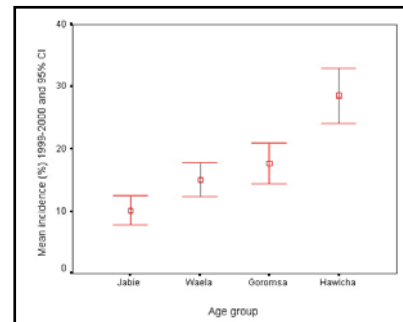
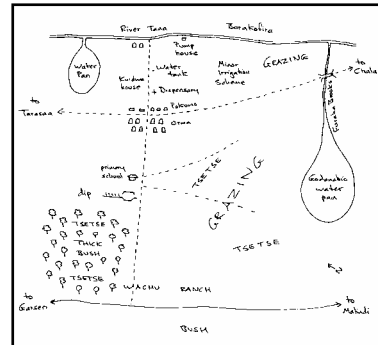




Participatory Epidemiology

A guide for trainers

Andy Catley



African Union
Interafrican Bureau for Animal Resources

Participatory Epidemiology: A Guide for Trainers

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Chapter 1

Introduction

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Chapter 1 Introduction

What is Participatory Epidemiology?

Participatory epidemiology (PE) is an emerging branch of veterinary epidemiology which is based on the principles and methods of Participatory Rural Appraisal (PRA). In some contexts, PE is used in a very similar way to PRA but focuses on animal health issues rather than taking a broad view of problems in a given community (as is the case with PRA). At other times, PE is used to work with communities to study specific disease problems and identify best-bet solutions. In these cases, PE methods can be standardized and repeated to improve the reliability of information. Ideally, standardized methods still leave scope for the open-ended and flexible inquiry typical of PRA, while also allowing direct comparison of views obtained from different community members.

As a relatively new field in epidemiology, many issues concerning the use and development of PE methods have yet to be explored. Despite this, the use of PE in Africa and Asia has highlighted how it can assist veterinary workers at both field and central levels. Consequently, PE is attracting increasing interest from veterinary epidemiologists, veterinary investigation officers and researchers.

Approaches and Methods for Participatory Epidemiology

The successful use of PE requires attention to the attitude and communications skills of practitioners, plus the correct application of specific PE methods. Increasingly it is being recognised that when using PE, the way we interact with livestock-rearing communities is more important than our knowledge of methods. From an epidemiological perspective, the type and value of information contributed by informants is highly dependent on the relationship between them and the practitioner. Also, any action that arises from PE such as a community-based project, vaccination or further research, requires good understanding between veterinary workers and local people. For these reasons, a key aspect of PE training focuses on attitudes and communication.

A wide range of PE methods are available and these methods can be categorised into three main groups: informal interviews; visualisation methods; and ranking and scoring methods. Information derived from different methods is cross-checked or 'triangulated' in a similar way that a clinician combines information from different sources to reach a diagnosis. Indeed, the use of conventional veterinary diagnostic

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tools is an integral part of, and in some cases overlap with PE methods. These tools include direct observation, livestock carer interviews, and clinical and pathological examination.

Table 1.1 Some methods for participatory epidemiology

Information required	PE methods
Any information	Informal interviews
System boundary	Natural resource maps, social maps.
Social organisation	Social mapping, Venn diagram
Wealth groups	Wealth ranking
Relative livestock ownership	Proportional piling
Role of livestock in household economy	Livelihood analysis
Preferred types of livestock reared	Livestock species scoring
Income from livestock	Proportional piling
Marketing structure	Flow diagrams, service maps
Veterinary services	Service map, Venn diagrams, ranking and scoring
Animal husbandry	Seasonal calendars, mobility maps, transects
Resources available to rear livestock	Natural resource maps, transects.
History of livestock diseases	Timelines
Priority livestock diseases	Livestock disease scoring
Seasonal variations in livestock disease	Seasonal calendars
Relative mortality rates	Proportional piling
Livestock productivity	Progeny history

Uses of Participatory Epidemiology

Community-based animal health systems

Probably the most common use of PE has been during animal health surveys and problem analysis conducted during the early stage of community-based animal health worker (CAHW) projects. Typically, a rapid but appropriate approach has been

used with one-off use of methods and limited triangulation with other PE methods or conventional investigation. However, many programmes based on this use of PE have shown good success. Methods that are commonly used during the design of CAHW projects include disease ranking, mapping and seasonal calendars.

