about how often did you feel so depressed that nothing could cheer you up – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6e	During the past four weeks, about how often did you feel that everything was an effort – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6f	During the past four weeks, about how often did you feel worthless – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>

A score is calculated using the 'Kessler K6 Psychological Distress Scale'. The score ranges from zero (indicating no psychological distress) to 24 (indicating severe psychological distress). A score of 13 or more indicates serious psychological distress. The Kessler K6 Psychological Distress Scale is a widely recommended and used, and is an accurate, reliable and simple measure of psychological distress:

Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SLT, et al, 'Short screening scales to monitor population prevalences and trends in non-specific psychological distress', *Psychological Medicine*, 32(6), 2002, pp.959-976

Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, 'Screening for Serious Mental Illness in the General Population', *Archives of General Psychiatry*, 60(2), 2003, pp.184-189

Indicators of mental health and well-being are calculated as:



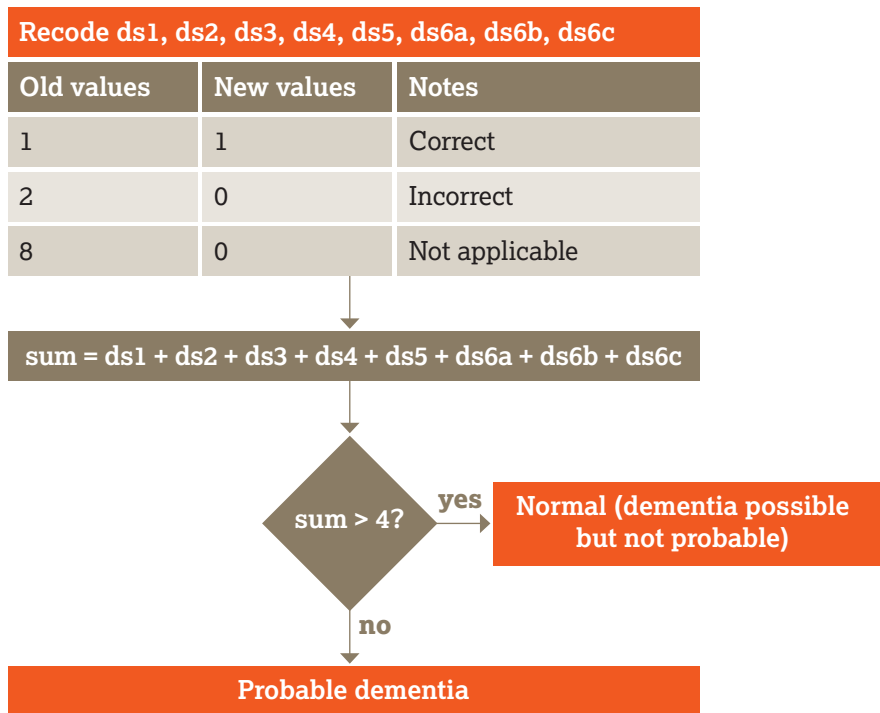
9. Dementia

An indicator of probable dementia is derived from this questionnaire component:

Dementia screen

ds0	<p>This section can only be completed if the subject is answering for themselves.</p> <p>If the respondent is not answering for themselves then record '8' as the answer for all questions below and continue with the interview. Write the reason why the subject is not answering for themselves in the OBSERVATIONS section at the end of the questionnaire.</p> <p>Say: I am going to tell you three words. I would like you to repeat them after me.</p> <p>“CHILD” “HOUSE” “ROAD”</p> <p>Repeat the three words, up to a maximum of six (6) times, or until the person has remembered them all correctly.</p> <p>Say: Try to remember these words. I will ask about them later.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds1	<p>Point to your nose and ask: What do we call this?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds2	<p>What do you do with a hammer? Accept answers such as: Drive a nail into something; Straighten metal; Hit a wedge or something else; Use with a chisel.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds3	<p>What day of the week is it?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds4	<p>What is the season?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds5	<p>Say: Please point first to the window and then to the door.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6	<p>Do you remember the three words I asked you to remember a few minutes ago?</p>		
ds6a	<p>CHILD</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6b	<p>HOUSE</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6c	<p>ROAD</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>

The indicator of probable dementia is calculated as:



This indicator is derived from the 'Community Screening Instrument for Dementia' (CSID) developed by the 10/66 Dementia Research Group. This is a simple, validated, and widely used indicator of *probable* dementia:

Prince M, et al, 'A brief dementia screener suitable for use by non-specialists in resource poor settings – The cross-cultural derivation and validation of the brief Community Screening Instrument for Dementia', *International Journal of Geriatric Psychiatry*, 26(9), 2011, pp.899-907

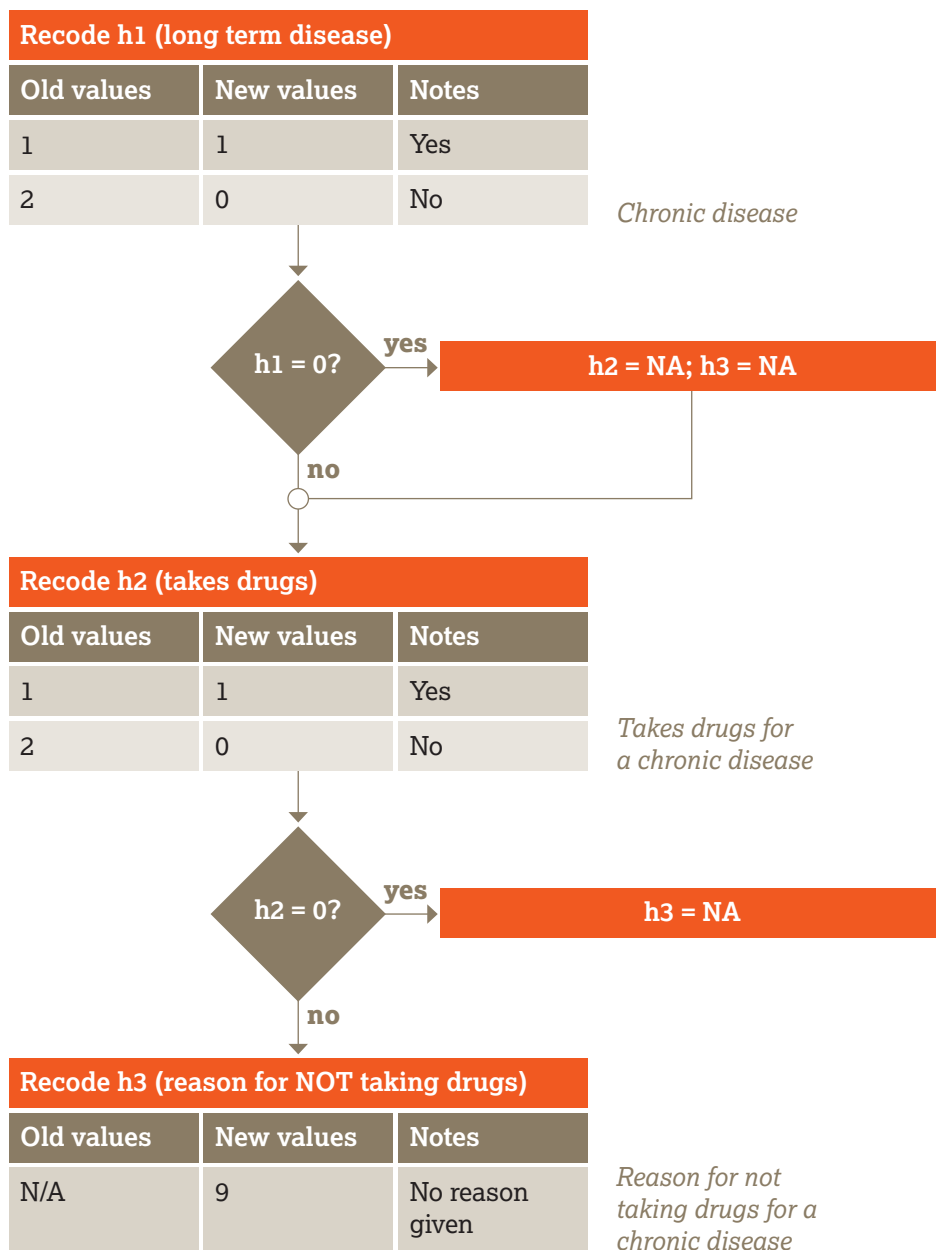
10. Health and health-seeking behaviour

Indicators of health and health-seeking behaviour for chronic and acute conditions are derived from this part of the questionnaire:

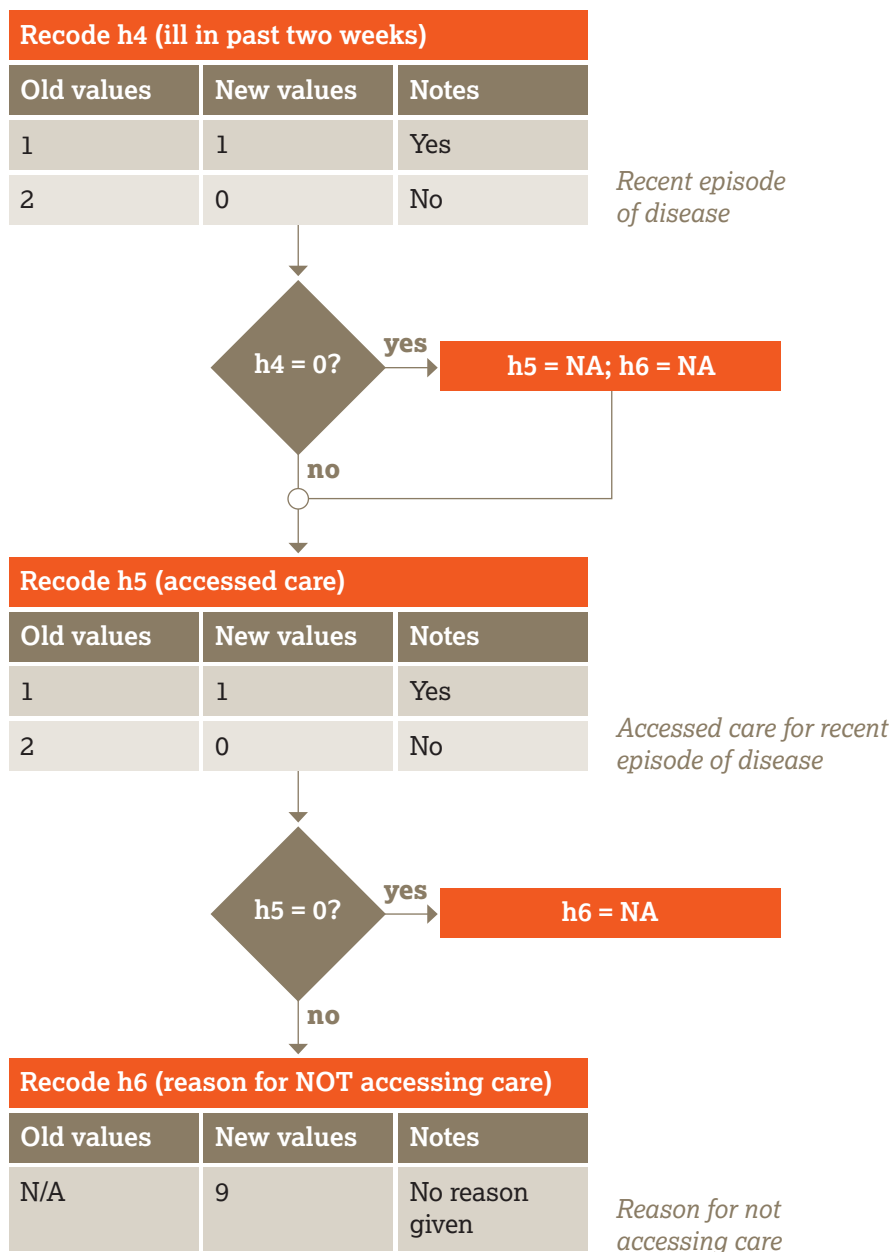
Health seeking and healthcare

h1	Do you suffer from a long term disease that requires you to take regular medication?	1 = Yes 2 = No	<input type="checkbox"/>
If No jump to question h4 (below)			
h2	Do you take drugs regularly for this?	1 = Yes 2 = No	<input type="checkbox"/>
If Yes jump to question h4 (below)			
h3	Why not? <i>Prompt for the main reason. Record main reason only.</i>	1 = No drugs available 2 = Too expensive / no money 3 = Too old to look for care 4 = Use traditional medicine 5 = Drugs don't help 6 = No-one to help me 7 = No need 8 = Other 9 = No reason given	<input type="checkbox"/>
h4	Have you been ill in the past two weeks?	1 = Yes 2 = No	<input type="checkbox"/>
If No jump to question m1 (below)			
h5	Did you go to the pharmacy, dispensary, health centre, health post, clinic, or hospital?	1 = Yes 2 = No	<input type="checkbox"/>
If Yes jump to question m1 (below)			
h6	Why not? <i>Prompt for the main reason. Record main reason only.</i>	1 = No drugs available 2 = Too expensive / no money 3 = Too old to look for care 4 = Use traditional medicine 5 = Drugs don't help 6 = No-one to help me 7 = No need 8 = Other 9 = No reason given	<input type="checkbox"/>

Indicators of health and health-seeking behaviour for **chronic** conditions are calculated as:



Indicators of health and health-seeking behaviour for **acute** conditions are calculated as:



11. Sources of income

Indicators related to sources of income are derived from this part of the questionnaire.

