

Dirt and diarrhoea: formative research in hygiene promotion programmes

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Investment in the promotion of better hygiene for the prevention of diarrhoeal diseases and as a component of water and sanitation programmes is increasing. Before designing programmes capable of sustainably modifying hygiene behaviour in large populations, valid answers to a number of basic questions concerning the site and the intended beneficiaries have to be obtained. Such questions include 'what practices favour the transmission of enteric pathogens?', 'what advantages will be perceived by those who adopt safe practices?' and 'what channels of communication are currently employed by the target population?' A study of hygiene and diarrhoea in Bobo-Dioulasso, Burkina Faso, used a mixture of methods to address such questions. This paper draws on that experience to propose a plan of preliminary research using a variety of techniques which could be implemented over a period of a few months by planners of hygiene promotion programmes. The techniques discussed include structured observation, focus group discussions and behavioural trials. Modest investment in such systematic formative research with clear and limited goals is likely to be repaid many times over in the increased effectiveness of hygiene promotion programmes.

Introduction

Despite major international control efforts, it is estimated that 3.3 million children in the developing world still die of diarrhoeal diseases each year and that a third of the world's population is infected with parasitic worms.² The number of people at risk is increasing, especially in urban areas, and failure to defeat the problem of intestinal infection is leading to a re-examination of current strategies.³

Over the last two decades, control efforts have concentrated on the promotion of oral rehydration therapy, the improvement of water and excreta disposal infrastructure and, to a lesser extent, education about the prevention of infection. However, it is increasingly being realised that a few simple practices, such as the safe disposal of child stools, followed by handwashing, could play a major role in breaking the faecal-oral cycle of infection.⁴ There is therefore a resurgence of interest in hygiene promotion.

However, health promoters the world over know that changing human behaviour is a complex undertaking that requires careful groundwork. To develop an intervention capable of delivering measurable changes

in hygiene related behaviour, we need to work with target communities to answer five preliminary questions:

1. Which practices put children at risk of infection?
2. Which practices are a priority for intervention?
3. Which members of the community should be addressed?
4. How can we build on perceptions of hygiene and diarrhoea to motivate changes in behaviour?
5. What channels of communication and what materials are likely to be most effective?

Hygiene promotion programmes in the past have too often answered these questions inappropriately, or have not examined them in any systematic way at all.³ Many programmes have been ineffective because they have, for example, targeted practices which may not be the most prevalent risk factors for intestinal infection, or because they have assumed that educating people about microbes will automatically lead to changes in behaviour.⁵ To avoid such waste of resources, planners need to invest in a modest and carefully focused programme of formative research to learn from target populations and to provide objective data on which to base the design of an intervention.

In this paper we describe the methods that were used and the results that were obtained from an investigation of childhood diarrhoeal illness in the town of Bobo-Dioulasso in Burkina Faso, West Africa. We then suggest how a number of these methods can be combined into a tool kit to find out what is needed to design an effective hygiene promotion programme.

Study site and methods

Bobo-Dioulasso; the setting

The research work was carried out in the town of Bobo-Dioulasso, the second city of Burkina Faso. Its population, currently around a third of a million people, is growing rapidly, putting sanitary infrastructure under increasing strain. Nevertheless, the vast majority of compounds (90%) have one or more dry pit latrines and the town has a well-managed modern water supply. About one third of households have a tap in their yard, another third buy water from public standpipes and the final third of the population rely on private or communal open wells.

Light industry, market gardening, commerce and the informal sector are the main sources of employment and two-thirds of women have some form of economic activity. At the time of the study each of the 25 administrative sectors of the town had an elected group of representatives. Over a half of adult women belonged to formal or informal women's groups.

Diarrhoeal diseases rank alongside malaria and respiratory tract infections as the main cause of child morbidity and mortality in Bobo-Dioulasso. Rural children in Burkina Faso may average five episodes of diarrhoeal disease per year.⁶ Control programmes in Burkina Faso have so far laid more emphasis on the promotion of oral rehydration therapies and the installation of improved water supplies than on the promotion of personal and domestic hygiene.