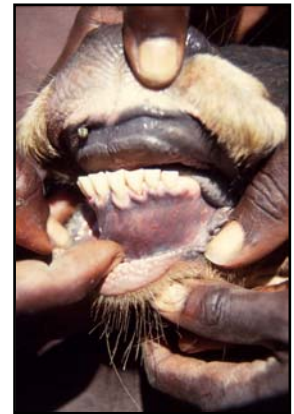


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Increasingly, PE methods are also being used in impact assessment of CAHW programmes. For example, before-and-after methods enable local perceptions of changing disease patterns to be understood and related to possible causes, such as the activities of CAHWs.

Participatory disease searching

A specific adaptation of PE for epizootic disease control is 'participatory disease searching'. This methodology evolved in the Pan African Rinderpest Campaign and used pastoralists' knowledge of rinderpest to locate disease outbreaks in remote areas. The approach was based on PE methods such as semi-structured interviews and in particular, the use of probing questions to delve deeply into local knowledge about rinderpest. Also, mapping and time-lines were used to build an historical picture of rinderpest outbreaks in a given area. These methods were used in combination with conventional veterinary investigation methods such as clinical and laboratory examination. When the searching team actually located a rinderpest outbreak, the involvement of livestock keepers during the disease search meant that discussion on the action required to control the outbreak was easily initiated. At the time of writing, PDS was becoming increasingly important within the Pan African Programme for the Control of Epizootics (PACE) as Horn of Africa countries tried to identify remaining foci of rinderpest in remote areas. FAO EMPRES was also supporting PDS activities for foot and mouth disease, peste des petits ruminants in Pakistan, and for classical swine fever in the Americas.



Research

Participatory epidemiology has been used in various ways in veterinary research. A few examples are provided below and more information can be found in the references in the Further Reading section.

Diagnostic studies and characterisation of diseases

Participatory epidemiology has been used to investigate disease syndromes of unknown or mixed aetiology. For example, in southern Sudan PE was used to study a chronic wasting syndrome in cattle and revealed mixed infections with liver fluke, trypanosomes, gastrointestinal helminths and schistosomes.



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Basic research on the epidemiology of endemic and epizootic diseases, and local preferences for control

Estimates of disease incidence and mortality can be derived from PE, leading to improved understanding of local disease priorities. The description and analysis of a number of diseases simultaneously helps to avoid exaggeration and can lead to comparison of different disease control options. This approach has been used with Orma communities in Tana River District, Kenya.



Exploring association

One of the most recent adaptations of PE has been the assessment of association between acute and chronic disease. In Tanzania, a chronic syndrome in cattle causing heat intolerance and overgrowth of hair was thought to be associated with previous, acute foot and mouth disease. Methods such as proportional piling can be used to test this hypothesis.



Disease modelling generates computer simulations of disease which can assist epidemiologists to develop or improve disease control strategies. By understanding the way a disease moves between animals in a population, appropriate methods to interrupt disease transmission can be identified. By using participatory approaches and methods in combination with disease models, researchers can avoid a common problem of disease models – the isolation of modellers from realities on the ground.

Links between PE, PDS and Community-based Animal Health Workers

A common point of misunderstanding is the definitions and links between PE, PDS and Community-based Animal Health Workers (CAHWs). Community-based animal health workers (CAHWs) are community members who are selected by the community for basic training in disease prevention and control. They can also contribute to disease reporting by providing regular activity reports to their supervisors (veterinarians or animal health assistants), plus reports of disease outbreaks to their supervisors. Therefore, CAHWs can complement conventional disease reporting systems and this activity is termed community-based disease reporting, not PE or PDS.

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Community-based animal health workers do not usually conduct PE – this is a role for veterinarians (see below), but can assist veterinarians who are using PE. A key feature of PE is triangulation or crosschecking information derived from different sources and methods. These different sources and methods include conventional veterinary investigation methods such as clinical and pathological examination, and laboratory diagnosis. Therefore PE should be conducted by veterinarians who have been trained in the approach and not CAHWs.