Income

m1	Do you have a personal source of income or money?	1 = Yes 2 = No	<input type="checkbox"/>
Continue to question m2 even if the subject reports having no personal income			
m2	Where does your income or money come from? (prompt "Anything else?")		
m2a	Agriculture, livestock, or fishing	1 = Yes 2 = No	<input type="checkbox"/>
m2b	Wages or salary	1 = Yes 2 = No	<input type="checkbox"/>
m2c	Sale of charcoal, bricks, firewood, poles, etc.	1 = Yes 2 = No	<input type="checkbox"/>
m2d	Trading (e.g. market, shop)	1 = Yes 2 = No	<input type="checkbox"/>
m2e	Private pension, investments, interest, rents, etc.	1 = Yes 2 = No	<input type="checkbox"/>
m2f	Spending savings. Sale of household goods, personal goods, or jewellery. Sale of livestock, land, or other assets	1 = Yes 2 = No	<input type="checkbox"/>
m2g	Aid, gifts, charity (e.g. from church, mosque, temple), begging, borrowing, or sale of food aid or relief items	1 = Yes 2 = No	<input type="checkbox"/>
m2h	Cash transfer (NGO, UNO, government) State pension, social security, benefits, welfare program	1 = Yes 2 = No	<input type="checkbox"/>
m2i	Other	1 = Yes 2 = No	<input type="checkbox"/>

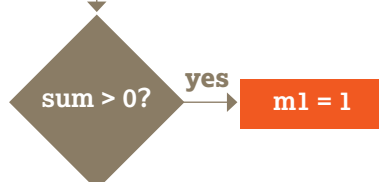
and are calculated as:

Recode m1, m2a, m2b, m2c, m2d, m2e, m2f, m2g, m2h, m2i

Old values	New values	Notes
1	1	Yes
Others	0	No

Each income source (e.g. m2b = wages) is reported as a separate indicator

$$\text{sum} = m1 + m2a + m2b + m2c + m2d + m2e + m2f + m2g + m2h + m2i$$



This corrects for an inappropriate **no** answer to question m1

The grouped income sources (i.e. m2a, m2b etc) and individual income sources may vary between settings. The questionnaire shown above has been successfully used in Ethiopia, South Sudan and Tanzania.

12. Water, sanitation and hygiene

Indicators relating to water, sanitation, and hygiene (WASH) are derived from this part of the questionnaire:

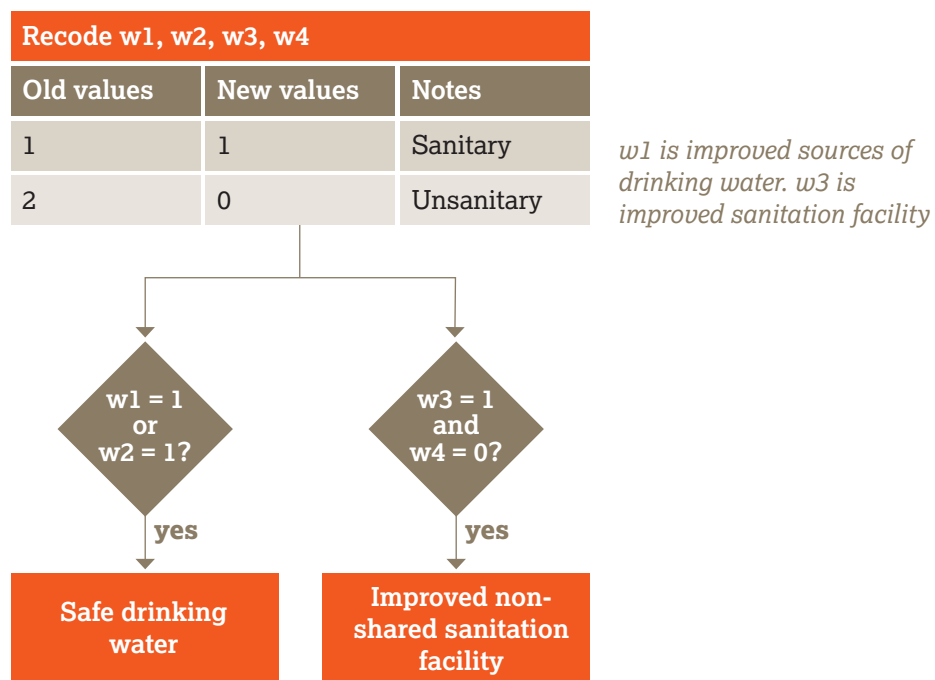
Water, sanitation, hygiene

<p>w1</p>	<p>What is your main source of drinking water?</p> <p>Piped water into dwelling Piped water into compound Public tap / Standpipe Tube-well / Borehole Protected dug well Protected spring Rainwater collection system Bottled water / sachet water</p> <p style="text-align: right;">1</p> <p>or</p> <p>Unprotected dug well Unprotected spring Cart with small tank or drum Tanker-truck River, stream, dam, lake, pond, or puddle Canal or irrigation channel Other</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w2</p>	<p>What do you usually do to the water to make it safer to drink?</p> <p>Boil Add bleach / chlorine tablet Use a water filter (gravel / sand / ceramic) Solar disinfection</p> <p style="text-align: right;">1</p> <p>or</p> <p>Strain it through a cloth only Let it stand and settle only Nothing Other Don't know</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w3</p>	<p>What kind of toilet facility do members of your household usually use?</p> <p>Flush or pour flush to: Piped sewer system Septic tank Pit latrine Don't know VIP latrine Pit latrine with slab Composting toilet</p> <p style="text-align: right;">1</p> <p>or</p> <p>Flush or pour flush to: Elsewhere (anywhere not specified above) Pit latrine without slab Bucket Hanging latrine Bush or field No facilities</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w4</p>	<p>Do you share this toilet facility with other households?</p>	<p>1 = Yes 2 = No 3 = NA (no facility)</p>	<input type="checkbox"/>

Indicators are calculated following:

WHO / UNICEF, *Core Questions on Drinking-water and Sanitation for Household Surveys*, Geneva, WHO / UNICEF, 2006

Indicators relating to water, sanitation, and hygiene (WASH) are calculated as:



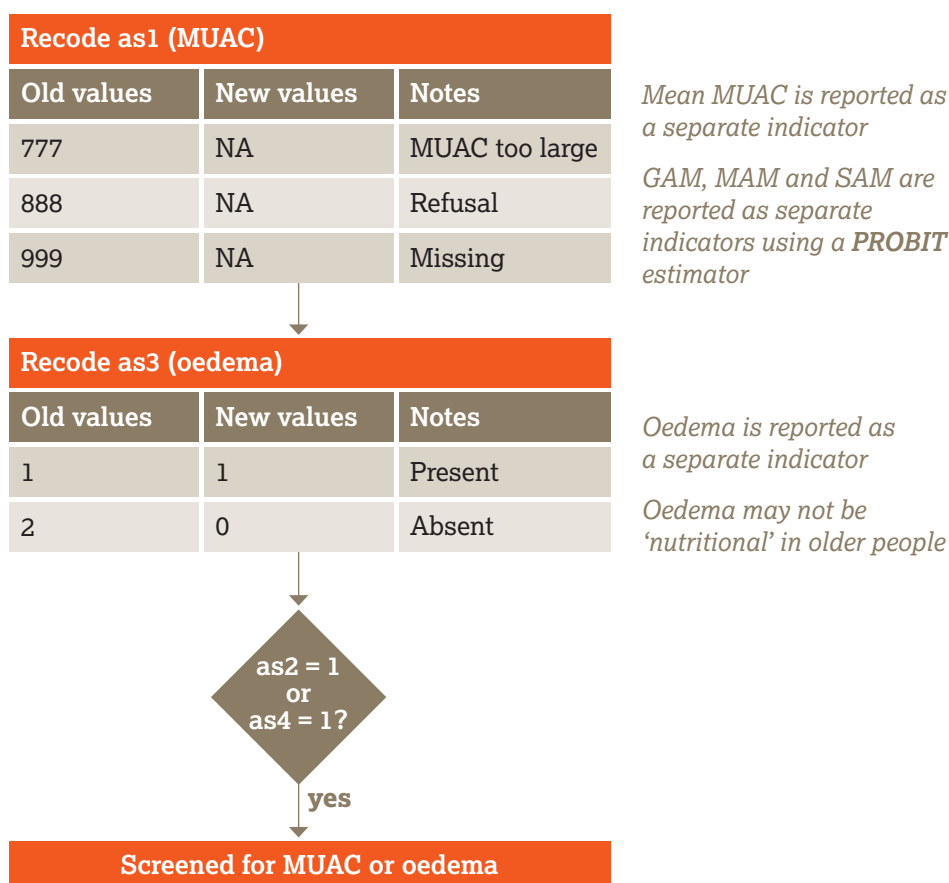
13. Anthropometry and screening coverage

Indicators relating to anthropometry and screening coverage are derived from this part of the questionnaire:

Anthropometry / screening coverage

as1	Mid-upper arm circumference (MUAC) in mm	777 = Too large 888 = Refused	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
as2	Has someone measured your arm like this in the previous month?	1 = Yes 2 = No	<input type="checkbox"/>
as3	Bilateral pitting oedema	1 = Yes 2 = No	<input type="checkbox"/>
as4	Has someone examined your feet like this in the previous month?	1 = Yes 2 = No	<input type="checkbox"/>

And are calculated as:



Raw MUAC data (i.e. not MUAC class) is collected, entered and analysed. This requires that an adult MUAC tape (i.e. capable of measuring MUAC to 450mm) is used.

The presence of bilateral oedema is assessed by pressing **both** feet of the older person for three seconds with your thumbs and checking whether this creates a lasting depression or 'pit' on both feet. Bilateral pitting oedema in older people may not be 'nutritional' oedema (as is almost always the case with children). Older people with bilateral pitting oedema should be advised to consult a doctor.

The prevalence of global acute malnutrition (GAM), moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) are estimated using a PROBIT estimator (see Box 1). This type of estimator is more precise than a classic estimator at small sample sizes:

World Health Organization, *Physical Status: The use and interpretation of anthropometry. Report of a WHO expert committee*, WHO Technical Report Series 854, WHO, Geneva, 1995

Dale NM, Myatt M, Prudhon C, Briend A, 'Assessment of the PROBIT approach for estimating the prevalence of global, moderate and severe acute malnutrition from population surveys', *Public Health Nutrition*, 1-6. doi:10.1017/S1368980012003345, 2012

Blanton CJ, Bilukha OO, 'The PROBIT approach in estimating the prevalence of wasting: revisiting bias and precision', *Emerging Themes in Epidemiology*, 10(1), 2013, p.8

MUAC-based case definitions for acute malnutrition are used:

GAM: MUAC < 210mm

MAM: 185mm ≤ MUAC < 210mm

SAM: MUAC < 185mm

These are standard case definitions for acute malnutrition in adults and recommended by HelpAge International for use in older people in contexts of humanitarian crises.

Note: MUAC in adults should be measured on the non-dominant arm. This is usually the left arm. The importance of high levels of accuracy and precision at the individual level is of lesser importance in survey work compared to case-finding or diagnosis in clinical contexts, for example. This means that a simple rule such as "always measure MUAC on the left arm" may be used.

Box 1: Classic and PROBIT estimators of GAM, MAM and SAM prevalence

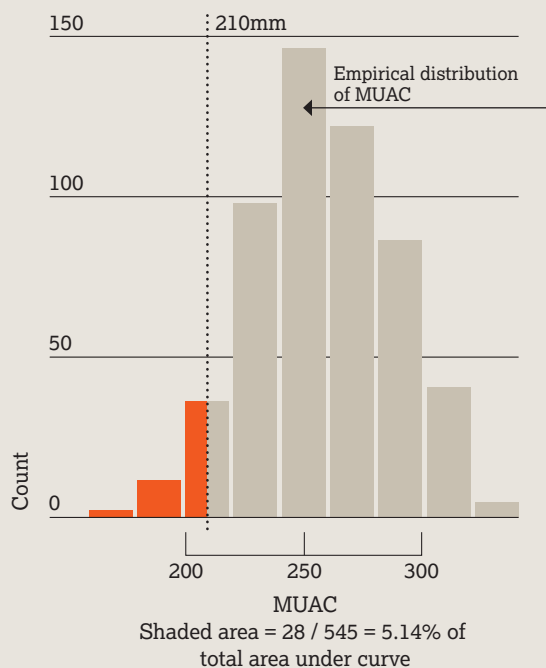
An estimate of GAM prevalence can be made using a classic estimator:

$$\text{prevalence} = \frac{\text{number of respondents with MUAC} < 210\text{mm}}{\text{total number of respondents}}$$

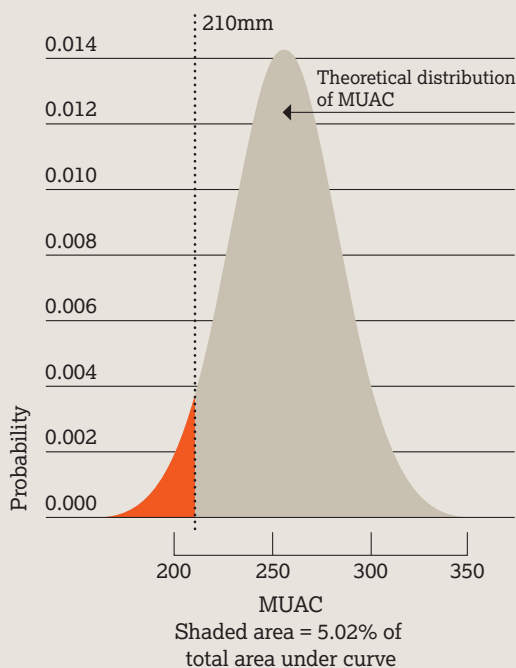
The estimate of GAM prevalence made from the RAM-OP survey data is made using a PROBIT estimator. The PROBIT function is also known as the inverse cumulative distribution function. This function converts parameters of the distribution of an indicator (e.g. the mean and standard deviation of a normally distributed variable) into cumulative percentiles. This means that it is possible to use the normal PROBIT function with estimates of the mean and standard deviation of indicator values in a survey sample to predict (or estimate) the proportion of the population falling below a given threshold. For example, for data with a mean MUAC of 256mm and a standard deviation of 28mm the output of the normal PROBIT function for a threshold of 210mm is 0.0502 meaning that 5.02% of the population are predicted (or estimated) to fall below the 210mm threshold.