Methods

The study aimed to find strategies for preventing childhood diarrhoea in Bobo-Dioulasso. Table 1 lists the methods that were employed in the study and they are described briefly below. Full details of the methods have been published elsewhere.^{7,8,9}

Work began with a series of meetings and visits with the administrative authorities and women's associ-

ations in each administrative sector. The team explained the objectives of the work, discussed the approaches they wished to use and asked for guidance and collaboration. Together they drew up profiles of each sector using headings including environment, economic activity, population characteristics, history and ethnic origins, water sources and sanitation, health services (both traditional and bio-medical), community organizations and social groupings.

Using the contacts made during the site study a series of 16 focus group discussions were arranged. Women were invited so as to provide homogeneity on one particular characteristic such as ethnic origin, age or economic activity.

The largest part of the project was a case-control study of risk factors for hospitalization with diarrhoea amongst children aged from 0–36 months. Detailed interviews of 1793 child carers were carried out over 14 months. A subsample of 549 mothers were visited by an observer to record hygiene related practices and environmental conditions. Observers, who were young local women, sat in compounds between 6.00am and 9.00am noting events and practices of interest on a pre-prepared structured observation format.

Table 1. Projet Diarrhées: research methods

Site study	characterization of each sector of the town, meetings with authorities and women's groups
Focus group discussions	21 guided discussion meetings with women from different associations, ethnic groups, age groups, socioeconomic groups
Case - control study	'cases' who were 1933 children under three living in Bobo, hospitalized between January 1990 and March 1991; 1404 'controls' who were children of the same age, neighbours of the cases
Structured observations	549 children's caretakers visited at home to observe hygiene behaviour
Structured interviews	50 local healers, 10 mothers with 'safe' hygiene practices
Communications study	228 women interviewed about radio and TV habits; meetings with 16 community associations to explore their means of communication
Behaviour micro-trials	40 women asked to adopt 'safe' behaviours over 10 days

In-depth interviews using pre-prepared discussion guides were held with 50 healers and herbalists and with ten mothers who had been observed to use 'safe' hygiene practices.

Sixteen meetings were held with a variety of associations, religious and youth groups to discuss how they gathered and transmitted information and who the respected and influential 'opinion leaders' were. Two hundred and thirteen women who were being interviewed for another study also answered questions about their exposure to radio and television.

Once candidate target safe practices had been identified, their feasibility and acceptability were tested in small-scale trials. In four sectors local meetings were held to ask for volunteers to try out the target practices over ten days. Fieldworkers visited the mothers on each of these days to learn how mothers had fared; what problems they had encountered, how neighbours and family had reacted and what were perceived as the costs and benefits of the new practices. Further unannounced visits were made three and six months later to see if changes had been sustained.

Whilst the main formal research techniques employed are described above, useful insights came from a wide variety of other sources. Fieldworkers, all women from the target communities, were full partners in the work and were invaluable sources of advice and interpretation. The Burkinabé and expatriate study team lived in and participated in the life of the town over the period of the studies. Results were discussed with women's groups, in workshops with health workers in Bobo-Dioulasso, with the national control of diarrhoeal diseases committee and with members of the donor community. A task force drawn from the study team and other groups and agencies then went on to use the study findings to design a public health communication programme for the town.

Results

Answers to the key question

The methods employed in the study generated a wealth of both quantitative and qualitative information concerning different aspects of the problem of child diarrhoea in Bobo-Dioulasso. This section illustrates how the study methods provided answers to the five key questions for planning a hygiene promotion programme, which were posed in the introduction.

