



Participatory Epidemiology

A Guide for Trainers

Chapter 4

Useful Methods for Participatory Epidemiology

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Chapter 4 Useful Methods for Participatory Epidemiology

Session: Informal Interviews

<p>Session objectives:</p> <p>At the end of the training session, trainees should be able to:</p> <ol style="list-style-type: none"> 1. Describe different types of informal interviews used in PE 2. Describe good interview technique 3. Explain the difference between open, closed and probing questions 4. Demonstrate an effective informal interview 	<p>Outline session plan:</p> <ul style="list-style-type: none"> ○ Presentation on different types of informal interviews for PE ➔ whole group (~ 15 minutes) ○ Brainstorming session on 'barriers to good interviewing' ➔ whole group session (~ 30 minutes) ○ Types of questions ➔ individual question list exercise (~ 15 minutes) ○ Mock interviews ➔ presentation and discussion (~ 40 minutes) <p>🕒 Total time required: ~ 3 hours</p>
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Barriers to interviews

For this session the trainer can refer to Handout 10 and prepare a 15 minute presentation on the key features of informal interviews used in PE.

The presentation can be followed by a brainstorming session on 'barriers to good interviewing'. Participants are asked to call out factors that will inhibit good communication between interviewer and informant.

Examples of barriers to good interviewing from the Arusha PE Training

- Asking very direct or aggressive questions.
- Pretending or lying on the part of the interviewer
- Interruption by the interviewer
- Asking complicated questions
- Using technical terms
- Mixing languages
- Ambiguous questions
- Leading questions
- Compound questions
- Sensitive questions
- Irrelevant questions

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- Repetitiveness

A question with an obvious answer - a trainer can use cartoons to reinforce messages about different types of questions



Types of questions

During the brainstorming some trainees mention the use of inappropriate questions as a barrier to good interviewing. This issue can be followed up using an exercise in which trainees are asked to categorise questions, described in Box 4.1.

Box 4.1
Individual question list for types of questions

This exercise uses a pre-prepared list of about 15 different types of questions, given as a handout to each trainee. The trainees categorise each type of question using categories such as 'closed', 'open', 'leading', 'probing', 'ambiguous', 'sensitive' or 'compound'. A shortened example of the handout is shown below

Question	Type
<i>Do you ever visit the veterinary clinic?</i>	Trainee to add their answers here
<i>Why do you prefer to keep sheep rather than goats?</i>	
<i>How many cattle do you have?</i>	
<i>It's interesting what you say about anthrax – can you tell me more about it?</i>	
<i>How many times have you vaccinated your chickens in the last few years?</i>	
<i>For camels aged 0-1, 1-3 and more than 3 years old, tell me how many died of Pasteurella infections last month in this area.</i>	

Trainees completed their categorisation of the questions, and then the answers are discussed in a whole group session.

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The exercise outlined in Box 4.1 helps trainees to think carefully about how questions can easily lead or confuse people.

PE often uses semi-structured interviews based on open and probing questions. The discussion can be developed further by providing trainees with examples of closed or leading questions, and then asking them to rephrase the questions as open or probing questions.

Examples

The question '*How many times did you visit the veterinary clinic last year?*' can be rephrased as '*Last year, what did you do if your animals became sick?*'

The question '*Do you use oxytetracycline to treat CBPP?*' can be rephrased as '*How do you treat cattle with somba?*'

Practical work

As interviewing is such an important method in PE, the training should include time to practise interviewing technique. A practical exercise is described in Box 4.2

Box 4.2 Practising semi-structured interviews

Divide the trainees into groups of 4 to 5 people. Ask 2 or 3 people in the group to play the role of livestock keepers and the other 2 people act as interviewers. The trainer should visit each group of interviewers in turn and give them a specific topic to investigate using a short, semi-structured interview. Handout 10 (Annex 1) covers this issue. Suitable topics might be 'Sudden death in cattle', 'Diarrhoea in calves', 'Fair prices for veterinary drugs' and so on.

The interviewers have to prepare a checklist and then conduct the interview in front of the other participants. The participants watch the interview and then comment on the good and bad points of the interview.

This exercise can be made more interesting if the trainer asks the 'livestock keepers' to act in particular ways. For example, some could be unfriendly, others could be bored while a third group could be suspicious of the interviewers.

During fieldwork, trainees will have further opportunities to practise informal interviewing methods.