Both the classic and the PROBIT methods can be thought of as estimating area :

Classic: Mean = 256, SD = 28



Probit: Mean = 256, SD = 28



The principal advantage of the PROBIT approach is that the required sample size is usually smaller than that needed to estimate prevalence with a given precision using the classic method. The PROBIT method assumes that MUAC is a normally distributed variable. If this is not the case then the distribution of MUAC is transformed towards normality. The prevalence of SAM is estimated in a similar way to GAM. The prevalence of MAM is estimated as the difference between the GAM and SAM prevalence estimates:

$$\text{MAM Prevalence} = \text{GAM Prevalence} - \text{SAM Prevalence}$$

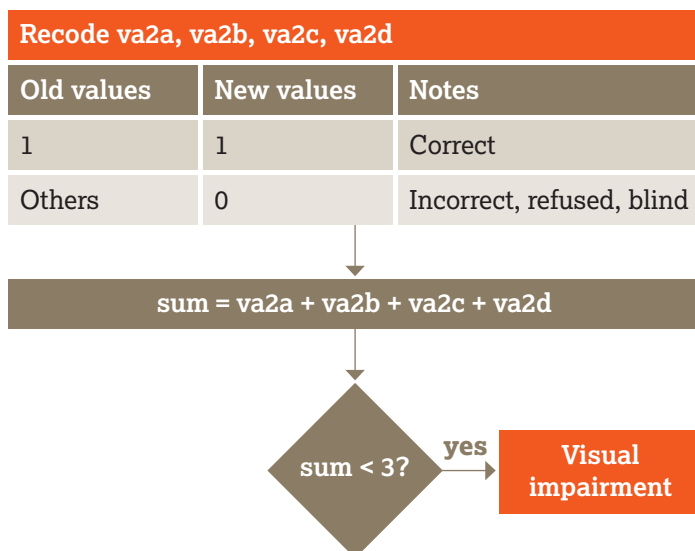
14. Visual impairment

An indicator of visual impairment is derived from this part of the questionnaire:

Visual acuity

va1	<p>Do you normally wear glasses?</p> <p>If the person wears glasses, ask if they are more comfortable wearing their glasses to look at your chart at 2 meters. Let the person decide.</p> <p>Demonstrate (close to the person) how to do the 'tumbling E' test:</p> <p>Show the direction the E is pointing.</p> <p>Ask the person if they understand. REPEAT if needed.</p> <p>Test with E at 2 meters:</p> <p>Use the string to measure 2 meters from the person.</p> <p>Hold the card at eye level and 2 meters away from the person.</p> <p>Turn the card in four different directions. Hide the card in your back before turning it each time.</p>	<p>1 = Yes 2 = No</p>	<input type="checkbox"/>
va2a	First time	<p>1 = Correct 2 = Incorrect 3 = Refused 4 = Blind</p>	<input type="checkbox"/>
va2b	Second time	<p>1 = Correct 2 = Incorrect 3 = Refused 4 = Blind</p>	<input type="checkbox"/>
va2c	Third time	<p>1 = Correct 2 = Incorrect 3 = Refused 4 = Blind</p>	<input type="checkbox"/>
va2d	Fourth time	<p>1 = Correct 2 = Incorrect 3 = Refused 4 = Blind</p>	<input type="checkbox"/>

And is calculated as:

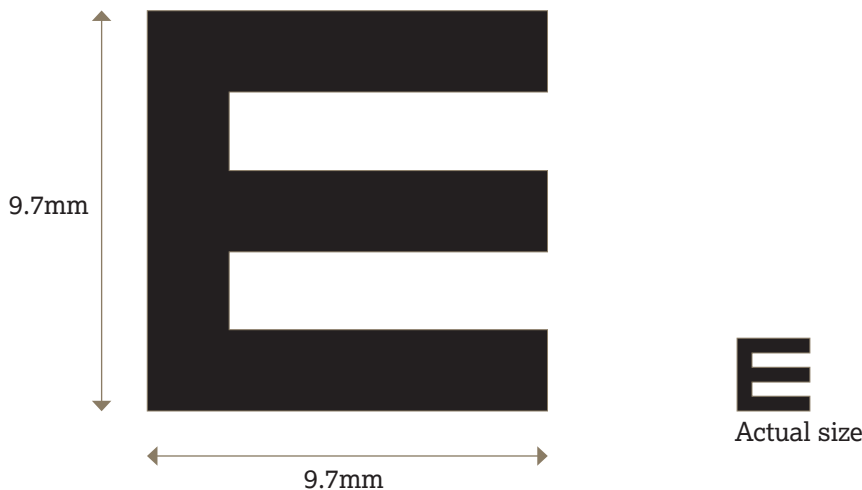


The 'illiterate E' or 'tumbling E' (the preferred term) is a validated and widely used method for measuring visual acuity.

Taylor HR, 'Applying new design principles to the construction of an illiterate E chart', *American Journal of Optometry & Physiological Optics*, 55:348, 1978

Kaiser PK, 'Prospective Evaluation of Visual Acuity Assessment: A Comparison of Snellen Versus ETDRS Charts in Clinical Practice (An AOS Thesis)', *Transactions of the American Ophthalmological Society*, 107: 311-324, 2009

The size of the 'E' used:



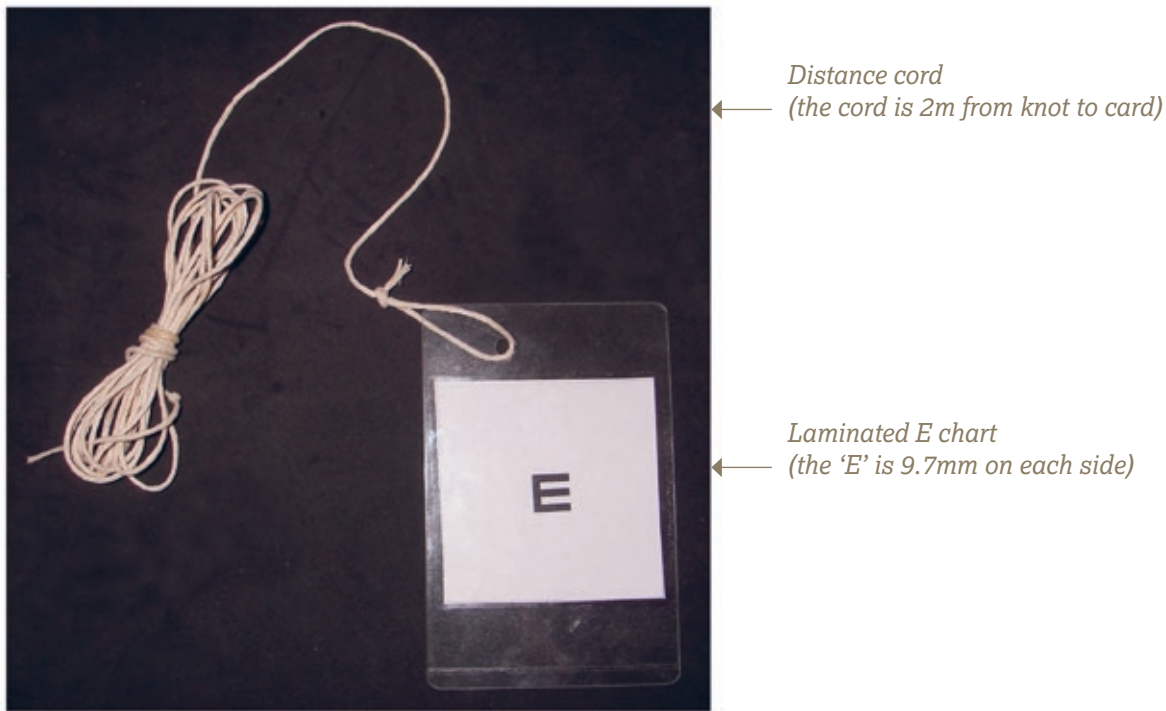
The distance used for the test (2 metres), and the indicator calculation apply the WHO case definition of visual impairment (i.e. visual acuity < 6/18).

The tumbling E card should be laminated (i.e. plastic coated and have a 2 metre cord attached which helps to ensure that the visual acuity test is performed at the correct distance (See Figure 11).

After demonstrating to the respondent what the test is about (i.e. the subject should indicate which direction the branches of the 'E' are pointing), the test is administered at a distance of 2 metres, turning the card in four different directions, and asking the person to indicate which direction the branches of the 'E' are pointing. If the subject wears glasses, they are allowed to use them during the test.

Note: If the person is unable to correctly answer at least three times out of four, they have a visual impairment. A simple visual acuity test such as the 'tumbling E' test also does not indicate anything about an underlying disease such as glaucoma or the need for reading spectacles (presbyopia). These conditions are common in people aged 60 years or older. Subjects failing the visual acuity test should be counselled to visit an ophthalmologist for a detailed eye examination.

Figure 11: Equipment used to measure visual acuity



15. Disability

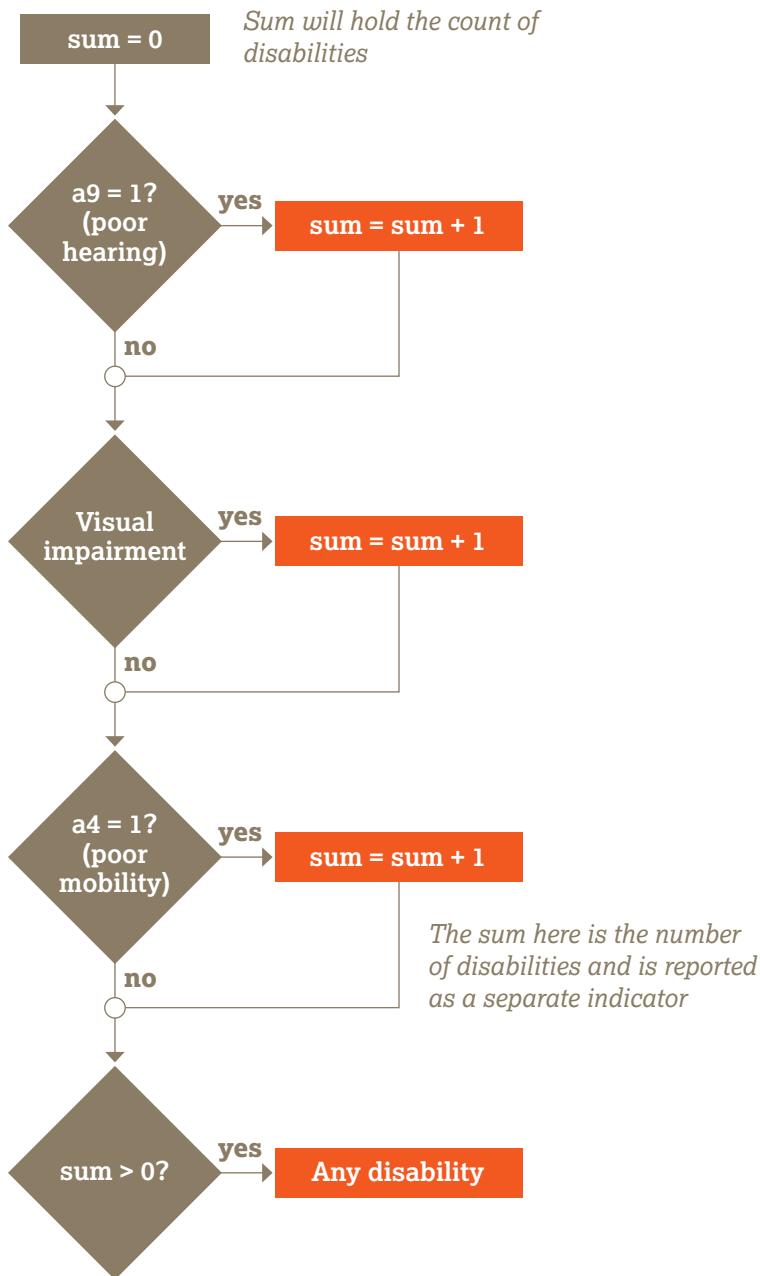
Two indicators relating to 'disability' are derived from this part of the questionnaire:

Activities of daily living

a1	Do you need help with bathing more than one part of your body or getting in or out of the tub or shower?	1 = Yes 2 = No	<input type="checkbox"/>
a2	Do you need help getting dressed partially or completely (not including tying of shoes)?	1 = Yes 2 = No	<input type="checkbox"/>
a3	Do you need help going to the toilet or cleaning yourself after using the toilet or do you use a commode or bed-pan?	1 = Yes 2 = No	<input type="checkbox"/>
a4	Do you need someone (i.e. not a walking aid) to help you move from a bed to a chair?	1 = Yes 2 = No	<input type="checkbox"/>
a5	Are you partially or totally incontinent of bowel or bladder?	1 = Yes 2 = No	<input type="checkbox"/>
a6	Do you need partial or total help with eating?	1 = Yes 2 = No	<input type="checkbox"/>
a7	Is someone taking care of you or helping you with everyday activities such as shopping, cooking, bathing and dressing?	1 = Yes 2 = No	<input type="checkbox"/>
a8	Do you have problems chewing food?	1 = Yes 2 = No	<input type="checkbox"/>
a9	Do you have poor hearing?	1 = Yes 2 = No	<input type="checkbox"/>

and the poor visual impairment indicator (see above).

The two indicators are calculated as:



All component dimensions of this indicator (i.e. poor hearing, visual impairment, and poor mobility) are also reported as separate indicators.

16. Miscellaneous indicators

Data for a small group of miscellaneous indicators are also collected and reported. These are derived from these questions:

Hunger, ration, relief

f6	Are you or anyone in your household receiving a food ration on a regular basis?	1 = Yes 2 = No	<input type="checkbox"/>
f7	Have you or another member of your household received non-food relief items such as soap, bucket, water container, bedding, mosquito net, clothes, or plastic sheet in the previous four weeks?	1 = Yes 2 = No	<input type="checkbox"/>

Activities of daily living

a8	Do you have problems chewing food?	1 = Yes 2 = No	<input type="checkbox"/>
a9	Do you have poor hearing?	1 = Yes 2 = No	<input type="checkbox"/>

and are calculated as:

Recode f6 (any ration)		
Old values	New values	Notes
1	1	Yes
2	0	No

*'Anyone in household receives a ration'
is reported as a separate indicator*

Recode a8 (problem chewing food)		
Old values	New values	Notes
1	1	Yes
2	0	No

*'Problems chewing food'
is reported as a separate indicator*

Recode f7 (non-food relief items)		
Old values	New values	Notes
1	1	Yes
2	0	No

*'Received non-food relief items in previous month'
is reported as a separate indicator*

Recode a9 (poor hearing)		
Old values	New values	Notes
1	1	Yes
2	0	No

*'Poor hearing'
is reported as a separate indicator*

17. A note on data management and data analysis

This section has described how RAM-OP data is used to create a broad set of indicators. If you do not want to use the standard RAM-OP software to do this then you can use this information to create data entry systems and data management scripts for your favoured database or statistical analysis software. See the sections on the **RAM-OP questionnaire** (see section 19) and the **RAM-OP datasets** (see section 20) for more compact information on variable names and codes that you may find helpful.