1. Which practices put children at risk of infection?

Preliminary work (review of recent research, site surveys, focus groups discussions, consultations with field workers, epidemiological common sense) led us to propose that the following might be related to the risk of diarrhoea in the town of Bobo-Dioulasso:

- type of domestic water source;
- animals in compounds;
- stool related hygiene;
- mode of child feeding;
- mothers' access to education and health education;
- environmental factors (excreta disposal, waste water evacuation).

Information about these factors was collected by questionnaire in the case-control study along with a large number of other possible associated factors (income, ethnic origin etc.). Using crude analysis and conditional and unconditional multiple logistic regression, where appropriate, the only factors that showed clear and statistically significant associations with an increased risk of hospitalization with diarrhoea were the reported practice of disposing of child stools other than in a latrine⁷ and the use of a feeding bottle.

2. Which practices are a priority for intervention?

Practices targeted for modification need not only carry a health risk, but also be sufficiently prevalent to make large-scale intervention worthwhile. It is likely to be possible to target only two to three practices successfully. Whilst bottle feeding was strongly related to diarrhoea risk, only 5% of mothers used bottles, so this was not chosen as a focus for intervention. However, data from structured observation suggested that one third of mothers did not clean their hands after cleaning a child's bottom with bare hands (see Figure 1) and only 5% used soap. In about a third of households child stools finished up on the ground and this rose to 60% in households where the child was aged under 6 months. In addition, defaecation by children aged from about 3 to 12 years in the open, on rubbish heaps or in drainage canals, was common and was cited as a major nuisance by mothers in focus groups.

We concluded that unsafe stool disposal and inadequate handwashing after contact with stools were of sufficient importance and were sufficiently widespread to warrant intervention.

The behavioural trials suggested that the adoption of the target practices – disposal of child stools in potties and latrines and handwashing with soap after contact with stools was both feasible and sustainable. The 37 women in the trials all succeeded fully or partially in adopting the new practices and were still practising them when visited three and six months later. We were told ‘once you’ve taken up hand washing with soap you don’t feel clean without it’.

3. Who are the target audiences?

We selected as our primary target populations mothers and childcare workers responsible for children aged under three years. However, during the behaviour trials the school-age children became the most enthusiastic proponents of soap and latrine use. They complained that there was no soap in schools to continue what they had learned at home. This experience led us to also target children in primary schools.

4. What can motivate behaviour change?

At the heart of any effort to change behaviour is the issue of motivation. What is it that might make a woman or a child want to adopt a new hygiene practice? This is referred to as ‘positioning’ in the jargon of social marketing.¹⁰

We began by investigating how women understood diarrhoea in their children. Content analysis of the focus groups showed that mothers recognise about ten childhood illnesses which have diarrhoea amongst their symptoms. These illnesses are attributed to events such as teething, contact with damp ground and transgressing the taboo on post-partum sexual relations. This taxonomy was common to all groups ranging from the least to the most educated women. Only one, non-serious illness, known as *toubabou konoboli* (literally ‘whites’ diarrhoea’) was seen as being related to hygiene, with causes such as ‘water from a well’ or ‘dirty food’ cited by mothers. Even after their extensive training, paediatric nurses shared local perceptions of diarrhoea causation in parallel with their biomedical knowledge. We concluded that existing perceptions of diarrhoea causation are so well grounded in the adult female population that trying to change them is likely to be fruitless.⁹ We therefore needed to find motivations other than possible health benefits, for mothers to modify their hand washing and stool disposal practices.

Investigating the notion of hygiene in focus groups, we learned that it is an important social virtue, one for which women are admired and judged by their

circle. Table 2 gives a sample of remarks concerning what volunteer mothers felt the advantages of the new practices were. In the light of these findings it was decided that messages for mothers should be positioned around the social desirability and the reduction of nuisance that the new practices could bring.

A trial programme to teach about disease transmission and to use soap in class was set up with the help of teachers, parents and the children in one primary school. An evaluation suggested that these urban children had assimilated the messages and that peer pressure might provide a motivation for sustained behaviour change.