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Session: Participatory Mapping

<p>Session objectives:</p> <p>At the end of the training session, trainees should be able to:</p> <ol style="list-style-type: none"> 1. Explain the role of visualisation methods compared with verbal methods in PE 2. Describe uses of participatory mapping in PE 3. Demonstrate how to do participatory mapping 	<p>Outline session plan:</p> <ul style="list-style-type: none"> ○ Presentation on participatory mapping ➡ whole group (~ 20 minutes) ○ Practical mapping ➡ in groups (~60 minutes) ○ Presentation of maps and discussion ➡ (~60 minutes) ○ Summarise key points ➡ presentation (~5 minutes) <p>🕒 Total time required: ~ 2.5 to 3 hours</p>
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The trainer can refer to Handout 11 (Annex 1) to prepare the initial presentation for this session. The handout is given to participants after the presentation.

Key points to make during a presentation are:

- Spatial information on livestock distribution, movements, interactions, diseases and disease vectors is extremely useful in epidemiology
- Some information is easier to describe and analyse visually than in written form. It is easier to draw a map than describe a map in words
- Mapping is useful at the beginning of an inquiry to define the spatial boundary of the system under investigation. It also acts as a good ice-breaker as many people can be involved
- Maps produced on the ground using locally-available materials are easy to adjust until informants are content that the map is correct
- Maps do not need written words or labels, and therefore non literate people can participate

Participants should be given guidelines on how to facilitate participatory mapping (see Handout 11).

The second stage of the session involves practical work. Most PE training will take place in a training centre or other institution which has support staff such as secretaries, watchmen, cleaners or canteen workers. These staff can be used as informants during a practical mapping exercise.

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Practical work

Divide trainees into groups of around 3 to 6 people. The groups are asked to find an informant(s) in the training compound and ask them to produce a map of the compound. Handout 11 provides guidelines on how to do this.

Each group is given the same task. For example, if there are 5 groups, 5 separate maps should be produced.

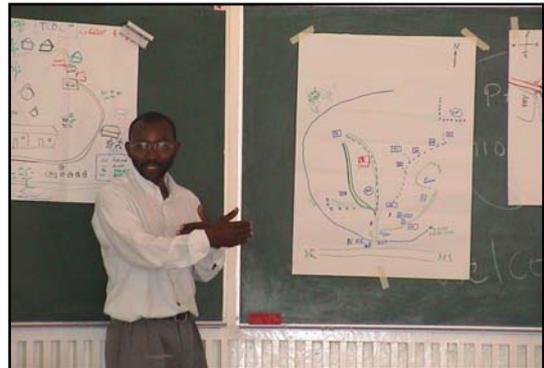
Ask the groups to copy the maps on to flipchart paper and be ready to explain the maps to the other participants. Give them about 1 hour to complete the mapping.

Group presentations

Group presentations and feedback sessions are an important component of PE training courses. They allow people to share their results with other participants, and explain the process that led to the results. This includes problems they came across when using a particular method.

These sessions allow participants to ask questions and identify strengths and weaknesses relative to their own experiences.

A trainer should allocate about 10-15 minutes presentation time per group



Some of the discussion points that arose during the presentations at the Arusha PE training were:

- *Which way is north? The map should show orientation.*
- *Who produced the map? The names of the informants should be written on the map.*
- *Should the map have a scale? In either km or time taken to traverse the area covered by the map.*

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Session: Matrix Scoring

<p>Session objectives:</p> <p>At the end of the training session, trainees should be able to:</p> <ol style="list-style-type: none"> 1. Describes the uses of matrix scoring in PE 2. Demonstrate how to do matrix scoring 	<p>Outline session plan:</p> <ul style="list-style-type: none"> o Presentation to introduce uses of matrix scoring ➡ whole group (10 minutes) o Demonstration ➡ whole group (~50 minutes) o Practical work ➡ in groups (~90 minutes) o Group presentations with discussion ➡ whole group (~60 minutes) o Summarise key points ➡ presentation (~5 minutes) <p>⌚ Total time required: ~ 2.5 to 3 hours</p>
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The trainer can to Handout 12 (Annex 1) for background information on the uses of matrix scoring for PE. The handout can be used to prepare a very short presentation (no more than 10 minutes) to introduce the method.