It is important to note that data analysis procedures need to account for the sample design. All major statistical analysis software can do this (details vary). There are two things to note:

- The RAM-OP sample is a two-stage sample. Subjects are sampled from a small number of primary sampling units (PSUs).
- The RAM-OP sample is **not** prior weighted. This means that you will need to provide per-PSU sampling weights. These are usually the populations of the PSU.

You will need to specify this sample design to your statistical analysis software. If you fail to do this then your analysis may produce estimates that place undue weight to observations from smaller communities using confidence intervals with lower than nominal coverage (i.e. they will be too narrow).

The standard RAM-OP software uses ‘blocked weighted bootstrap’ estimation approach:

Blocked: The block corresponds to the PSU or cluster.

Weighted: The RAM-OP sampling procedure does not use population proportional sampling to weight the sample prior to data collection as is done with SMART type surveys. This means that a posterior weighting procedure is required. The standard RAM-OP software uses a ‘roulette wheel’ algorithm to weight (i.e. by population) the selection probability of PSUs in bootstrap replicates.

A total of m PSUs are sampled ‘with-replacement’ from the survey dataset where m is the number of PSUs in the survey sample. Individual records within each PSU are then sampled with-replacement. A total of n records are sampled with-replacement from each of the selected PSUs where n is the number of individual records in a selected PSU. The resulting collection of records replicates the original survey in terms of both sample design and sample size. A large number of replicate surveys are taken (the standard RAM-OP software uses $r = 399$ replicate surveys but this can be changed). The required statistic (e.g. the mean of an indicator value) is applied to each replicate survey. The reported estimate consists of the 50th (point estimate), 2.5th (lower 95 per cent confidence limit), and the 97.5th (upper 95 per cent confidence limit) percentiles of the distribution of the statistic observed across all replicate surveys. The blocked weighted bootstrap procedure is outlined in Box 2.

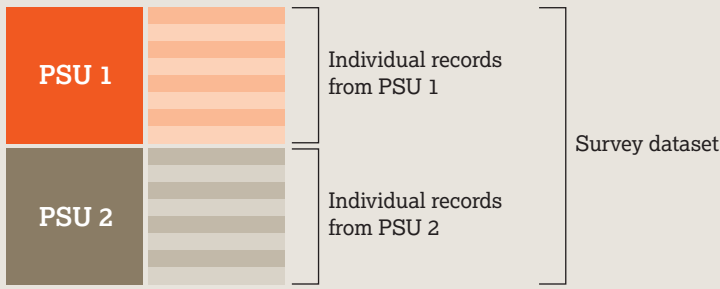
The principal advantages of using a bootstrap estimator are:

- Bootstrap estimators work well with small sample sizes.
- The method is ‘non-parametric’ and uses empirical rather than theoretical distributions. There are no assumptions of factors such as ‘normality’.
- The method allows estimation of the sampling distribution of almost any statistic using only simple computational methods.

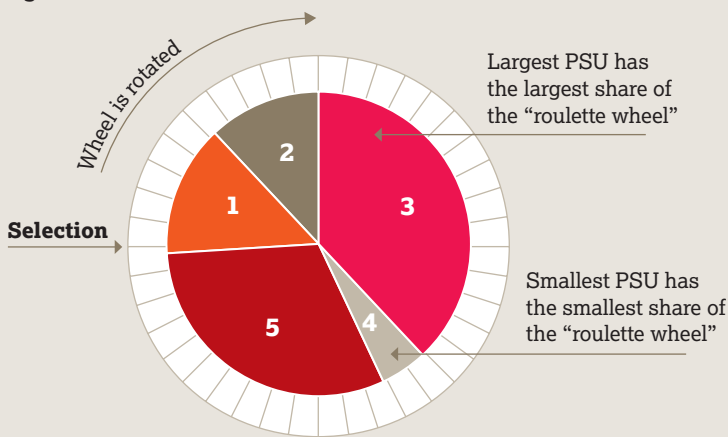
The standard RAM-OP data analysis software is described in the section **Standard RAM-OP software**.

Box 2: The blocked weighted bootstrap used by the standard RAM-OP software

Data are collected using a two-stage cluster design:



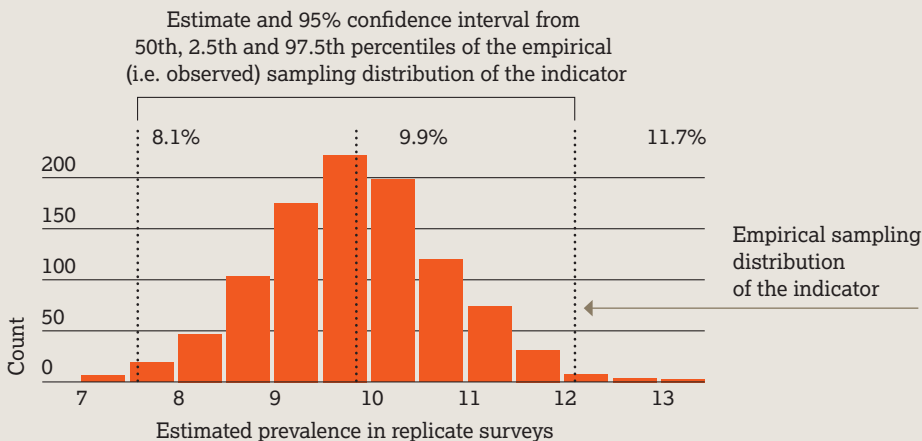
PSUs are selected from the survey dataset *with-replacement* and with probability proportional to population size (PPS) using a roulette wheel algorithm:



PSUs are selected *with-replacement* and proportional to population size (PPS):



Individual records are selected *with-replacement* from within each PSU to create a replicate survey. The estimator is applied to the replicate survey and the result is recorded. This process is repeated many times. The estimate of the indicator value is made from the distribution of the results from each replicate survey which is the *empirical sampling distribution* of the indicator:



The RAM-OP questionnaire

The RAM-OP questionnaire

18. The RAM-OP questionnaire

Modules of the RAM-OP questionnaire are presented in the **RAM-OP indicators** section of this manual.

The entire RAM-OP questionnaire is presented in the following pages. This questionnaire is composed of many tested and validated components. The order of the questions and the format of the questionnaire have been tested in several settings (Chad; Dadaab Camps, South Sudan; Ethiopia; and Tanzania) over a period of three years. It is strongly recommended that you do **not** change the questionnaire, other than translating it into another language and necessary localisation (i.e. adapting the questions to meet the language, cultural and other requirements of a specific target population in order to ensure that the words, names, terms and concepts used are culturally appropriate and understandable). Modifying the questionnaire may have one or more of the following consequences:

- **Modifying the order of the questions or adding questions:** The links with the data entry, data checking and data analysis software will be broken. You will have to modify the software to accommodate your changes.
- **Modifying the variable names:** The links with the data entry, data checking, and data analysis software will be broken. You will have to modify the software to accommodate your changes.
- **Modifying the content or the phrasing of questions:** All questions have been tested and are formulated for accuracy and reliability (precision). Modifying them may lead to loss of accuracy (bias) and precision.

When translating the questionnaire you should check if validated question sets for each indicator module are already available in your local language. This is likely to be the case for the food intake; severe food insecurity; activities of daily living; mental health and well-being; dementia; water, sanitation and hygiene; and visual impairment indicator modules. There may also be local language training modules and guidelines available for these modules.

Localisation is recommended for:

- **Food groups:** Remove inappropriate foodstuffs and give examples of local foodstuffs.
- **Income sources:** Review income types and income categories.

The question numbers used on the questionnaire are the names of variables used in the RAM-OP data entry, data checking and data analysis software. Leaving these as they are will be helpful if you intend to use the RAM-OP data entry and data analysis software.

The questionnaire can be downloaded (in ODT and PDF format) from:
www.brixtonhealth.com/qesRAMOP.zip

18.1 Digital data collection

Paper-based questionnaires remain an important tool for primary data collection. The RAM-OP questionnaire presented in Section 19 (starting on page 75) is printed out and then administered by the trained enumerators to the sampled older people. This paper-based approach is still the recommended approach for the RAM-OP survey.

However, it is also possible to administer the RAM-OP questionnaire through an electronic data encoding system using mobile devices. Instead of printing the questionnaire on paper, it is instead encoded onto a mobile client which is then used by enumerators as they conduct the survey in the field. There are currently multiple options available for electronic mobile data collection. If you would like to use any of these options for data collection, you will need to convert the RAM-OP questionnaire presented in Section 19 into a format that fits the specifications of the mobile data collection system that you have chosen or are planning to use. Take note, however, that once you choose to use an electronic mobile data collection system you are effectively breaking the links between data entry, data checking and data analysis that is already inherent in the existing RAM-OP data collection and data analysis package. The data entry and data checking system included in the RAM-OP package will not be useful for the new system that you will put in place and instead will be superseded by the data entry performed by the enumerators on the mobile clients and any data checking that your electronic mobile data collection system is able to perform. It is important to note that not all electronic mobile data collection systems are created equal and each one has varying functionalities including the ability to do basic data checking similar to those that have been built in to the current RAM-OP package. It would therefore be crucial to review and understand if and how data checking is implemented by your chosen mobile data collection system and to activate these functionalities. Finally, in order to still be able to use the data analysis package that is provided in the RAM-OP package, you will need to design your electronic questionnaire in such a way that it keeps the the names of the variables as used in the RAM-OP questionnaire (Section 19). Any change in the names of variables will break the link between the dataset and the data analysis package provided in the RAM-OP package. At best, you will have to modify the software to accommodate your changes. Worst case is that you will have to recreate the data analysis yourself to fit the changes you have made.

Given these considerations and based on preliminary review of available mobile data collection systems, we have been developing a version of the RAM-OP questionnaire using the Open Data Kit (ODK) system.¹ This system has the data encoding and data checking functionalities that closely approximate that of the current RAM-OP package whilst having other capabilities that allow for efficient data collection using mobile clients. This alternative data collection system for RAM-OP is in active development and we hope to be able to field test this system very soon.

Since this system is in active development, we recommend that it be used by those who already use ODK for their data collection and are familiar with how the system works. Once we have field tested this system, we'll put together a specific RAM-OP package specific for a system based on mobile data collection.

In the meantime, we provide a beta version of the RAM-OP questionnaire converted into XLSForm,² a format that is accepted and interpretable by the ODK system. This version of the questionnaire has been designed in such a way that it will produce datasets that link seamlessly with the current RAM-OP data analysis package. This can be downloaded at: <http://bit.ly/2s9EEE5>

Clicking on the link above will provide you with a zipped folder named **ramOP-ODK**. Inside this folder are the following:

- a. **ramOP.xlsx** – XLSForm format of the RAM-OP questionnaire for uploading onto an ODK server.
- b. **form_logo.png** – HelpAge logo that is uploaded together with the form which will make the logo show up on the mobile device when the RAM-OP form is opened.

1. see <https://opendatakit.org>

2. see <http://xlsform.org> for more information regarding this format

Following is a flowchart that shows the different pathways that can be considered when deciding how to proceed with data collection whether using paper-based survey forms or ODK.

For further guidance and technical information on how to implement an ODK-based data collection system for RAM-OP, see the following website:

<http://bit.ly/2rqZaCW>

18.2 Data collection

Each team should be able to survey at least one PSU per day.

No community mobilisation is necessary but community officials should be informed of your arrival in advance.

Avoid sampling at special or busy times, such as holy days and market days.

When arriving in the community, teams should introduce themselves to community leaders and explain how the survey will be conducted.

The supervisor should collect and record information about the total population of the PSUs.

The team should then explore the boundaries of the community and perform mapping and segmentation as required.

Eligible subjects are usually people aged 60 years and older (this may differ in some settings). We accept respondents' statement of their own age, and we do not challenge them if they appear younger or older than the age they declare. We usually do not ask for a proof of age. However, it might be useful to have compiled a list of events related to the past hundred years of the country's history, as some older people do not remember their age, but remember living at the time of some remarkable events (independence, elections, wars, etc). Women often remember the age at which they had their children

All eligible older people present in, and belonging to, the sampled household are interviewed and measured, even if the required quota of respondents has been reached. Older people visiting the household should only be included if they are residing there for more than two weeks. Persons such as maids, houseboys, watchmen, and carers should be treated as part of the household (i.e. should be interviewed) if the sampled dwelling or compound is their main place of residence. Older people should be interviewed in their houses. It is **not** good practice to have the older people in the community gathered in one place.

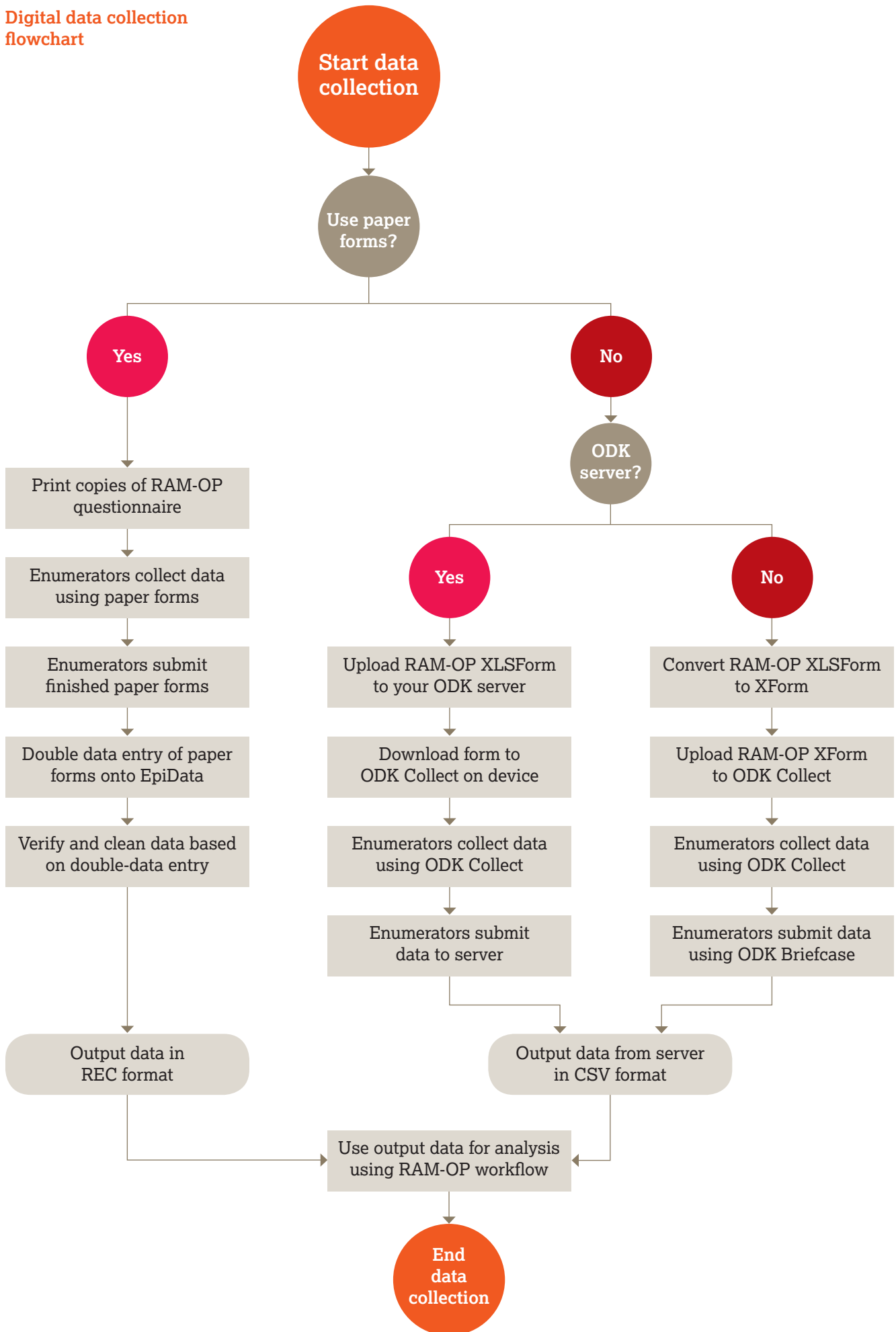
When entering older people's houses, enumerators should always be polite, respectful, and careful not to intrude on people's privacy.