5. What communication channels and materials are likely to be effective?

The objective of the communication study was to understand and evaluate the capacity of existing methods of communication to reach and influence the target population. We needed two types of information. Firstly we needed to understand something of the structure and functioning of this urban society.

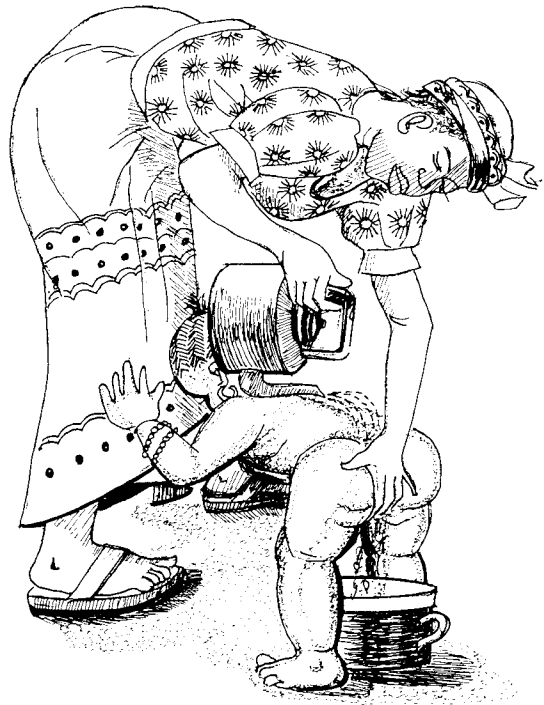


Figure 1. Mother cleaning up a child after defaecation

Table 2. Selected remarks made by mothers in interviews after trying out the new hygiene practices for ten days

'There's a bad smell [from stools on the ground] which disturbs us and if a visitor comes to see you you are ashamed that they see and smell the stools. You can't even eat nearby because it smells so bad.'

'Stools outside, they bother you, they judge a mother by that.'

'Mothers who let their children go on the ground are viewed badly and insulted.'

'I've noticed that when I use soap I don't have smelly hands any more, that's good, especially when I go to pray.'

'I like it because it gets rid of bad smells . . .'

'Our husbands like it and encourage us to keep it up.'

'Washing hands is a good thing because it helps avoid illness. I do it because I'm convinced. What illnesses? Like coughs and malaria.'

'Stools on the ground bother people. They walk in them. The motorbikes get dirty and have to be washed. Not to mention the smell . . .'

'Stools aren't nice to look at.'

'We are proud and happy because our children are following [your advice].'

Secondly, we needed basic data on the reach and the acceptability of different channels of communication for our target audiences.

In discussions with groups from different 'communities' in the town, we were able to explore how traditional and modern systems of communication co-exist. We learned that Bobo is not one community, but rather contains a network of different overlapping subcultures based on different affinities or mutual interest, such as region of origin or age group. Word of mouth remains the most important source of information for many women, and social gatherings such as baptisms, weddings and funerals provide important opportunities for exchange of information. However, local radio plays a growing role in the diffusion of information, both through formal programming and in its use as a town 'bulletin board'. Two-thirds of women interviewed claimed to listen regularly to the radio (though only 60% had a radio at home). Only 17% of households own a TV but almost half of the women watched regularly.

In discussion groups, mothers said that video and slide projections in their neighbourhoods were especially popular, as projections took place in the evenings when women could escape from their other

chores. Local theatre was also seen as having the potential to contact 'hard to reach' groups such as child caretakers (maids, young cousins), who are often isolated from the different 'communities' of the town. We discussed with women the use and influence of print media, including newspapers, posters, billboards and brochures and concluded that they had little relevance to our, mainly illiterate, target groups.

The results from the above work were combined into a summary report. A detailed communication plan was then produced by a task force working with community groups and interested agencies. The hygiene promotion programme with the mix of approaches that eventually emerged is summarized in Table 3.