Demonstrate the method

The matrix scoring method can be taught by demonstration followed by practical work in groups. A good way to demonstrate the method is to select a non-veterinary topic and use matrix scoring to understand the topic as part of a demonstration.

In the Arusha training, the trainer was aware that three of the participants were from Eritrea and that in Eritrea, a staple food is fermented, flat bread called *injera*. The trainer was also aware that *injera* could be prepared from different types of grain. The trainer acted the role of a nutritionist wishing to learn about the different types of *injera*. He was helped by an assistant who acted as the note taker for the exercise. The Eritrean participants were asked to act as informants for the exercise.

Matrix scoring involves three main stages – a pair-wise comparison followed by the scoring of items and indicators, and finally, 'Interviewing the matrix'. Therefore the demonstration was also arranged in three main stages as follows.

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Stage 1: Pair-wise comparison of the different types of injera

Nutritionist *I understand that in Eritrea, injera is an important food. Can you tell me the different types of injera which are eaten?*

Informants The informants named different types of injera as follows – teff (brown variety), teff (white variety), maize, sorghum, millet and mixed grain types.

Nutritionist The nutritionist knew that the informants were literate and wrote the different types of *injera* on separate pieces of card. He selected two cards representing teff and sorghum, and then asked the question: *Which of these two types of injera do you prefer? Discuss as a group and tell me your preference.*

Informants The informants discussed the question and then stated that they preferred *injera* made from teff.

Nutritionist *Why do you prefer injera made from teff? Again, please discuss as a group and explain your preference for teff.*

Informants After a few minutes discussion, the Eritreans began to list various reasons why they preferred teff to sorghum *injera*. These reasons were recorded by the note taker and were termed 'indicators'.

The nutritionist then selected another two cards and repeated the 'preference' question and the 'why' question. All the responses from the informants were recorded. The recorder also made notes on the discussion that takes place.

Further pairs of cards were selected and for each pair, the informants were questioned.

As this process continued, the informants began to exhaust their knowledge of *injera* and their reasons for preferring one type over another type began to be repeated. At this point, the nutritionist moved on the stage 2 of the demonstration

Participatory Epidemiology: A Guide for TrainersStage 2: Scoring of indicators against the different types of injera

The nutritionist laid the six cards representing each type of *injera* in a row on the ground.

He then took the first indicator provided by the informants called 'palatability' and wrote 'palatability' on a piece of card. He provided them with a pile of 30 stones and asked them to assign stones to the different types of *injera* to show the relative palatability. In other words, the more palatable a particular type, the more stones to be assigned to it. He also requested them to use all 30 stones.

When the informants had discussed among themselves and placed the stones, the nutritionist asked if they all agreed on the scores assigned to each type of *injera* and gave them an opportunity to change their scores if they wished. The final scores were recorded and the stones left in place on the floor.

The nutritionist then selected the next indicator 'cultural preference' and asked the informants to score this indicator, also using a new set of 30 stones. The scoring procedure was repeated with each indicator. The final matrix is shown below, with the numbers being the number of stones in each 'cell' of the matrix.

Indicator	Types of <i>injera</i>					
	Maize	Teff (brown)	Teff (white)	Millet	Sorghum	Mixed
Palatability	3	6	8	3	4	5
Cultural preference	3	6	8	3	6	4
Nutritional value	4	7	5	7	4	6
Low cost	7	3	2	6	8	4
Ease of preparation	4	7	9	5	5	3

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Some important points for the trainer to emphasise are:

Patience - the nutritionist was patient. He didn't interfere with the discussion or try to hurry the informants.

Avoid 'correcting' the results - it is a common mistake for researchers to try to 'correct' the scores and give their opinions. Sometimes, this quickly develops into the researcher lecturing the informants about the 'right' answer. It is not the role of the researcher to offer their views, but further questioning can be used later to probe interesting scores in the matrix - see stage 3.

Column totals – note that in the above example using *injera* the column totals for each type of *injera* were not summated to give an overall score for each type. This was because the indicators probably varied in importance or had different 'weights'. It is possible to ask informants to weight the indicators by dividing a pile of counters against the indicators. When the weighting is applied to all the scores in the matrix, this can lead to a more accurate overall score for each item. However, it also complicates the method. As explained in Handout 12, matrix scoring can be used to understand local characterisation of diseases before using other participatory methods such as seasonal calendars or proportional piling. With this approach, the indicators are disease-signs and disease-causes, and summating the scores for each disease has limited value.

