ACROSS – X sectional survey Procedures

Version 0.1

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1. Sampling Frame

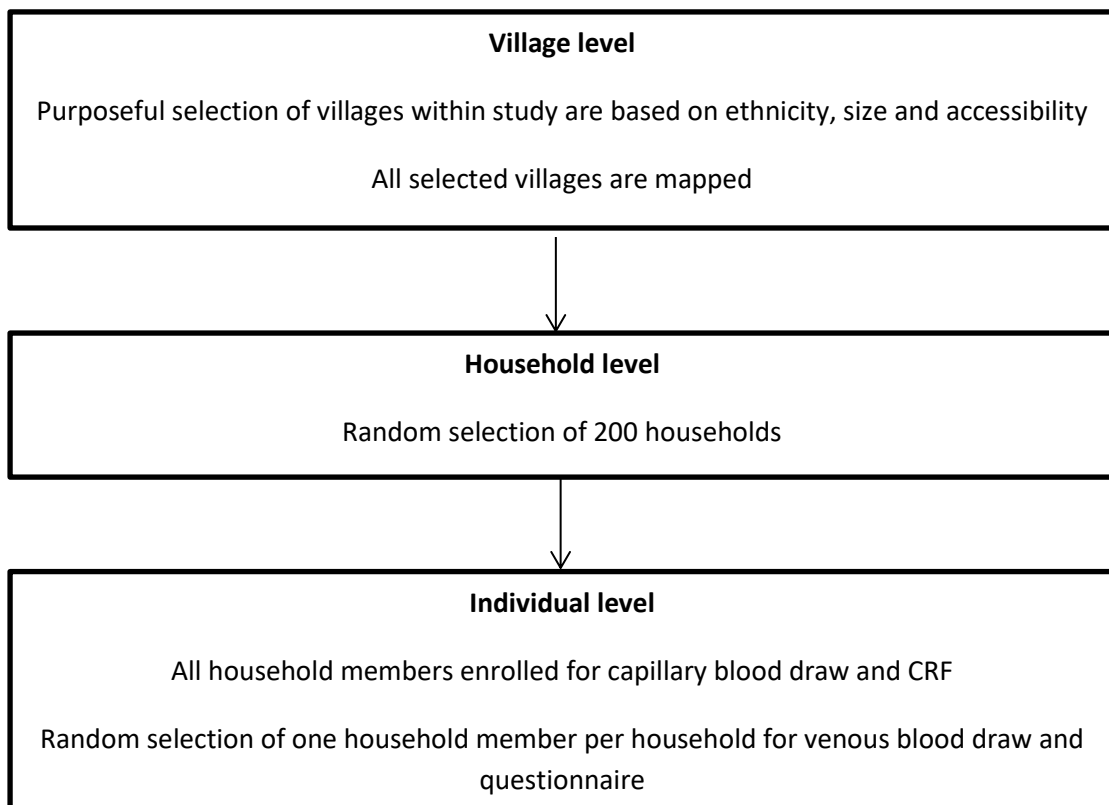## 1.1. Definitions

1.1.1. Study area

For study sites that do both the X-sectional survey and the hospital based survey the study area is defined as the catchment area of the health facility. For other sites the study area will be defined purposefully.

The study area will be divided into clusters based on predefined administrative or other suitable boundaries.

1.1.2. Household

For the purpose of the study a household is defined as all persons living most of the time under one roof or occupying a separate housing unit, having either direct access to the outside (or to a public area) or a separate cooking facility.

## 1.2. Three step sampling frame

Village level
Purposeful selection of villages within study are based on ethnicity, size and accessibility
All selected villages are mapped

↓

Household level
Random selection of 200 households

↓

Individual level
All household members enrolled for capillary blood draw and CRF
Random selection of one household member per household for venous blood draw and questionnaire

2. **Procedures before study start**

2.1. Selecting Villages in study area

Villages that are in the study area will be purposeful selected to participate in the X-sectional survey based on potential difference in ethnicity among villages (the aim is to enrol different ethnic groups if possible), size of the villages (to make sure the sample size can be reached) and accessibility (villages must be accessible for the study team).