A tool kit for formative research

Programme planners need rapid, reliable methods of obtaining a minimum of information to set up a hygiene promotion intervention. Whilst the study described in this paper was carried out over several years, many of the techniques could readily be refined for use over a three month period preparatory to an intervention.

Table 4 presents a plan of formative research designed to do just this. The first column shows the major decisions to be made, the second column

Table 3. Hygiene promotion plan: example from Bobo-Dioulasso

Target practices

- hand washing with soap after contact with stools
- disposal of stools in potties and latrines

Primary target audiences

- mothers of children under three years
- 'maids' and child caretakers
- children of primary school age

Primary positioning

- for mothers/caretakers: hygiene is socially desirable
- for children: hygiene helps avoid the microbes which cause diarrhoea

Channels of communication // materials

- neighbourhood hygiene commissions // visual reminder sheets
- discussions in health centres and neighbourhoods // portable poster series
- street theatre // play outline & props
- local radio // microprogrammes, interviews
- primary schools // teaching pack

Table 4. Plan of formative research for hygiene promotion

Objective	Questions to answer	Research methods
1) Identify risk practices	Which specific practices favour transmission of enteric pathogens?	Epidemiological common-sense Literature search. Unstructured observation
2) Select practices for intervention	Which risk practices are most widespread? Which risk practices are alterable?	Structured observation in representative sample of households Focus group discussions
3) Target audiences	Who employs these practices? Who influences the people that employ these practices?	Structured observations Focus group discussions
4) Determine message positioning	Do target groups perceive a link between the risk practices and health? child diarrhoea? What motivates those who currently use 'safe' practices? What advantages are perceived by those adopting safe practices?	Focus group discussions In-depth interviews with current user of safe practices Behavioural trials with volunteers, interviews with adopters
5) Select communication channels	What channels are currently used for communication? What channels are trusted for such messages?	Interview representative sample of target audiences Focus group discussions
6) Design communication materials	What type of materials & events are likely to be attractive, understood, believed, remembered?	Focus group discussions (FGDs) trials in pilot programme: Revision and retest of materials Further FGDs if needed
7) Plan intervention	What is the likely reach and cost of each channel? What combination of channels is likely to be most cost-effective?	Results of above, consultation with community groups and collaborating agencies, cost estimates, review of pilot programme

outlines the main questions which need to be answered to make these decisions, and the third column lists research methods that can be employed to answer those questions. The same method can often be used to tackle a number of questions. The table does not set out the preparatory stage of holding meetings with the population and its leaders to share objectives, get permission and begin to build links with key groups and collaborators, which is essential to any development work. Below we outline in more detail the implementation of this formative research plan.

Identify risk practices

If the objective of a hygiene promotion programme is to reduce the incidence of childhood diarrhoea, then it must target practices which are risk factors for diarrhoea. It is not practical or advisable to carry out epidemiological risk factor studies, like the case-control study referred to in this paper, within the time and resource framework of formative research. However, there is now a body of evidence suggesting that certain practices are likely to cause problems wherever they occur. These include the safe disposal

of human excreta, particularly of children, effective handwashing and maintaining drinking water free of contamination.⁴ Application of such existing knowledge and careful observation of local practices and conditions is probably now sufficient to identify effective preventive interventions in particular settings.

Investigations might usefully begin by making unstructured observations of likely risk practices in a selection of households representing different economic and social groups. Practices which require particular scrutiny include:

- defaecation, stool disposal and cleaning;
- practices which allow faecal material into the domestic environment, e.g. children playing around defaecation sites, maintenance of latrines;
- hand cleansing;
- water collection, storage and use;
- food preparation, storage and child feeding practices;
- other hygiene related activity, e.g. yard, house, kitchen and utensil cleaning, bathing, rubbish disposal, infant supervision and cleaning.