Older people should not be intimidated into answering the questionnaire or being measured. They always have a right to refuse to answer some or all of the questions and to refuse measurements. Refusals should be noted on the questionnaire.

Some of the questions are of an intimate nature. Be careful not to administer the questionnaire in a space where everybody present can hear the answers. This may embarrass the respondent or cause the respondent to answer wrongly. This is important as a 'wrong answer' will tend to hide need and will bias the survey results.

Some older women may object to having their MUAC taken by a man (or vice versa). This is why it is advisable that the team has both male and female members. This not always possible, but older people are often more free from prejudices than the younger members of their community. It is rare for an older woman to refuse to expose her arms or feet before a male enumerator, and also rare that an older man objects to being measured by a female enumerator.

Digital data collection flowchart



19. Rapid nutrition and needs assessment survey for older people

Sample **all** eligible persons in the sampled household. Use one questionnaire per person.

Administrative data

ad1	Date of data collection (DD/MM/YY)	<input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/>
ad2	Team number	<input type="text"/> <input type="text"/>
ad3	Name of enumerator	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
ad4	Consent given	1 = Yes 2 = No <input type="checkbox"/>

If consent is not given then stop the interview and move to next respondent

Identifying data

psu	PSU (cluster) number	<input type="text"/> <input type="text"/> <input type="text"/>
hh	Household identifier	<input type="text"/> <input type="text"/>
id	Person identifier	<input type="text"/>

Demography and situation

d1	Who is answering these questions?	1 = Subject 2 = Family carer 3 = Other carer 4 = Other	<input type="checkbox"/>
d2	How old are you (age in years)?	888 = DK / Refused	<input type="text"/> <input type="text"/> <input type="text"/>
d3	Sex	1 = Male 2 = Female	<input type="checkbox"/>
d4	Marital status	1 = Single (never married) 2 = Married 3 = Living together 4 = Divorced 5 = Widowed 6 = Other	<input type="checkbox"/>
d4	Marital status	1 = Yes 2 = No	<input type="checkbox"/>

Tear off and discard (or black-out name) after data are checked

ad5	Name of respondent	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
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Food intake

f1	How many meals did you eat since this time yesterday (Ask about breakfast, lunch, dinner, and snacks)?	Number of meals	<input type="checkbox"/>
f2	Since this time yesterday did you eat any of the following foods:		
f2a	Tinned, powdered or fresh milk?	1 = Yes 2 = No	<input type="checkbox"/>
f2b	Sweetened or flavoured water, "soda" drink, alcoholic drink, beer, tea or infusion, coffee, soup, or broth?	1 = Yes 2 = No	<input type="checkbox"/>
f2c	Any food made from grain such as millet, wheat, barley, sorghum, rice, maize, pasta, noodles, bread, pizza, porridge?	1 = Yes 2 = No	<input type="checkbox"/>
f2d	Any food made from fruits or vegetables that have yellow or orange flesh such as carrots, pumpkin, red sweet potatoes, mangoes, and papaya?	1 = Yes 2 = No	<input type="checkbox"/>
f2e	Any food made with red palm oil or red palm nuts?	1 = Yes 2 = No	<input type="checkbox"/>
f2f	Any dark green leafy vegetables such as cabbage, broccoli, spinach, moringa leaves, cassava leaves?	1 = Yes 2 = No	<input type="checkbox"/>
f2g	Any food made from roots or tubers such as white potatoes, white yams, false banana, cassava, manioc, onions, beets, turnips, and swedes?	1 = Yes 2 = No	<input type="checkbox"/>
f2h	Any food made from lentils, beans, peas, groundnuts, nuts, or seeds?	1 = Yes 2 = No	<input type="checkbox"/>
f2i	Any other fruits or vegetables such as banana, plantain, avocado, cauliflower, coconut?	1 = Yes 2 = No	<input type="checkbox"/>
f2j	Liver, kidney, heart, black pudding, blood, or other organ meats?	1 = Yes 2 = No	<input type="checkbox"/>
f2k	Any meat such as beef, pork, goat, lamb, mutton, veal, chicken, camel, or bush meat?	1 = Yes 2 = No	<input type="checkbox"/>
f2l	Fresh or dried fish, shellfish, or seafood?	1 = Yes 2 = No	<input type="checkbox"/>
f2m	Cheese, yoghurt, or other milk products?	1 = Yes 2 = No	<input type="checkbox"/>
f2n	Eggs?	1 = Yes 2 = No	<input type="checkbox"/>
f2o	Any food made with oil, fat, butter, or ghee?	1 = Yes 2 = No	<input type="checkbox"/>
f2p	Any mushrooms or fungi?	1 = Yes 2 = No	<input type="checkbox"/>
f2q	Grubs, snails, insects?	1 = Yes 2 = No	<input type="checkbox"/>
f2r	Sugar, honey and foods made with sugar or honey such as sweets, candies, chocolate, cakes, and biscuits?	1 = Yes 2 = No	<input type="checkbox"/>
f2s	Salt, pepper, herbs, spices, or sauces (hot sauce, soy sauce, ketchup)?	1 = Yes 2 = No	<input type="checkbox"/>

Hunger, ration, relief

f3	In the past four weeks, how often was there ever no food to eat of any kind in your home because of lack of resources to get food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>
f4	In the past four weeks, how often did you go to sleep at night hungry because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>
f5	In the past four weeks, how often did you go a whole day and night without eating anything at all because there was not enough food?	0 = Never 1 = Rarely (1-2x) 2 = Sometimes (3-10x) 3 = Often (>10x)	<input type="checkbox"/>
f6	Are you or anyone in your household receiving a food ration on a regular basis?	1 = Yes 2 = No	<input type="checkbox"/>
f7	Have you or another member of your household received non-food relief items such as soap, bucket, water container, bedding, mosquito net, clothes, or plastic sheet in the previous four weeks?	1 = Yes 2 = No	<input type="checkbox"/>

Disability (Washington Group)

wg1	Do you have difficulty seeing, even if wearing glasses?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg2	Do you have difficulty hearing, even if using a hearing aid?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg3	Do you have difficulty walking or climbing steps?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg4	Do you have difficulty remembering or concentrating?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg5	Do you have difficulty with self-care such as washing all over or dressing?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>
wg6	Using your usual (customary) language, do you have difficulty communicating, for example understanding or being understood?	0 = No difficulty 1 = Some difficulty 2 = A lot of difficulty 3 = Cannot do at all	<input type="checkbox"/>

Activities of daily living

a1	Do you need help with bathing more than one part of your body or getting in or out of the tub or shower?	1 = Yes 2 = No	<input type="checkbox"/>
a2	Do you need help getting dressed partially or completely (not including tying of shoes)?	1 = Yes 2 = No	<input type="checkbox"/>
a3	Do you need help going to the toilet or cleaning yourself after using the toilet or do you use a commode or bed-pan?	1 = Yes 2 = No	<input type="checkbox"/>
a4	Do you need someone (i.e. not a walking aid) to help you move from a bed to a chair?	1 = Yes 2 = No	<input type="checkbox"/>
a5	Are you partially or totally incontinent of bowel or bladder?	1 = Yes 2 = No	<input type="checkbox"/>
a6	Do you need partial or total help with eating?	1 = Yes 2 = No	<input type="checkbox"/>
a7	Is someone taking care of you or helping you with everyday activities such as shopping, cooking, bathing and dressing?	1 = Yes 2 = No	<input type="checkbox"/>
a8	Do you have problems chewing food?	1 = Yes 2 = No	<input type="checkbox"/>
a9	Do you have poor hearing?	1 = Yes 2 = No	<input type="checkbox"/>

Mental health and wellbeing

k6a	About how often during the past four weeks did you feel nervous – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6b	During the past four weeks, about how often did you feel hopeless – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6c	During the past four weeks, about how often did you feel restless or fidgety – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6d	During the past four weeks, about how often did you feel so depressed that nothing could cheer you up – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6e	During the past four weeks, about how often did you feel that everything was an effort – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>
k6f	During the past four weeks, about how often did you feel worthless – all of the time, most of the time, some of the time, a little of the time, or none of the time?	1 = All of the time 2 = Most of the time 3 = Some of the time 4 = A little 5 = None 6 = Don't know 7 = Refused	<input type="checkbox"/>

Dementia screen

ds0	<p>This section can only be completed if the subject is answering for themselves.</p> <p>If the respondent is not answering for themselves then record '8' as the answer for all questions below and continue with the interview. Write the reason why the subject is not answering for themselves in the OBSERVATIONS section at the end of the questionnaire.</p> <p>Say: I am going to tell you three words. I would like you to repeat them after me.</p> <p>“CHILD” “HOUSE” “ROAD”</p> <p>Repeat the three words, up to a maximum of six (6) times, or until the person has remembered them all correctly.</p> <p>Say: Try to remember these words. I will ask about them later.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds1	<p>Point to your nose and ask: What do we call this?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds2	<p>What do you do with a hammer? Accept answers such as: Drive a nail into something; Straighten metal; Hit a wedge or something else; Use with a chisel.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds3	<p>What day of the week is it?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds4	<p>What is the season?</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds5	<p>Say: Please point first to the window and then to the door.</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6	<p>Do you remember the three words I asked you to remember a few minutes ago?</p>		
ds6a	<p>CHILD</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6b	<p>HOUSE</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>
ds6c	<p>ROAD</p>	<p>1 = Correct 2 = Incorrect 8 = Not applicable</p>	<input type="checkbox"/>

Health and health-seeking behaviour

h1	Do you suffer from a long term disease that requires you to take regular medication?	1 = Yes 2 = No	<input type="checkbox"/>
If No jump to question h4 (below)			
h2	Do you take drugs regularly for this?	1 = Yes 2 = No	<input type="checkbox"/>
If Yes jump to question h4 (below)			
h3	Why not? <i>Prompt for the main reason. Record main reason only.</i>	1 = No drugs available 2 = Too expensive / no money 3 = Too old to look for care 4 = Use traditional medicine 5 = Drugs don't help 6 = No-one to help me 7 = No need 8 = Other 9 = No reason given	<input type="checkbox"/>
h4	Have you been ill in the past two weeks?	1 = Yes 2 = No	<input type="checkbox"/>
If No jump to question m1 (below)			
h5	Did you go to the pharmacy, dispensary, health centre, health post, clinic, or hospital?	1 = Yes 2 = No	<input type="checkbox"/>
If Yes jump to question m1 (below)			
h6	Why not? <i>Prompt for the main reason. Record main reason only.</i>	1 = No drugs available 2 = Too expensive / no money 3 = Too old to look for care 4 = Use traditional medicine 5 = Drugs don't help 6 = No-one to help me 7 = No need 8 = Other 9 = No reason given	<input type="checkbox"/>

Income

m1	Do you have a personal source of income or money?	1 = Yes 2 = No	<input type="checkbox"/>
Continue to question m2 even if the subject reports having no personal income			
m2	Where does your income or money come from? (prompt "Anything else?")		
m2a	Agriculture, livestock, or fishing	1 = Yes 2 = No	<input type="checkbox"/>
m2b	Wages or salary	1 = Yes 2 = No	<input type="checkbox"/>
m2c	Sale of charcoal, bricks, firewood, poles, etc.	1 = Yes 2 = No	<input type="checkbox"/>
m2d	Trading (e.g. market, shop)	1 = Yes 2 = No	<input type="checkbox"/>
m2e	Private pension, investments, interest, rents, etc.	1 = Yes 2 = No	<input type="checkbox"/>
m2f	Spending savings. Sale of household goods, personal goods, or jewellery. Sale of livestock, land, or other assets	1 = Yes 2 = No	<input type="checkbox"/>
m2g	Aid, gifts, charity (e.g. from church, mosque, temple), begging, borrowing, or sale of food aid or relief items	1 = Yes 2 = No	<input type="checkbox"/>
m2h	Cash transfer (NGO, UNO, government) State pension, social security, benefits, welfare program	1 = Yes 2 = No	<input type="checkbox"/>
m2i	Other	1 = Yes 2 = No	<input type="checkbox"/>