2.2. Mapping of selected villages

Selected villages will be mapped using google maps or other means as appropriate depending on the setting. The aim is to have a simple map from each selected village with all households included and numbered. Below is an example.
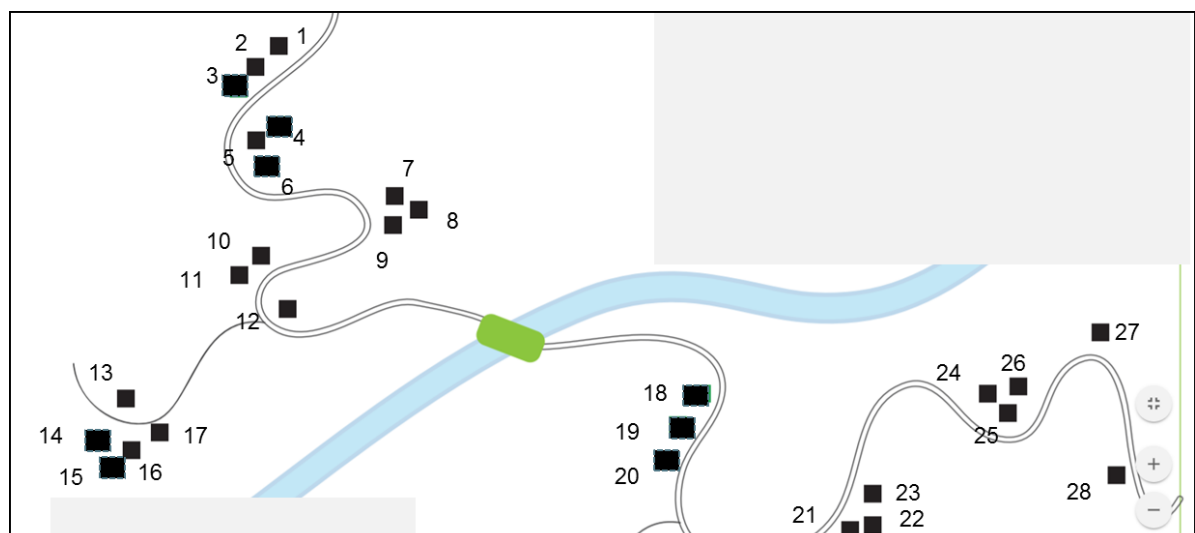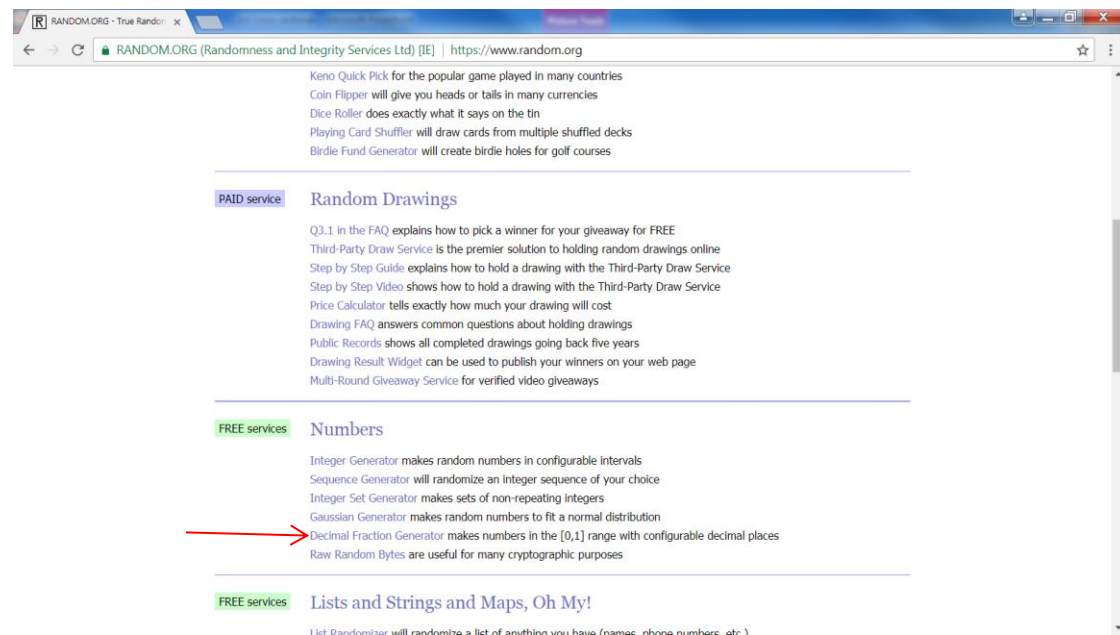
2.3. Random selection of households