Observers spend whole or half days with a household recording these practices, noting who does what, when, how, in association with what other events, and where. Analysis of these accounts in the light of knowledge about the faecal-oral transmission of enteric pathogens will generate hypotheses as to which practices are likely to be important sources of risk.

Select practices for intervention

However, not all practices that put children at risk of infection are common enough to warrant a population-wide intervention. Estimates of the proportion of people in the target groups using risk practices can be obtained by structured observation in a representative sample of households. The size of the sample will depend on the scale of the programme being designed. A nationwide programme might require not less than 100 households in each distinct population group, whilst for a local programme a total of 100 randomly selected households should suffice. A schedule which records the occurrence of the likely risk behaviours is drawn up, based on the results of the unstructured observation, and is tested and revised. After training, observers spend fixed periods, say from 6am to 9am, with households carefully completing the formats. Additionally, spot observation of factors such as the presence and state of a latrine, the type of water source, the availability of potties and the presence of stools in and around living areas can add to the picture and give estimates for practices that cannot be observed.

Tabulation of the data then allows decisions to be made as to which risk practices are frequent enough to be worth targeting, and helps to determine which population groups should form the focus of the programme.

Some practices may not be amenable to change, for example, mothers may feel that letting children use latrines is too dangerous. Light will be shed on these issues during focus group discussions and behavioural trials.

Select target audiences

Whatever type of hygiene promotion programme is eventually designed, planners need to know to whom they should address their messages. The structured observations will have revealed who carries out the risk practices: mothers, fathers, child caretakers or children themselves. These are the primary target audiences. However, these people live in households

and societies which help determine and condition their practices. They are unlikely to succeed in modifying risk behaviour without the support of their immediate entourage; neighbours, friends, relatives, etc. Such people may form a second target group for hygiene messages. The hygiene programme is also likely to benefit from the support of a third target group; influential people and opinion leaders. These may be leaders of community or religious groups, teachers, politicians or elders, for example. Such groups can be identified in the course of focus group discussions. Each segment of the population may need its own set of messages, motivations and communication strategies.

Message positioning

Finding a motivation which will lead people to change their behaviour is a fundamental task of health promoters. Classic approaches which assume that it is enough for people to be told of the likely health benefits of a certain behaviour, for them to want to alter lifelong practices, are now understood to be simplistic. In the case of diarrhoeal diseases, studies from all parts of the world show that lay and bio-medical conceptions of causation rarely coincide.^{11,12,13} If there is little connection perceived between hygiene and diarrhoea, even in well-educated groups, as is the case in Bobo, then teaching about microbes is unlikely to provide sufficient motivation for the modification of risk practices. Formative researchers need a basic understanding of how people understand and interpret diarrhoea-related illness and of the notion of hygiene and whether the two are related.

These issues can be explored in a series of focus group discussions with representatives of target groups. Ideally the series should continue with respondents from different backgrounds until no new information is generated. For a local programme with a relatively homogenous population a total of six to ten groups should suffice. Table 5 gives a sample guide for a focus group discussion on concepts of diarrhoea and hygiene.

Other clues as to how to position key messages can be found by carrying out in-depth interviews with people who already employ the 'safe' target practices. Discussion then centres on where these practices were learnt, when and from whom, and what advantages the practiser feels that they confer. A final source of information concerning the benefits perceived by the adopters can come from asking volunteers to try

Table 5. Sample focus group discussion guide

Greetings, introductions, explanations, procedure

1. Have your children had diarrhoea? (when, how often, how severe?)
 2. What do you think caused this diarrhoea?
 3. What else can cause diarrhoea (list illnesses)?
 4. How do you recognize these illnesses?
 5. Can you tell me what it is that gives a child each of these illnesses?
 6. How do you recognize that somebody is a 'clean' person?
 7. Can you give me some examples of things that are dirty?
 8. How do you know if somebody is hygienic/unhygienic?
 9. Does dirt have anything to do with illness? What and which illness?
 10. Does hygiene have anything to do with illness? How?
 11. Cite risk behaviours: Why do people do this?
 12. Do you think people could be persuaded to change these practices?
 13. If so, what additional resources would they need?
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Note: The process of translating words such as 'dirt' and 'hygiene' into local languages may provide insights into the way these concepts are perceived.

out the new practices for a period and then interviewing them.