Water, sanitation, hygiene

<p>w1</p>	<p>What is your main source of drinking water?</p> <p>Piped water into dwelling Piped water into compound Public tap / Standpipe Tube-well / Borehole Protected dug well Protected spring Rainwater collection system Bottled water / sachet water</p> <p style="text-align: right;">1</p> <p>or</p> <p>Unprotected dug well Unprotected spring Cart with small tank or drum Tanker-truck River, stream, dam, lake, pond, or puddle Canal or irrigation channel Other</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w2</p>	<p>What do you usually do to the water to make it safer to drink?</p> <p>Boil Add bleach / chlorine tablet Use a water filter (gravel / sand / ceramic) Solar disinfection</p> <p style="text-align: right;">1</p> <p>or</p> <p>Strain it through a cloth only Let it stand and settle only Nothing Other Don't know</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w3</p>	<p>What kind of toilet facility do members of your household usually use?</p> <p>Flush or pour flush to: Piped sewer system Septic tank Pit latrine Don't know VIP latrine Pit latrine with slab Composting toilet</p> <p style="text-align: right;">1</p> <p>or</p> <p>Flush or pour flush to: Elsewhere (anywhere not specified above) Pit latrine without slab Bucket Hanging latrine Bush or field No facilities</p> <p style="text-align: right;">2</p>	<input type="checkbox"/>	
<p>w4</p>	<p>Do you share this toilet facility with other households?</p>	<p>1 = Yes 2 = No 3 = NA (no facility)</p>	<input type="checkbox"/>

Anthropometry, screening coverage

as1	MUAC in mm	777 = Too large 888 = Refused	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
as2	Has someone measured your arm like this in the previous month?	1 = Yes 2 = No	<input type="checkbox"/>
as3	Bilateral pitting oedema	1 = Yes 2 = No	<input type="checkbox"/>
as4	Has someone examined your feet like this in the previous month?	1 = Yes 2 = No	<input type="checkbox"/>

Visual acuity

va1	<p>Do you normally wear glasses?</p> <p>If the person wears glasses, ask if they are more comfortable wearing their glasses to look at your chart at 2 meters. Let the person decide.</p> <p>Demonstrate (close to the person) how to do the 'tumbling E' test: Show the direction the E is pointing.</p> <p>Ask the person if they understand. REPEAT if needed.</p> <p>Test with E at 2 meters:</p> <p>Use the string to measure 2 meters from the person.</p> <p>Hold the card at eye level and 2 meters away from the person.</p> <p>Turn the card in four different directions. Hide the card in your back before turning it each time.</p>	1 = Yes 2 = No	<input type="checkbox"/>
va2a	First time	1 = Correct 2 = Incorrect 3 = Refused 4 = Blind	<input type="checkbox"/>
va2b	Second time	1 = Correct 2 = Incorrect 3 = Refused 4 = Blind	<input type="checkbox"/>
va2c	Third time	1 = Correct 2 = Incorrect 3 = Refused 4 = Blind	<input type="checkbox"/>
va2d	Fourth time	1 = Correct 2 = Incorrect 3 = Refused 4 = Blind	<input type="checkbox"/>

Review questionnaire for completeness and consistency. Thank the subject for their time. Record any observations below.

.....

Signature of enumerator:

.....

Datasets

Datasets

20. The RAM-OP datasets

This section details the RAM-OP datasets. The information presented here is of most use if you decide **not** to use the RAM-OP data entry and data checking software. You might, for example, decide to enter survey data using spreadsheet software such as Microsoft Excel. If you do this and want to use the RAM-OP data analysis software then you will need to export the data as a comma-separated-value (CSV) file with the same variable names, variable types and lengths, and using the same codes as shown in the tables in this section. For the main RAM-OP survey dataset these are the same variable names, variable types, variable lengths, codes, and in the same order as shown on the standard RAM-OP questionnaire.

There are **two** RAM-OP datasets:

20.1 The main RAM-OP survey dataset

This is the data collected by the survey questionnaire. The dataset definition for the main RAM-OP dataset is shown in Table 1.

20.2 The PSU dataset

This is a short and narrow file with one record per PSU and just two variables:

psu The PSU identifier. This **must** use the same coding system used to identify PSUs that is used in the main RAM-OP dataset.

pop The population of the PSU.

The PSU dataset is used during data analysis to weight data by PSU population.

If you do not know population sizes (as might be the case in emergencies) then you can collect this data:

- when you visit the PSU (i.e. from community leaders or health centres)
- when you visit the PSU as a doorway count or roof count
- using **recent** satellite imagery as a roof count.

Relative population sizes can be used. If no better data is available then it is reasonable to use a simple semi-quantitative assessment such as:

Type of place	Population range*	Features	Record population as ...
Hamlet	< 1,000	Very small local market or no market	1
Village	1,000-4,000	Market and small shops serving the village and the surrounding hamlets	2
Town	> 4,000	Large market, many shops (some specialised), guest houses, bus station, government offices	4

* These ranges may need to be adjusted to match local circumstances.

The PSU dataset must be in comma-separated-value (CSV) format (see Figure 12) for use with the RAM-OP data analysis software.

Table 1: Main RAM-OP dataset definition

Administrative data			Hunger – Ration – Relief			Health seeking and healthcare		
Name	Type*	Codes	Name	Type*	Codes	Name	Type*	Codes
ad2	##	None**	f3	#	0, 1, 2, 3	h1	#	1, 2
Identifying data			f4	#	0, 1, 2, 3	h2	#	1, 2
Name	Type*	Codes	f5	#	0, 1, 2, 3	h3	#	1, 2, 3, 4, 5, 6, 7, 8, 9
psu	###	None**	f6	#	1, 2	h4	#	1, 2
hh	##	None***	f7	#	1, 2	h5	#	1, 2
id	#	None***	Disability			h6	#	1, 2, 3, 4, 5, 6, 7, 8, 9
Demography and situation			Name	Type*	Codes	Income		
Name	Type*	Codes	wg1	#	0, 1, 2, 3	Name	Type*	Codes
d1	#	1, 2, 3, 4	wg2	#	0, 1, 2, 3	m1	#	1, 2
d2	###	888...	wg3	#	0, 1, 2, 3	m2	#	1, 2
d3	#	1, 2	wg4	#	0, 1, 2, 3	m2a	#	1, 2
d4	#	1, 2, 3, 4, 5, 6	wg5	#	0, 1, 2, 3	m2b	#	1, 2
d5	#	1, 2	wg6	#	1, 2	m2c	#	1, 2
Food intake			Activities of daily living			m2d	#	1, 2
Name	Type*	Codes	Name	Type*	Codes	m2e	#	1, 2
f1	#	None	a1	#	1, 2	m2f	#	1, 2
f2a	#	1, 2	a2	#	1, 2	m2g	#	1, 2
f2b	#	1, 2	a3	#	1, 2	m2h	#	1, 2
f2c	#	1, 2	a4	#	1, 2	m2i	#	1, 2
f2d	#	1, 2	a5	#	1, 2	Water, sanitation, hygiene		
f2e	#	1, 2	a6	#	1, 2	Name	Type*	Codes
f2f	#	1, 2	a7	#	1, 2	w1	#	1, 2
f2g	#	1, 2	a8	#	1, 2	w2	#	1, 2
f2h	#	1, 2	a9	#	1, 2	w3	#	1, 2
f2i	#	1, 2	Mental health and wellbeing			w4	#	1, 2, 3
f2j	#	1, 2	Name	Type*	Codes	Anthropometry and screening		
f2k	#	1, 2	k6a	#	1, 2, 3, 4, 5, 6, 7	Name	Type*	Codes
f2l	#	1, 2	k6b	#	1, 2, 3, 4, 5, 6, 7	as1	###	777***, 888***
f2m	#	1, 2	k6c	#	1, 2, 3, 4, 5, 6, 7	as2	#	1, 2
f2n	#	1, 2	k6d	#	1, 2, 3, 4, 5, 6, 7	as3	#	1, 2
f2o	#	1, 2	k6e	#	1, 2, 3, 4, 5, 6, 7	as4	#	1, 2
f2p	#	1, 2	k6f	#	1, 2, 3, 4, 5, 6, 7	Visual acuity		
f2q	#	1, 2	Dementia screen			Name	Type*	Codes
f2r	#	1, 2	Name	Type*	Codes	v2a	#	1, 2, 3, 4
f2s	#	1, 2	ds1	#	1, 2, 8	v2b	#	1, 2, 3, 4
			ds2	#	1, 2, 8	v2c	#	1, 2, 3, 4
			ds3	#	1, 2, 8	v2d	#	1, 2, 3, 4
			ds4	#	1, 2, 8			
			ds5	#	1, 2, 8			
			ds6a	#	1, 2, 8			
			ds6b	#	1, 2, 8			
			ds6c	#	1, 2, 8			

* All variables are integers. The number of # characters indicates the width of the variable.

** Codes for teams and PSU identifiers to be assigned by the survey supervisor.

*** Credible ranges should be applied to these variables.

Figure 12: An sample comma-separated-value (CSV) format file (the example is for a RAM-OP PSU dataset)

psu,pop
201,1724
202,969
203,2451
204,697
205,2132
206,593
207,509
208,2436
209,1756
210,1708
211,1747
212,1070
213,288
214,2004
215,2076
216,2076

The first line (**psu,pop**) of the file gives the names of the variables.

Subsequent lines give PSU level data (one line per PSU) as the PSU identifier and the PSU population separated by a comma.

Practical fieldwork

Practical fieldwork

21. Practical fieldwork

This section is intended to guide you through the different steps leading up to the fieldwork once the survey location has been identified, and gives some tips on how the fieldwork might be organised.

21.1 Authorisations and clearances

Before implementing the survey, you will need to get all the authorisations relevant to the country in which you plan to work. These include:

- **Clearance from the national nutrition cluster** or the equivalent structure co-ordinating national assessment activities. In humanitarian contexts, this might be the only clearance that you will need at the national level.
- **Ethical approval:** This is obtained from the country's national ethical committee (or equivalent). Some NGOs and UN organisations also have ethical committees and you may also need to submit your survey plans to them for ethical approval. It may be necessary to work with both national and local ethical committees. The process of gaining ethical approval can take several months. It is important to note that RAM-OP surveys are needs assessments rather than experiments upon human subjects. This means that ethical clearance may not be required for RAM-OP surveys, or that it can be given by the chair of the appropriate ethical review committee without the need for a full meeting of the ethical review committee. It is a good idea to check this with the chair of the appropriate committees to see if permissions can be expedited. Getting ethical clearance is often very useful when applying for other permission as it shows that some technical quality assurance has been done.
- **Authorisation from the appropriate government departments** at various levels (i.e. national, regional, and at the level where you are going to implement the survey). Authorisation of the authority managing the survey site should be sought. For example, a survey in a refugee camp will need the authorisation of the UN High Commissioner for Refugees (UNHCR), the national administrative authority in charge of refugees and displaced persons, and the agency in charge of the camp management. In some settings you may also need to obtain authorisation from other government departments such as the Ministry of Health, the Department of Rural Affairs, or the Department of Social Affairs.
- **Authorisation from administrative authorities at local level:** Make sure that all levels of the local administration are informed about what you intend to do (i.e. what, where, and when). It is essential to meet local administrative and health authorities prior to the survey. This is done to avoid problems with permissions and to involve them in the implementation of the survey. Describe the survey and explain what might be expected from their staff. You might, for example, need some help in identifying the exact location and boundaries of villages and hamlets in rural areas, or blocks and sections of towns in urban areas. You might need translators or guides to travel with the enumerators, and you might need facilitators to introduce you to village executives. Make sure that you share the results of the survey with them once they are available.
- **Security clearance:** Be aware of the potential security problems in the survey area. Inform all agencies with security responsibilities in the area about the dates and locations of the survey. The police or the army may have to be specifically informed. You may also need to negotiate access with non-state actors. Field staff should be provided with copies of official documents (in the local language) proving that they are authorised to carry out survey work in the specific area between specific dates. They will have to carry this document with them at all times during the fieldwork and present it on request to local authorities and study subjects. It can also be useful to give a copy of this and other official documents to village leaders on arrival at the survey location.

21.2 Working with a local partner

It is often very useful to prepare and carry out the survey in collaboration with one or more local partners, such as a local NGO, the local health authority, or the camp management agency in a refugee camp. If possible you should recruit a representative of your local partner as a 'survey facilitator with responsibility for liaising with national and local stakeholders.

This person will support your survey preparation with the following:

- At national or regional level, supporting the endorsement of the survey objectives by the national authorities, and helping to obtain the relevant authorisations and clearances.
- At local level, being the link between you and local communities, and informing health staff and village leaders in the areas where the enumerators will sample households. This information should be disseminated before the survey starts and reiterated a day or two before teams travel to survey locations, either by telephone or by personal visits.
- Providing you with a list of useful contacts (with telephone numbers) for each of the areas covered by the survey. This list should be shared with all programme staff.
- Identifying local guides or translators to support the teams in the field.
- Providing in-depth knowledge of the survey area that can be useful for checking the location of the villages to be surveyed on a map.
- Providing information about travel and security constraints, travel distances and times, and helping formulate the survey travel plan.
- Supporting survey logistics, such as renting vehicles, accommodation and training venues, advising on where to purchase food and drinks, and where to have forms and questionnaires printed and copied, etc.
- Helping with the referral of malnourished or sick older people identified during the survey by liaising with community services, ambulance services, and relevant health facilities as needed.

The local partner will also help you disseminate the results of the survey to various stakeholders, and might be involved in response plans following the assessment.

21.3 Translating the questionnaire

Accuracy is improved by translating the questionnaire into the language appropriate to the survey area before data is collected. This allows enumerators to ask questions using the same language and terminology in every interview.

Thorough training of the enumerators in applying the questionnaire will also improve the accuracy of survey results.

A translated questionnaire may also be a requirement for getting ethical clearance for the survey. An iterative translation process is recommended that uses:

- **Standard language if available:** Most indicators used in RAM-OP have question sets available in different languages. You can check for these online. You may need to alter wording to account for local dialects and idioms but using standard language (when it is available) can save you a lot of time and effort.
- **Knowledgeable lead translators:** Use translators who know the target language and culture but are also fluent in the starting language of the questionnaire.
- **Forward translation and back translation:** The questionnaire is translated from English, for example, into the local language by one person or team (this is 'forward translation') and is then translated back into the original language by another person or team ('back translation'). The back-translated questionnaire is checked against the original questionnaire, after which

differences are analysed and a new translation produced. You may need to go through this process several times until a satisfactory version of the translated questionnaire is reached.

- **Your survey staff** to provide language and to pilot (i.e. test) questionnaire components as they are translated. Piloting can be done with community members and by role-playing between survey staff. Test interviews and group discussions usually help to improve the language used in the questionnaire.
- **Your intended survey population** to help you make sure that the language you are using is simple and to the point. Test interviews and group discussions usually help to improve the language used in the questionnaire.

Having enumerators translate the English language questionnaire (for example) each time they apply the questionnaire is **not** a good option and should be avoided.