Participatory disease searching (PDS) is one branch of PE. In PDS the objective is often to find cases of suspected rinderpest and then use laboratory tests to confirm the diagnosis. As PDS requires interpretation of information provided by livestock keepers and other informants, it is an activity that is best conducted by veterinarians trained in the approach.

Community-based animal health workers can assist veterinarians who are using PE or PDS by:

- acting as a link between veterinarians and communities. CAHWs are trusted members of a community and can help to establish good rapport and understanding between the vets and community members;
- acting as key informants e.g. by advising vets about other key informants in the community and providing information on the local disease situation;
- helping to organize community meetings, visits to herds, sampling and so on;
- if trained and supervised, CAHWs can also be very useful for sample collection;
- assisting with feedback of results to the community.

Although CAHWs do not conduct PE or PDS, they can greatly assist veterinarians who are undertaking these activities in marginalized areas.

The Need for Training and Field Experience in Participatory Epidemiology

In November 2001, the African Union/Interafrican Bureau for Animal Resources (AU/IBAR) organised a regional workshop *Participatory Epidemiology: Lessons Learned and Future Directions* in Addis Ababa, Ethiopia. Participants included senior veterinary epidemiologists, and deans of veterinary schools and academics from seven countries. International epidemiologists from universities in Berlin, Edinburgh and Reading, and the International Livestock Research Institute also participated. A key recommendation of the workshop was for AU/IBAR to support training in PE for national epidemiology units, veterinary schools and research centres in the region. As a result of the Addis Ababa

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workshop, AU/IBAR organised a regional training course in PE for veterinarians and epidemiologists from the Horn of Africa region in Arusha, Tanzania in April 2002. Experiences from this course form the basis for the general PE training sections of this guide.



The Arusha PE Training course was followed up with a field studies programme, also supported by AU/IBAR. This programme was intended to give trainees experience of using PE in a real disease study in the field. Therefore, the Arusha trainees were given an opportunity to apply and adapt the skills and knowledge acquired during the training.

About the Guide

This guide aims to provide trainers with ideas and materials for PE training courses aimed primarily at veterinarians. Effective training in PE is best achieved through the use of participative training techniques (PTT). Therefore, this guide is intended for use by trainers who have already completed a separate course in Participative Training Techniques (sometimes called a 'Training of Trainers' course).

In addition to experience of participative training techniques, PE trainers also need personal experience of using PE in the field. Ideally, trainers should have used PE in their work, be aware of the various methodological issues and have experience in handling data derived from participatory inquiry. This experience is necessary because a participative training approach requires trainers to encourage questions from participants and demonstrate methods. The trainer also needs to be confident and able to support trainees when they practice PE methods during the fieldwork. Trainers with limited experience of PE will struggle to meet these requirements.

The guide does not aim to provide a rigid and very detailed training programme that should be followed step-by-step or word-for-word, because PE training needs will vary according to location and organisational objectives. An experienced trainer should be able to adapt the guide accordingly.

The guide describes a **general, introductory training course in PE**. It provides training notes and ideas for trainers to help them to design and run a course. The notes assume

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that course participants are veterinarians. The introductory course includes sections on the principles of participatory inquiry, and attitudinal and communication issues.

An important initial stage when using PE is for researchers and practitioners to understand the relationship between community characterisation and naming of animal diseases, and western or English disease names. Without this understanding, the use of other methods such as seasonal calendars is problematic because these methods use local disease names - these names need to be interpreted with some confidence. The course uses matrix scoring as the key method for the initial characterisation of diseases, and this can be supported by semi-structured interviews.

The course then proposes the use of participatory mapping to investigate spatial factors, seasonal calendars to investigate temporal variations in diseases and disease vectors, and proportional piling to estimate disease incidence and mortality. Furthermore, information from each of these methods can also be used to cross-check (triangulate) information derived from earlier matrix scorings.

This is but one approach to using PE and there is considerable scope to adapt and re-sequence PE methods according to specific contexts and needs.

The guide includes a set of handouts to assist PE training (Annex 1) and a list of publications and resource materials (Annex 2).