Finally, lists of the advantages that target populations feel that the key practices confer can be drawn up to help to produce a strategy for promoting the key practices.

For an intervention to succeed in creating sustained changes in the key hygiene practices it must find a means of changing social norms. A successful intervention should be able to create a situation where the new practices are rendered socially desirable whilst the risk behaviours become unacceptable. One way of achieving this is to work at extended family, compound or neighbourhood level, rather than seeking to target individual women, as western health promotion and social marketing has tended to do. It may be more effective to try and change social norms about what is seen as 'clean' rather than what is seen as 'healthy'.

Select communication channels

Understanding how a society communicates means having a minimum of understanding of how that society functions. Questions concerning social organization can be added to focus group discussions.

Participants are asked to describe the nature, organization and functioning of formal and informal groups to which they belong. Opinion leaders can be identified by asking about the influence of different categories of people (religious leaders, football stars, traditional chiefs). The groups can also be canvassed as to their views on the acceptability and effectiveness of different channels of communication.

It is useful in designing the communication mix to have a quantitative estimate of such things as radio and TV usage, membership of community groups and literacy rates in target groups. If reliable data is not available from elsewhere, questions on these issues can be appended to the structured observation format, to be asked at the end of an observation session.

Communication materials

Materials that will be used in support of a hygiene promotion plan can only be designed once messages, audiences, positioning and channels of communication have been decided upon. However, clues concerning what materials are attractive to target audiences may emerge during focus group discussions. Whatever the materials that are designed to support the communication programme, they will have to be tested, redesigned and retested until they are satisfactorily understood, liked and remembered by target audiences. This may best be achieved in a small-scale pilot of the hygiene promotion programme. Once prototype materials have been developed, they can be evaluated in focus group discussions and modified accordingly.

Data analysis and reporting

On completion of field work, data available for analysis for one region or locality might include:

- narrative of unstructured observation in ten households;
- transcripts of six focus group discussions;
- completed formats from structured observations and interviews in 100 households;
- transcripts of ten interviews with people already using target practices;
- reports of behavioural trials from ten members of each target group.

Simple summaries and tabulations of quantitative and qualitative data are then produced. Results are returned to representatives of the community for discussion, interpretation, validation and recommendations. The final report will be of most direct

practical use to programme planners and the community if it is structured around offering answers to the five key questions. The planning team can then make informed decisions on the form and content of the hygiene promotion programme. The final model that is chosen will, of course, depend on local preferences and experience, whether there are synergies with other programmes such as sanitation and water supply, the availability of resources and political options.

Possible pitfalls

We have implied throughout this paper that carrying out such a programme of formative research will ensure the design of an appropriate intervention, which can bring about widespread and sustained changes in hygiene behaviour in a large population. This assumption can be challenged on a number of theoretical and practical grounds.

Firstly, if there is no political commitment on the part of planners and sponsors to take on board the lessons of such research, then it cannot inform interventions. Secondly, putting together a team capable of such work is not always easy. A formative research team needs to be composed of both insiders and outsiders, some with training in social science, others with knowledge about hygiene and public health, all with sympathy for participatory approaches and a commitment to building interventions which are developed from the realities of the society in question. Such qualities may be hard to come by, but with guidance, social scientists and public health workers can learn the necessary skills rapidly.¹⁴