The random selection of households should be done before start of the survey. Please use www.random.org for household selection. For the household selection use the "random integer set generator". This generator guarantees the numbers in each set will be unique within each set.

Step 1:

Go to www.random.org and scroll down to the section "numbers" and select the integer set generator.

Step 2:

Fill in the random integer set generator as shown below.

Step 3:

Hit the "Get Sets" button

Step 4:

You will get a list that looks like this. This is the list of randomly selected households that you will need to include in your X-sectional survey.

Make sure you print the set and save it with your other study documents!

Step 5:

You can now highlight the selected household numbers on your map and inform your study team which households they will need to visit.
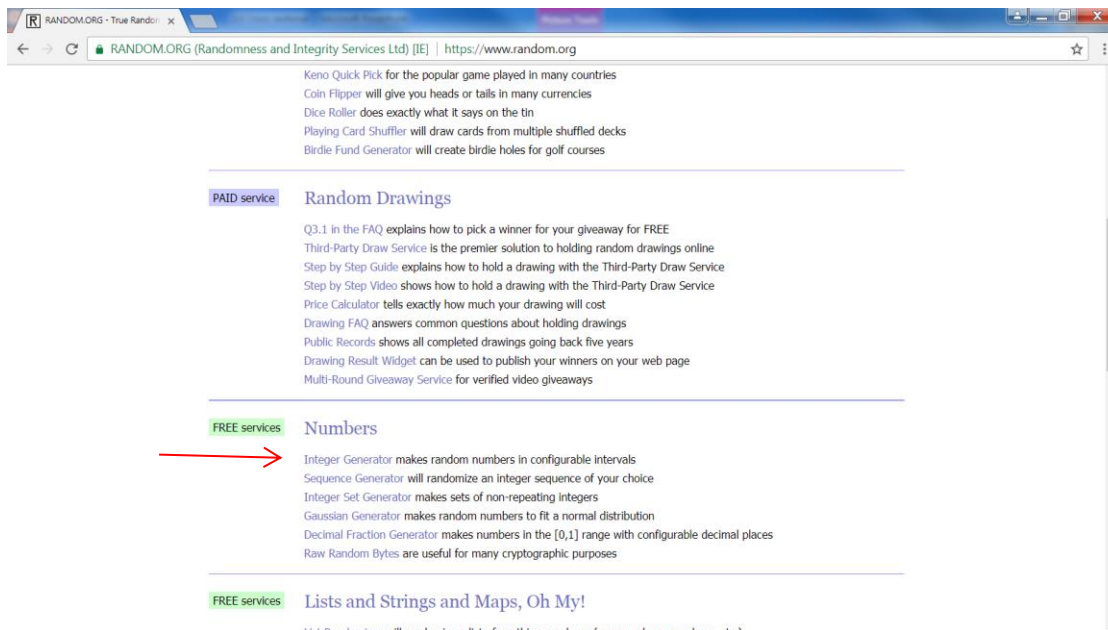
Please note that we selected more than 200 to accommodate for potential refusals. Those additional households are at the end of the list. Please make sure that you start with the first 200 selected households and of a household refuses to participate you add the next household on the list to your study sample.

2.4.   Random selection of individuals in household for venous blood draw

In order to randomly select a member within the household to provide a venous blood draw please use random selection of individuals.

Step 1:

Go to www.random.org and scroll down to the section "numbers" and select the "integer generator" (please note this is different to what we used for the household selection!).

Step 2:

Fill in the random integer generator as shown below. This can be done before the start of the survey and before you know the exact number of household members for each household.