21.4 Supervisors, enumerators and data entry staff

The more survey teams you recruit and use, the quicker the survey will be finished. However, the number of teams should be linked to your capacity for supervision. Also, having a large number of teams usually means that you will need a large number of vehicles and drivers. This can be hard to achieve and manage.

It is recommended to recruit three teams of two enumerators, with one supervisor per team. The duties of supervisors and enumerators are:

Supervisors have to take all necessary actions to ensure the accuracy of the collected data, particularly:

- Checking equipment before departure and when leaving the survey site.
- Travelling with a team every day, to observe and correct the enumerators' work.
- Introducing teams to local leaders.
- Ensuring households and subjects are selected properly, that the interviews are conducted with respect and thoroughness, and that measurements are taken and recorded accurately.

Enumerators are in charge of implementing the field procedures:

- Identifying households to survey.
- Applying the questionnaires to older people.
- Measuring MUAC, oedema, and visual acuity and complete questionnaires.

If each team can complete a single PSU per day (this is the minimum you can expect from a team) then the survey may be completed in six days (i.e. three PSUs per day for five days plus one PSU on the last day). This will depend on context and on the teams' expertise. It is often possible for a team to reach more than one location per day, such as in cities or camps where sectors and blocks are close to each other. You will often find that survey data can be collected in just four or five days.

It is important not to rush data collection and to supervise the teams from day one in order to ensure they follow the proper sampling procedures and apply the questionnaires correctly.

It is advisable to enlist more enumerators to be trained than the minimum number needed. This will ensure that you have sufficient enumerators should you find, during training, that some recruits cannot perform their duties well enough. It will also provide additional trained staff should you need to cover for absences. Make sure that you enlist both male and female trainees.

You will also need to recruit data entry staff. The workload for the data entry staff is usually between about 36 and 72 questionnaires per day.

21.5 Training of enumerators

Training the enumerators is crucial to ensuring the quality of the data collection. At the end of training each enumerator should be able to:

- Explain the objectives of the survey.
- Sample households and older people in the survey area following the appropriate field procedures.
- Introduce themselves to older people in a polite and respectful manner.
- Apply the questionnaire smoothly and efficiently.
- Properly measure MUAC, check for bilateral pitting oedema, and properly measure visual acuity.
- Complete the questionnaire neatly and without making mistakes (including the correct numbering of PSU, households and individual subjects).
- Advise the subject or their family in case there is a need for referral, such as to a health facility.

A typical first RAM-OP training course will last for five days:

Day 1	Presentation of your organisation (mission, code of conduct) Objectives of the survey How are we going to do it? Questionnaire: First reading and explanations Recap Field procedures
Day 2	Job descriptions Measurements: MUAC, oedema, visual acuity (practice on each other) Questionnaire: Role-playing Lessons learned Recap
Day 3	Measurements: MUAC, oedema, visual acuity (practice on ten older people) Testing the questionnaire with ten older people Lessons learned Recap Questionnaire: Role-playing
Day 4	Field procedures: Recap and group work Recap Field test: Practical field procedures, etc. in one community
Day 5	Field test: Practical field procedures, etc. in one community Lessons learned from field test Recap

Additional notes

Practising the questionnaire: This is very important. Each training day should contain some work on the questionnaire. Particular attention should be paid to the content and function of each question set; the numbering system for the PSU; household and subject; the meaning or intention of each question set; skip/jump patterns; coding; ranges and checking for completeness and consistency. Extensive use should be made of role-playing (in pairs and in groups) and testing with eligible subjects. Care needs to be taken to ensure that **all** field staff have extensive practice in working with the questionnaire.

Practising measurements: This is very important. Most training days should contain some work on measurement. Care needs to be taken to ensure that **all** field staff have extensive practice in taking all measurements.

Standardisation of measurement: A formal standardisation exercise for MUAC measurement is not required. The format of such an exercise does, however, provide a useful framework for training enumerators to measure MUAC with acceptable accuracy and precision by:

- Comparisons of measurements made by different enumerators on the same person to explore accuracy (bias).
- Comparisons of measurements made by different enumerators on the same person with the measurements made by the training supervisor to explore accuracy (bias).
- Repeated measurements on the same persons by the same enumerator to explore repeatability (precision).

10 older people: The survey facilitator should be able to mobilise 10 older people (women and men) to participate in questionnaire and measurement exercises. Make sure that the volunteers are informed about what is going to happen to them. The exercises will last a half day (maybe longer) and may be quite tiring for older persons. Make sure they are comfortably accommodated and that you have organised their transport to and from the training venue (which should be easily accessible and avoid stairs, be indoors or under shelter, and have chairs or benches). Provide safe drinking water and possibly tea, coffee and snacks. It is also advisable to provide them with a small *ex gratia* payment.

The field test: This 'dummy run' of all activities will put trainees into field conditions but without the stress of having to take a full sample. Divide the trainees into teams assigning a supervisor to each team. The test area should **not** be one of the areas to be sampled for the survey and can be close to the training venue.

At the end of the training week you should be able to select the best enumerators and divide them into teams, balancing the mix of men and women, and personalities, as well as strengths and weaknesses.

21.6 Survey logistics

Thorough logistics preparation is essential to the smooth implementation of a survey. Transport is particularly important.

21.7 Transport

Ideally you will need one vehicle and driver per survey team. Depending on the area, you may be able to reduce this number and organise the survey travel plan so that vehicles can be pooled between teams. Vehicles should be suitable to the terrain, and drivers should be reliable and safe, and prepared to work flexible hours.

It is very useful to brief the teams and drivers about management of the vehicles:

- Decide who gives instructions to the drivers on a daily basis. One person per vehicle should be in charge.
- Decide who will check the vehicle log book every morning and every evening.
- Training should cover what to do in case of an accident.
- All staff should be given the contact telephone numbers of all drivers.

Safety and security procedures should be followed thoroughly, such as use of seat belts, speed limits, prohibitions on 'racing', carrying of water, first aid kits, and spare wheels.

21.8 Tools and equipment

The equipment needed for a RAM-OP survey is minimal:

- MUAC tapes for adults (i.e. minimum 450mm long, graduated in millimetres).
- A 'tumbling E chart' to perform the visual acuity test.
- Pens, notebooks, clipboards, etc.
- Questionnaires.
- Maps of the area showing PSU locations.
- PSU maps (if required).
- Official letters of authorisation to carry out the survey.

Every morning during the survey each team should receive a schedule of the day's activities, detailing the team's objectives and giving PSU numbers, locations, PSU maps, sample target sizes, local contact information, emergency contact list, etc.

21.9 Survey planning

Here is a typical timetable of survey activities:

When	What
Several weeks in advance	<ul style="list-style-type: none"> • Identify survey area • Recruit local partner • Obtain ethical clearance • Obtain technical approval from relevant bodies • Obtain permissions and letters from appropriate authorities • Start translation of questionnaire • Obtain maps / lists as required • Obtain map(s) of the survey area
One month in advance	<ul style="list-style-type: none"> • Advertise staff positions • Recruit and contract supervisors • Define first stage sample from list / map • Make (draft) survey travel plans • Obtain permissions for travel • Book training venue • Arrange staff accommodation (if required) • Continue translation of questionnaire • Begin sourcing equipment • Identify potential suppliers and contractors
One week before the training	<ul style="list-style-type: none"> • Recruit enumerators • Purchase equipment • Book vehicles and drivers • Review and print / copy training manual • Print translated questionnaire for the training • Print “daily program” forms • Finalise survey travel plans • Disseminate travel plans to local authorities (with survey facilitator) • Arrange logistics for the training
At the end of training	<ul style="list-style-type: none"> • Provide each trainee with a certificate of attendance • Pay the training incentives • Review and amend questionnaire from the feedback of the field test • Print survey questionnaires (c. 250 copies) • Recruit enumerators and data entry staff
During the survey	<ul style="list-style-type: none"> • Train the data entry clerk (day one) using the results of the field test • Manage survey activities (see below) • Data entry and cleaning
At the end of the survey	<ul style="list-style-type: none"> • Complete data entry • Provide all staff with certificates of participation • Pay incentives • Thank the local authorities • Party for all staff • Data analysis and reporting • Disseminate results

21.10 Daily survey activities

Here is a list of typical daily survey activities:

When	What
Morning	<ul style="list-style-type: none">• Brief the teams on the day's objectives• Provide feedback on the previous day (success and failures, correction of mistakes made in field procedures or data collection).• Discuss problems with supervisors• Provide water and snacks (or food allowance)• Provide forms, questionnaires, maps (as required)
Evening	<ul style="list-style-type: none">• Check the data entry with the data-entry staff• Identify problematic questionnaires• Identify common data collection problems• Plan the next day's programme with the facilitator and the supervisors• Discuss the problems met during the day and their resolution (particularly mistakes that they have observed in the field procedures or in the data collection)• Prepare the day programme forms for the next day• Check that there are enough forms, questionnaires, and maps for the next day

RAM-OP software

RAM-OP software

21.11 Data entry

A data entry system for RAM-OP data using **EpiData** has been developed. This software can be downloaded from: www.brixtonhealth.com/enterRAMOP.zip

The software runs on the Windows operating system. It does **not** need to be installed and can be run from a USB drive.

The data entry system provides facilities for entering data, interactive checking of data as it is entered, batch checking of entered data, data summary, and data export. The system creates files that can be read by the standard RAM-OP data analysis software.

Documentation of EpiData can be found at: www.epidata.dk/index.htm

21.12 Data analysis

This manual covers analysing your data using the **RAnalyticFlow** workflow. An RAnalyticFlow workflow may be thought of as an ‘app’ that makes it easy to analyse your survey data. To use the RAnalyticFlow workflow you must install:

- **The R Language for Data-Analysis and Graphics (R):** This is the ‘engine’ that does all the work of analysing your data. Download the R installation programme at: <http://cran.r-project.org>
- **R packages** (libraries of functions needed to work with the RAnalyticFlow workflow). These can be installed from within **R** using the ‘Package Installer function’. The libraries needed are:

Package	Comments
rJava	
JavaGD	Required: Used by RAnalyticFlow
codetools	
foreign	Required: Opens EpiData (REC) files
car	Required: Used for PROBIT estimator
ggplot2	Desirable: Provides many plotting functions*
data.table	Desirable: Speeds up working with large datasets*

* Not essential when working with RAM-OP data

The RAnalyticFlow scientific workflow system: This is a ‘front-end’ to **R** that makes it easy to write data-analysis applications (‘apps’) for end users. You can get RAnalyticFlow from: http://download.ef-prime.com/raf3_trial/ (if this page is not available then search for ‘RAnalyticFlow version 3’) using your preferred Internet search engine.

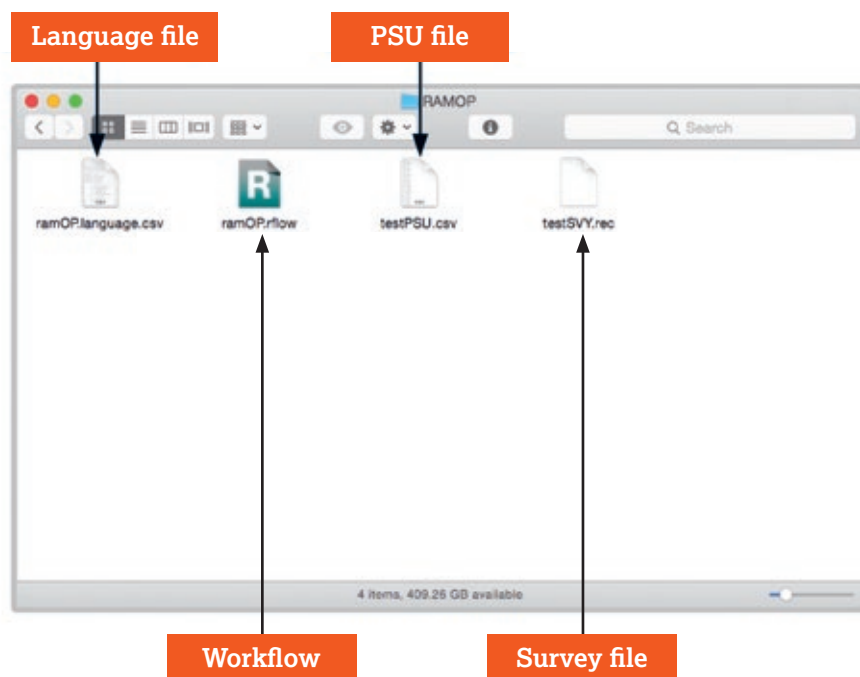
Note that RAnalyticFlow may require you to have Java installed. Check the instructions on the RAnalyticFlow download page.

All of this software is open source and free to download, copy, and use. It will run on Windows, Mac OS X, and Linux (and other UNIX-like) operating systems. Your ICT department should be able to help you with installing this software.

In addition you will also need a copy of the RAnalyticFlow workflow and supporting files. These are available from:

www.brixtonhealth.com/ramOP.rflow.zip

You may need to extract the file from the ZIP archive before use if this is not done automatically.