Stage 3: Interviewing the matrix

The third stage of the matrix scoring demonstration involved 'interviewing the matrix'. At this stage, the entire matrix is visible on the ground and the relationships between the types of *injera* and indicators clearly seen. Therefore, the matrix is used as the basis for further discussion facilitated mainly by open and probing questions.

For example, the nutritionist asked questions such as:

Tell me more about the meaning of the indicator 'cultural preference'

If teff injera is the most expensive and also difficult to prepare, why is it rated so highly from a cultural perspective?

As men rarely prepare injera, how do you know which types are difficult to prepare?

This type of questioning reveals more information about the scores and opens up areas of discussion. The responses to these questions are part of the method and are recorded by the note taker.

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Following the demonstration, participants asked questions about the method:

Why use 30 stones?

The number of stones used should be large enough to show differences between the types of *injera*, but not so large that counting the stones becomes too time-consuming. Around 5 stones per item being scored is usually a manageable number.

What happens if the informants have many types of injera, say 10 or more?

The method will work with more items to be scored, although the time required for the method will increase.

Similarly, what happens if a very long list of indicators is produced during the pair-wise comparison? Should all the indicators be scored?

A very long list of indicators may make the method boring. It is probably best to limit the indicators to no more than 15. Use indicators that are mentioned frequently during the pair-wise comparison or, ask the informants to rank all the indicators before scoring and select only the most important indicators.

What happens if the informants are illiterate?

As informants are often illiterate, researchers must use symbols or everyday items to represent the various diseases. The meaning of the symbols requires patient explanation to informants so that everyone is clear about which symbol represents which disease. Similarly, indicators can be sketched on to pieces of card. Again, the sketches need to be carefully explained to the informants (also see Handout 9, Annex 1).

Practical work

Divide the participants groups, each group with 4 to 5 participants. Within each group, ask some people to act as livestock keepers and other people to act as researchers. The idea is to set up mock situations where researchers with no knowledge of local disease names are required to use matrix scoring to understand livestock keepers' perceptions of diseases.

For example, in the Arusha training Group 1 contained two vets with experience in southern Sudan. The trainer asked these two vets to play the role of livestock keepers. The researchers in this group were from Eritrea and were given a set of written instructions as follows:

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You are visiting Bahr el Ghazal in southern Sudan. Some livestock keepers have told you that the following 5 cattle diseases are important: luek, aboutpou, lie, jul, cual. Your task is to use matrix scoring to understand how local people describe and distinguish between the 5 diseases. The informants are illiterate. You have 1 hour to complete the task and prepare results on a flip chart.



Similar tasks were given to the three other groups:

Group 2: Two Ethiopian participants played the role of highland Ethiopian farmers. They were 'visited' by researchers from Kenya and Uganda who used matrix scoring to understand the cattle diseases called *desta*, *samba*, *aba gorba*, *afte jajir* and *gendi*.

Group 3: Two Somali participants played the role of Somali pastoralists. They were visited by researchers from Sudan and Uganda, who used matrix scoring to understand camel diseases called *gendi*, *muglo*, *cadho*, *kud* and *furuq*.

Group 4: A Kenya participant played the role of a Turkana pastoralist. He was visited by researchers from Tanzania and Belgium who wished to study the cattle diseases called *lokiyo*, *lokichum*, *lokipi*, *loukoi* and *nginadam*.

Group presentations

Each group should summarise their results on a flip chart and present findings to the other groups. An example is shown overleaf. Five diseases are represented using common, everyday objects placed along the top of the matrix. The group has sketched disease signs down the left side of the matrix.

During the practical work, each group of researchers will begin to form opinions regarding the modern veterinary interpretation of the local disease names. Therefore, the diagnostic value of the method will become apparent.