Another threat to the usefulness of such work, especially with less experienced researchers, is the risk of sacrificing academic thoroughness for economy and speed. For example, too great a reliance on focus group discussions may lead to distortion, because there are limits to what participants are prepared to discuss in public. Neither is there a simple, universally valid method for quantifying human behaviour. People being observed will often change their behaviour in response to the presence of the observer (as, in the same way, responses in interviews will inevitably reflect what the individual concerned wants recorded). Data from Bobo-Dioulasso suggested that some hygienic practices can be recorded more reliably by observation than by interview.¹⁵ Nevertheless, the chief means of ensuring the validity of the data is triangulation; cross-checking that the key findings from one research method are

borne out by those of others. Returning results to the communities concerned for discussion helps ensure validity and mutual understanding.

Whilst this paper suggests that a hygiene promotion programme, or indeed, any health promotion programme, would benefit from a thorough and focused initial investigation, it does not address the issue of which theoretical model should be used for the intervention; a communication approach? a participatory approach? a local model such as the Indian theory of communication called *Sadharanikaran*^{16?} a social marketing approach? a health education approach? There has been much debate in past years over the capacity of interventions based on the above models to produce sustained health behaviour change.^{16,17} In the absence of conclusive evidence for the long-term superiority of one model over another, planners might do well to pick and choose what seems best from each approach.

However eclectic they may be, it is vital that such programmes monitor their impact on hygiene practices in the long term, to learn what works best and to substantiate claims of effectiveness. Whatever the model, a short focused programme of preliminary research, such as the one outlined in this paper, should pay dividends in programme effectiveness.

Culture is too often regarded as a barrier to effective development interventions; the reality is that programmes can only be effective if they stem from the culture in which they find themselves. To convert this idea from pious hope to reality, we need to develop 'the ability to reach rapid and adequate identification of crucial socio-economic variables and the capacity to translate knowledge into recommended action'.¹⁸ The results from Bobo-Dioulasso showed how using a variety of methods offered a well-rounded understanding of all that 'messy human stuff' which underpins behaviour. Putting such methods together in a focused and systematic investigation, such as the one outlined in Table 4, enables local and outside knowledge to be combined. Armed with this understanding, designing the hygiene promotion programme becomes a matter of interpretation, team work with the target community and their leaders and a large measure of common-sense.

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Biographies

Valerie Curtis, BSc (Civil Engineering), MSc (Community Health in Developing Countries), coordinated the research programme into childhood diarrhoea entitled 'Projet Diarrhées' in Burkina Faso which is described in this paper. She is now Principal Investigator of the hygiene promotion programme, 'Programme Saniya', which followed. She is also joint PI of a study of the use of social marketing for the promotion of insecticide impregnated bednets in Burkina Faso. She is currently working on improving and disseminating approaches to hygiene promotion with the Environmental Health Group of the London School of Hygiene and Tropical Medicine.

Bernadette Kanki is a sociologist trained at the Universities of Ouagadougou and Toulouse-le Mirail. She was a member of the research team and was responsible for all of the fieldwork described in this paper. She is now coordinator of 'Programme Saniya', the hygiene promotion programme which is being carried out in Bobo-Dioulasso.

Simon Cousens has a mathematical background and has worked at the London School of Hygiene and Tropical Medicine for the past 10 years. Much of this work has focused on the application of case-control studies to the study of communicable diseases. He has been collaborating with the research team in Bobo-Dioulasso since 1989.

Arlette Sanou is a medical doctor with a Masters in Public Health from the University of Anvers. She was regional director of Health in Bobo-Dioulasso for four years and was joint PI for Programme Saniya prior to being made Director of Research and Training.

Ibrahim Diallo is a computer manager who handled the data and was a part of the research team for both Projet Diarrhées and Programme Saniya.

Thierry Mertens is medically qualified. He worked for a number of years as an epidemiologist at the London School of Hygiene and Tropical Medicine during which time he was Principal Investigator of Projet Diarrhées. More recently he has been working as the head of the Evaluation Unit in the WHO Global Programme on AIDS.

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