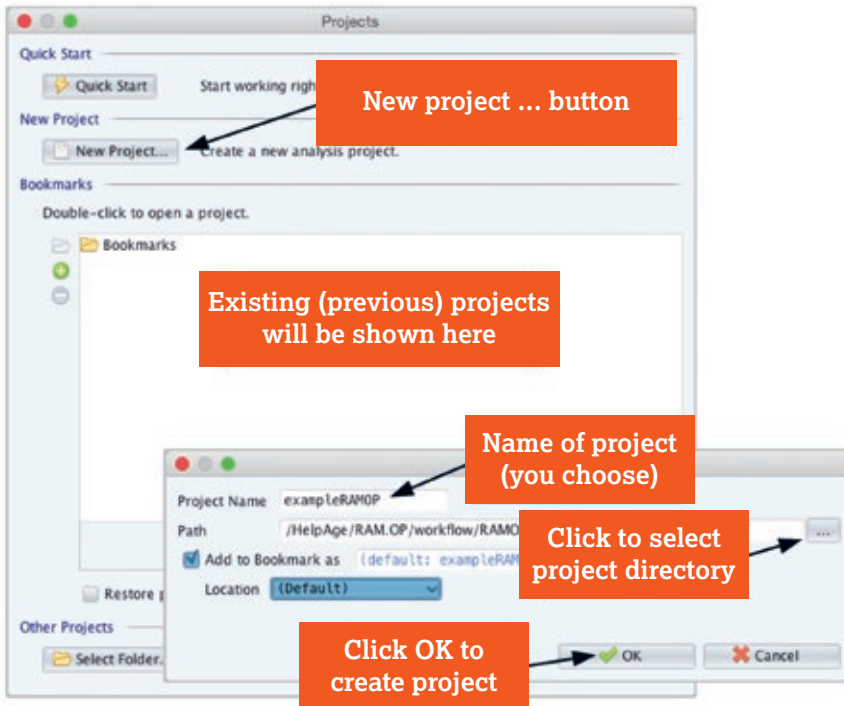


Before starting to analyse your data you should create a project directory. This should contain:

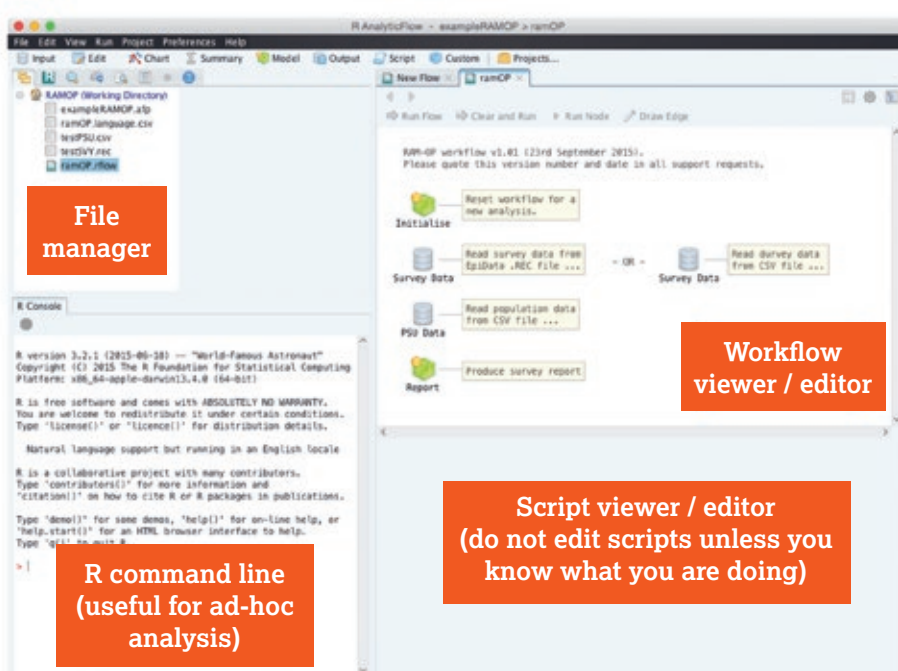
1. Your PSU file (here we assume this file is called testPSU.csv but it could have any name). This file must be a comma-separated-value (CSV) file.
2. Your survey data file (here we assume this file is called testSVY.rec but it could have any name). This file can be an EpiData (REC) file or a comma-separated-value (CSV) file.
3. The language file (always called ramOP.language.csv). This file provides text that is used in reports and graphics. The purpose of this file is to make the data analysis software produce reports in any language. This file must be a comma-separated-value (CSV) file.
4. A copy of the file **ramOP.rflow**.

When you have created the project directory with the required files you can start RAnalyticFlow.

Note: The testSVY.rec and testPSU.csv files are example data files and are distributed with the RAnalyticFlow workflow. You can use these files to practice analysing data using RAnalyticFlow, and as examples of RAM-OP survey data and PSU files.

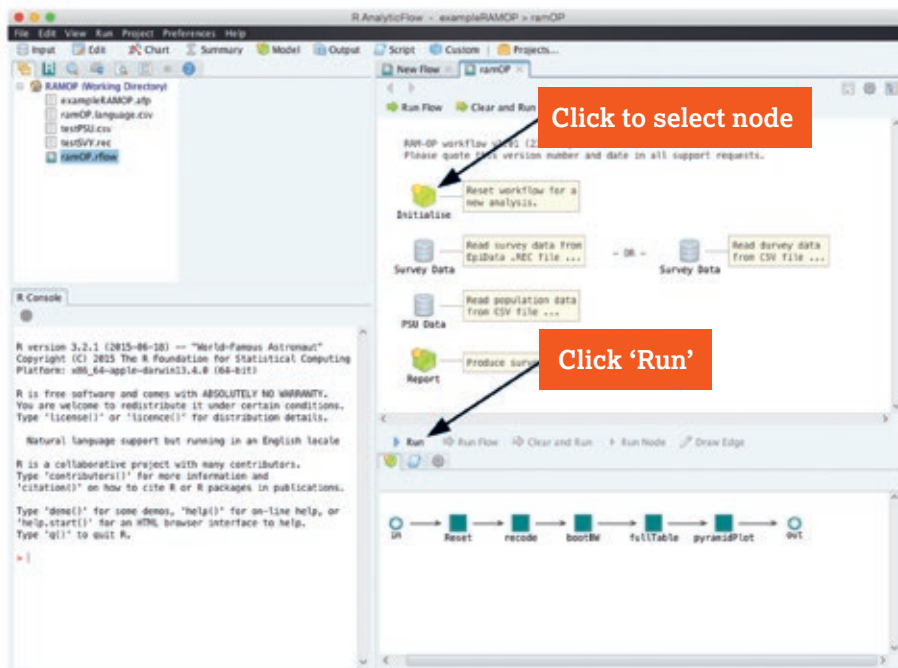


1. Before you start work you will need to create a project for your survey:
2. Click the **New Project ...** button
3. Give your project a useful (i.e. descriptive and memorable) name. This might be a name that describes the survey. For example, if the survey was done in Kereinik locality of West Darfur in May 2015 you might use the name **WD.Kereinik.May2015.RAMOP**
4. Give the location of your project directory. This is the folder that contains your survey data file, your PSU file, the RAM-OP language file, and a copy of RAMOP.rflow (see previous page). The location ('path') that RAnalyticFlow selects automatically will almost always be wrong. You need to specify this manually.
5. Click the **OK** button



Double click the item named **ramOP.rflow** shown in the file manager pane of the RAnalyticFlow window. This will open the data-analysis workflow which will be shown in the workflow viewer / editor window of the RAnalyticFlow window.

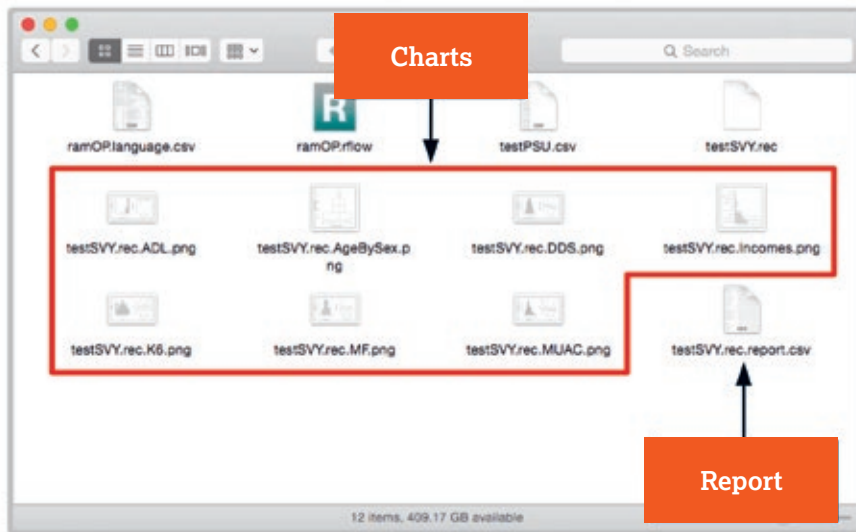
Once you have opened the workflow you need to initialise it (i.e. load libraries, useful analysis function, and initialise the workspace for a new analysis):



Once this is done, you should:

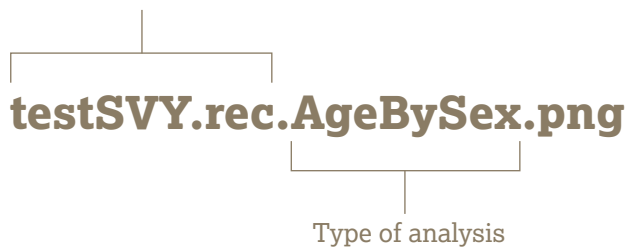
1. Retrieve your survey data. This can be in EpiDat (REC) format or CSV format. Select and run the appropriate **Survey data** node and select the survey data file.
2. Retrieve the PSU date data. Select and run the **PSU data** node and select your PSU file.
3. Produce the survey report and graphics. Select and run the **Report** node. This will take some time to complete because the analysis uses computer intensive techniques to make best use of the available data. The Report node / icon will have black lines around it if it has completed running the report.

When the analysis is complete, your project directory should contain eight new files:



The files ending in **.png** are graphics files. The names of these files are intended to be informative. For example:

Name of the survey data file used



The file ending in **.report.csv** is the survey report file (see below).

There may also be a file ending in **.afp** This is a project information file used by RAnalyticFlow and can be ignored.

22. Analysing your data

The file ending in **.report.csv** is the survey report file. This file can be opened, formatted and edited in a spreadsheet programme such as **Microsoft Excel** or **OpenOffice Calc**:

Demography and situation										
INDICATOR	TYPE	ALL			MALES			FEMALES		
		EST	LCL	UCL	EST	LCL	UCL	EST	LCL	UCL
Respondent : SUBJECT	Proportion	84.3%	78.1%	90.6%	83.6%	72.7%	92.3%	86.0%	76.9%	93.1%
Respondent : FAMILY CARER	Proportion	9.9%	5.7%	15.6%	8.0%	2.5%	14.4%	11.3%	5.4%	19.5%
Respondent : OTHER CARER	Proportion	4.2%	1.0%	7.8%	5.8%	1.0%	14.7%	2.5%	0.0%	7.2%
Respondent : OTHER	Proportion	1.0%	0.0%	3.7%	1.4%	0.0%	7.4%	0.0%	0.0%	2.5%
Diet										
INDICATOR	TYPE	ALL			MALES			FEMALES		
		EST	LCL	UCL	EST	LCL	UCL	EST	LCL	UCL
Meal frequency	Mean	2.58	2.39	2.77	2.51	2.19	2.79	2.65	2.43	2.89
Dietary diversity (count from 11 food groups)	Mean	4.58	4.28	4.90	4.47	3.93	5.01	4.66	4.27	4.97
Consumed CEREALS (in previous 24 hours)	Proportion	91.7%	86.4%	95.3%	91.6%	82.2%	97.7%	92.2%	84.8%	97.3%
Consumed ROOTS / TUBERS (in previous 24 hours)	Proportion	53.1%	43.8%	63.0%	48.8%	32.9%	63.4%	53.3%	45.1%	66.7%
Consumed FRUITS / VEGETABLES (in previous 24 hours)	Proportion	58.9%	48.9%	68.2%	55.6%	39.7%	70.0%	61.7%	50.4%	71.6%
Consumed MEAT (in previous 24 hours)	Proportion	5.7%	2.1%	10.4%	3.7%	0.0%	11.1%	7.1%	1.9%	12.8%
Consumed EGGS (in previous 24 hours)	Proportion	2.6%	0.5%	6.3%	3.7%	0.0%	11.8%	1.8%	0.0%	7.1%
Consumed FISH (in previous 24 hours)	Proportion	32.8%	24.5%	41.7%	42.1%	29.7%	57.3%	26.8%	16.2%	37.7%
Consumed LEGUMES / NUTS / SEEDS (in previous 24 hours)	Proportion	41.2%	32.8%	50.0%	38.4%	22.9%	53.0%	43.6%	31.4%	54.6%
Consumed MILK / MILK PRODUCTS (in previous 24 hours)	Proportion	2.6%	0.5%	5.8%	0.0%	0.0%	4.0%	3.5%	0.0%	8.6%
Consumed FATS (in previous 24 hours)	Proportion	22.4%	15.1%	28.7%	22.9%	11.4%	35.7%	21.9%	12.7%	32.2%

In the illustration above, proportions have been formatted as percentages with one decimal place; means have been formatted as numbers with two decimal places; and column titles have been formatted as bold text.

You can edit the labels as you see fit. If you plan to do several RAM-OP surveys then you may want to edit the language file (always called **ramOP.language.csv**). This file provides text that is used in reports and graphics. The purpose of this file is to make the data analysis software produce reports in any language. This file **must** be a comma-separated-value (CSV) file.

Conclusion

We live in an ageing world, where people aged 60 or over will number two billion – about 22 per cent of the world's population – by 2050. By 2030, there will be more people over 60 than under 10. Currently, two in three people aged 60 years or older live in developing countries. By 2050, nearly four in five older people will be living in the developing world. The changing demographics of ageing combined with the increasing number of disasters will have a disproportionate impact on the world's oldest and poorest.

One of the fundamental issues that needs to be addressed is availability of reliable data on the needs of older people which is not available currently. But through the introduction of RAM-OP accurate data, multi sectoral needs assessment will be available. In this context, identifying the needs of older people as accurately as possible is a necessity. Increasingly donors and UN agencies are now willing to include older people in their programmes. Age markers to complement gender markers will be disseminated shortly.

RAM-OP offers a fast, robust, reliable, tested and user-friendly way of assessing the needs of older people. It can be used in humanitarian situations as well as in development contexts. The modular structure of RAM-OP allows for adaptation, allowing it to be exhaustive or limited to essential indicators, depending on the survey needs. As more organisations start to use it, RAM-OP will evolve and improve. The methodology has been tested both in an urban area: Addis Ababa (April 2014) and rural area: Kibaha District, Tanzania (September 2014) and proved to be a very reliable and cost effective compared with other similar methodologies.

All RAM-OP tools are free of charge and anyone can use them, a dedicated website will be available for collecting feedback and update for new versions of RAM-OP.

New versions of RAM-OP can be created (for example, RAM-OP for refugee or displaced people camps) or RAM for NCD (non-communicable diseases) in humanitarian settings. We hope that increasing numbers of practitioners in a variety of humanitarian or development contexts will start using RAM-OP and make it their own.



Find out more:

www.helpage.org/RAM-OP

HelpAge International
PO Box 70156, London WC1A 9GB, UK

Tel +44 (0)20 7278 7778

Fax +44 (0)20 7387 6992

info@helpage.org

www.helpage.org



@HelpAge



HelpAge International