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Example of matrix scoring presentation

	8	9	6	4	3
	0	0	18	12	0
	3	2	0	25	0
	0	4	4	6	16
	7	7	1	13	2
	0	0	0	2	28
	6	10	8	6	

In the Arusha PE training, some lessons from the feedback presentations were:

Be clear about the instructions given and questions to be asked

An important aspect of matrix scoring (and other PE methods) is for researchers to prepare and test the instructions they'll use in the local language of the informants. Explaining to people that you'd like them to divide a pile of counters to show the relative importance of an indicator (e.g. coughing) against five diseases is potentially confusing. For example, what is the meaning of 'importance'? Taking the example of 'coughing', importance could mean that coughing is observed in many animals suffering from the disease. A matrix based on this form of questioning reflects the frequency of observed signs for the different diseases. Alternatively, importance of coughing could be interpreted as the severity of coughing in individual cases. A matrix based on this form of questioning reflects the severity of signs for the different diseases. When using matrix scoring to understand local characterisation of diseases, it probably doesn't matter too much which form of questioning is used. However, it is important for the researchers to be clear about the questions being asked and why. Also, if the method is to be repeated with different groups of informants to compare opinions, the questioning should be constant.

Working with illiterate informants

During the practice session, all 4 groups initially overlooked the illiteracy of the informants. They used written labels to represent the diseases and indicators – these

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labels would be meaningless to illiterate informants and would isolate them from the method. The trainer advised each group to produce symbols and diagrams to represent each disease and indicator, and carefully explain these diagrams to the informants.

Let the matrix 'grow' on the ground

One group scored each indicator in turn and removed the stones immediately after each scoring. Therefore, a matrix did not emerge visually on the ground – at the end of the scoring there no matrix to interview.

Session: Seasonal Calendars

<p>Session objectives:</p> <p>At the end of the training session, trainees should be able to:</p> <ol style="list-style-type: none"> 1. Describes the uses of seasonal calendars in PE 2. Demonstrate how to construct a seasonal calendar with informants and 'interview the calendar' 	<p>Outline session plan:</p> <ul style="list-style-type: none"> o Presentation to introduce uses of seasonal calendars ➡ whole group (10 minutes) o Demonstration ➡ whole group (~50 minutes) o Practical work ➡ in groups (~90 minutes) o Group presentations with discussion ➡ whole group (~60 minutes) o Summarise key points ➡ presentation (~5 minutes) <p>⌚ Total time required: ~ 2.5 to 3 hours</p>
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Trainers can refer to Handout 14 (Annex 1) for background information on the uses of seasonal calendars in PE. This handout can be used to prepare a very short presentation (of no more than 10 minutes) to introduce the method.

Demonstrate the method

The construction of a seasonal calendar involves three main stages:

- learn the local definitions of seasons i.e. the names of seasons in the local language, and relate these names to English names for months or seasons
- score rainfall, diseases, disease vectors or other indicators against the local names for seasons
- interviewing the seasonal calendar

The seasonal calendar method can be taught by demonstration followed by practical work in groups. Identify a trainee with particular knowledge of certain community and

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their language. Ask this person to act the role of a livestock keeper (the informant) from this community.

Stage 1: Identify local names for seasons

Draw a line on the ground about 1m in length and explain to the informant that the line represented one full year. Ask the informant to divide the line to show the various seasons in the year.

In the example below, the informant was a Samburu pastoralist from Kenya. The line represents the Samburu year by season; there are six seasons.

<i>Ingerngerua</i>		<i>lamei dorop</i>		<i>lorikini</i>		<i>lamei dorop</i>		<i>Itume</i> <i>-ren</i>	<i>lamei</i> <i>oodo</i>		
Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb

Stage 2: Scoring of rainfall, diseases and other indicators

Ask the informant to think about rainfall and how rainfall varies according to season. Give them a pile of 30 stones (in this example, 6 seasons x 5 stones = 30 stones) and ask them to divide the stones to show the seasonal pattern of rainfall (the higher the rainfall in a particular season, the more stones to be assigned to that season). All the stones should be used.

When the rainfall pattern had been shown using the stones, check that the informant was confident that the stones were in the correct place. Give them a chance to change the pattern if they wish. Then record, *but do not remove*, the numbers of stones for each season.

Diseases, disease vectors or other indicators can then be scored against the seasons using the same scoring method as for rainfall. At this point, the researchers need to be clear about the questions to be asked and should have pre-prepared and tested the questions in the local language. Often this also means working with translators to clarify the questions before going to the field.

- If, as an epidemiologist, you are trying to understand seasonal variations in disease incidence you'll have to think carefully about the question to be asked when informants are scoring the diseases against season. Is the task to:

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'Show me the number of cases of this disease that you saw by season'

or,

'Show me the number of new cases of this disease that you saw by season'

Also bear in mind that a clear distinction has to be made between frequency of cases and severity of observed cases. Sometimes, researchers or translators can confuse or combine the two questions.