Step 3:

Hit the button "get Numbers" .

Step 4:

You will get a list like this. Please print this list as you will need it when you go to the field.

Random Integer Generator

Here are your random numbers:

8	5	6	6	6	7	4	5	4	8
10	5	5	8	9	3	5	2	6	6
8	4	4	4	3	6	2	2	3	4
7	1	9	4	8	2	7	3	1	7
9	9	8	10	7	10	1	8	10	3
2	2	6	2	8	3	3	2	1	7
1	10	6	3	8	4	9	7	9	4
7	5	9	1	2	9	9	10	1	6
5	8	6	1	1	6	8	8	1	2
9	4	3	3	2	6	6	5	6	5
9	3	9	2	7	7	4	8	5	7
6	2	5	5	1	1	5	1	8	1
8	7	6	8	7	3	7	9	9	9
6	3	2	3	6	3	10	9	4	3
5	5	7	1	9	8	6	6	3	8
4	5	2	1	6	5	10	2	4	8
1	8	5	5	5	10	5	5	10	4
1	7	7	10	10	10	5	1	8	6
2	7	7	7	8	8	3	2	3	2
3	4	5	4	5	5	8	3	3	10
6	7	3	1	7	2	1	9	5	9
9	4	5	2	6	2	4	4	6	9

3. Procedures during the study

3.1. Mapping each selected household

When the study team visits the selected households make a list for each selected household listing all household members present at the time of the visit. Sort the list by age, starting with the oldest household member and ending with the youngest. Below is an example of such a list:

Household number	510
Household member Number	Name or Identifier
1	Granny (61 years)
2	Dad (40 years)
3	Mum (38 years)
4	Son (18 years)
5	Daughter (15 years)

3.2. Filling out the CRF

A Case record form (CRF) will be filled out for each household member present at the time of visit.

[Here we could add information on how to fill it out}]

3.3. Selection of household member for venous blood draw

Step 1:

Use the random integer list that you pre-generated. Pleas note that the numbers on the list are generated from left to right (across columns).

Step 2:

Check the first number on your integer list. In our example this is 8. However our example household only has 5 members. Therefore you can't use the first integer on the list and move to the next. The next integer on the list is 5. This means the fifth person on our household list is the selected person for the venous blood draw (in our example this is the 15 year old daughter).

Number	Name
1	Granny (61 years)
2	Dad (40 years)
3	Mum (38 years)
4	Son (18 years)
5	Daughter (15 years)

Step 3:

When visiting the next household you can NOT reuse the same integers as before, so you have to cross them off your list (also those that were not used, e.g. in our example the first one with was 8).

If your next household for example has 6 individuals, you can't use the first integer (8) that we didn't use in the first household and we can't use the one that we used for the first household (5) but we have to use the next one, which in this case is a 6.

Number	Name
1	Grandpa (80years)
2	Dad (40 years)
3	Mum (38 years)
4	Auntie (35 years)
5	Daughter (15 years)
6	Son (12 years)
7	Daughter (10 years)

3.4. What to do in case of refusal for venous blood draw

If the individual that was selected for the venous blood draw refused to participant in the venous draw you choose the household member that is closest in age and sex as a replacement.

In example the 15 year old daughter who was selected refuses consent you check if there is another female household member and choose the one that is closer in age to the person initially selected. In our case this is the mother.

Number	Name
1	Granny (61 years)
2	Dad (40 years)
3	Mum (38 years)
4	Son (18 years)
5	Daughter (15 years)

3.5. What to do in case of refusal for capillary blood draw

If one household member refuses to provide a capillary blood draw, please fill out the screening part of the CRF and note that the participant refused.

If the entire household refuses, you need to select a replacement household (please see above).

4. **Consent**

Depending on the setting we recommend to provide information to entire village/cluster before study start to explain the study to the community – ideally this is done at the same time than the mapping (unless mapping can be done completely using google maps). Make sure you provide information on how households and individuals are selected in an appropriate way. Inform selected households and make sure they will be around when you plan to come. On day of survey collect written informed consent/assent from all participants.