- Similarly, assume you are interested in contact between wildlife and cattle. Is the task to:

'Show me the seasonal changes in wildlife numbers'

or

'Show the seasons when wildlife come into contact with cattle'

or something else?

Representing the disease and disease vector indicators

For literate informants – diseases and disease vectors can be represented by writing the name of the diseases or vectors on pieces of card.

For illiterate informants – use diagrams to represent the diseases and vectors (for example, see Handout 9, Annex 1).

For mixed groups of literate and illiterate informants – use diagrams, so that everyone in the group can easily follow the method.

Scoring the indicators

Taking the first disease or disease vector, ask the informant to show its seasonal occurrence using a pile of 30 stones. Give the informant time to place the stones and check their response. Explain to them that they can change the stones if they wish. When the informant is comfortable with their answer, record the result and move to the next disease or disease vector.

Score each disease and disease vector in turn, gradually building the seasonal calendar row-by-row on the ground.

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Stage 3: Interviewing the calendar

The final stage of the demonstration involves 'interviewing the calendar'. Like the matrix scoring method, a seasonal calendar can act as the basis for further discussion, facilitated by open and probing questions. Examples of such questions are:

Why do you see most cases of the disease called gendi in the wet seasons?

The seasonal changes in the disease called liei follows the same pattern as the biting flies called rom and the snails called chual. Why is this?

You've shown me that the disease called jong acom is seen only in the wet season. When could we use medicines to prevent jong acom?

Practical work

In the Arusha training, the seasonal calendar was practised using the same working groups who practised the matrix scoring method. Each group was asked to produce a seasonal calendar showing seasonal patterns in the same 5 diseases which had been previously investigated using matrix scoring. In addition, the groups were asked to show seasonal variations in disease vectors, or other factors that might be associated with disease occurrence e.g. contact with wildlife. In each group, people playing the livestock keepers were again asked to act as though they were illiterate (as in the matrix scoring practical work).

The groups were given 1 hour to complete the task and prepare a flipchart presentation.

Group presentations

This is an example of a seasonal calendar produced by a working group in the Arusha training, using Somali informants.

It shows four seasons called *gu*, *xagaa*, *deyr* and *jilaal* along the top of the diagram. The left side of the diagram shows 5 camel diseases (represented using simple line drawings) ticks and biting flies. The stars in each 'cell' of the diagram illustrated the seasonal variations. They also decided to look at seasonal variation in 'delivery of vet services'.



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Discussion points arising from the Arusha training

- Using local definitions of season overcomes the problem of some conventional methods, which use researchers' definitions of season that may not be understood by the informants. However, it takes time and patience to understand local names and meanings for seasons – key informants should be used.

Session: Proportional Piling

<p>Session objectives:</p> <p>At the end of the training session, trainees should be able to:</p> <ol style="list-style-type: none"> 1. Describes the uses of proportional piling in PE 2. Demonstrate how to conduct proportional piling with informants 	<p>Outline session plan:</p> <ul style="list-style-type: none"> ○ Presentation to introduce uses of proportional piling ➡ whole group (10 minutes) ○ Demonstration ➡ whole group (~50 minutes) ○ Practical work ➡ in groups (~90 minutes) ○ Group presentations with discussion ➡ whole group (~60 minutes) ○ Summarise key points ➡ presentation (~5 minutes) <p>⌚ Total time required: ~ 2.5 to 3 hours</p>
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A trainer can refer to Handout 15 for background information on the uses of proportional piling in PE. This handout can be used to prepare a very short presentation (no more than 10 minutes) to introduce the method.

Demonstrate the method

Proportional piling can be taught by demonstration followed by practical work in groups. In the Arusha PE training Ethiopian participants acted as highland farmers, and the trainer demonstrated proportional piling by asking them about the same 5 diseases used in the matrix scoring and seasonal calendar sessions. It was assumed that the informants were illiterate.

An important point here is the use of the same diseases in the training sessions on matrix scoring, seasonal calendars and proportional piling. Why bother to do this? This approach helps trainees to understand and practise the concept of triangulation (see Chapter 3). We can use different PE methods to

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investigate the same diseases. Although the methods are intended primarily to explore different aspects of the diseases, there will be some overlap in the information which is generated. This overlap is often most evident during follow-up questioning for each method (e.g. interviewing the matrix), and highlights the importance of interviewing as an essential part of each method.

In the demonstration using the Ethiopian informants, the aim of the proportional piling was to estimate incidence and mortality of five diseases of cattle. The demonstration involved five stages:

- Learn the local classification of cattle by age group and the local names for each age group
- Estimate disease incidences in 'calves'
- Estimate disease mortalities in 'calves'
- Follow-up questioning
- Repeat for other age groups

Stage 1: Identify local terms for different age groups of the livestock type being studied

Ask the informants to explain how cattle are categorized under the traditional system.

The informants named and described three main age groups of cattle as follows:

Calves (0-1 year of age) called *tija*

Heifers (1-3 years of age) called *gider*

Adults (> 3 years of age) called *lam*

Stage 2: Piling of counters to show disease patterns in each age group

Use the same five disease diagram cards that were used during the matrix scoring and seasonal calendar training sessions. Prepare an extra card depicting 'all other diseases'. This gives a total of six disease diagram cards.

Explain that each informant will conduct the exercise in turn, providing information for their own herd (or the herd they look after).

Select one of the informants. Give them a pile of 100 stones and explain that these stones represent all the *tija* (calves) in their herd during the last year. Ask to them to divide the pile to show the pattern of 'calves that remained healthy' and 'calves that became sick'. This will result in two piles of stones representing healthy and sick calves. Record the number of stones in each pile.

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Place the six disease diagram cards in a row and clarify their meaning with the informant. Ask the informant to divide the 'sick' pile of stones to show the pattern of calves becoming sick for each of the five diseases, plus the 'other diseases'. Explain that if no calves were observed with one or more of the diseases, no stones are allocated to that disease(s). Allow enough time for them to do this task and don't interrupt. Record the numbers of stones in each pile.

Stage 3: Piling of counters to show disease mortality patterns in each age group

Ask the informant to focus on the piles of stones representing the 6 different disease categories. Ask them to further divide each pile of stones to show the pattern of calves surviving and calves dying. Record the number of stones allocated to 'calves dying' for each disease category.

Stage 4: Follow-up questioning

The piling of stones described above will result in piles representing healthy calves, plus calves becoming sick and dying for each of the five diseases, plus the 'other diseases' category. The physical presence of the stones/piles can assist follow-up questioning. For example:

What did you do when your calves became sick with the disease called cabeeb?

How did the calves get the disease called cabeeb?

What were these 'other diseases' which caused calves to become sick?

Stage 5: Repeat the method for each age group, and with each informant

The piling and follow-up questioning is repeated for all the other age groups of cattle.

Practical work

Practical work for proportional piling can be arranged in a similar way to matrix scoring and seasonal calendar practical sessions. Note that in the Arusha training, participants did not practise proportional piling in the classroom before going to the field. This proved to be a very useful training lesson – of the four groups working in the field, three groups did not follow the method as demonstrated in class.

At first sight a method such as proportional piling appears to be very simple. However, it is much more difficult to use than people anticipate - always give enough time for classroom practise of PE methods.

Discussion points from the Arusha training

Following the demonstration of proportional piling in the Arusha training, the following discussion points came up.

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Do we use this method with individuals or groups of informants?

The method seems to work with either individuals or groups of informants. If you want to look at individual herds, you need to know who knows most about a particular herd. For example, in a pastoral area the herd may be a long way from the settlement and it is the young men with the cattle who know most about the health problems. These men may not necessarily be the herd owners.

How do we know which animals the informant is referring to? Are these animals only his or her own animals, or do they also include animals that may be loaned to or being cared for by the informant?

Informants can be asked questions that will answer these issues. Movements of animals into and out of herds in pastoral areas can be very complex and include dowry payments and a complex set of loans and gifts. In some cases, it makes sense to define 'herd' as a group of animals cared for by a particular informant over a particular time period.

What happens if an animal suffers from two or more diseases during the period in question?

The method looks at the relative proportion of diseases observed during a given time period, rather than diseases affecting individual animals.

But we have not asked how many animals are in the herd! Do we need to know the number of animals?

A strength of the method is that we don't need to know the number of animals in the herd – this is a sensitive question for any livestock owner and often difficult to verify. The method gives us proportions, not absolute numbers.