COMMUNICATION FOR BEHAVIOURAL IMPACT (COMBI)

A toolkit for behavioural
and social communication
in outbreak response

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**World Health
Organization**

Contents

Foreword

Over the past 20 years, three quarters of the new and emerging diseases that have affected humans have been caused by pathogens originating from animals or from products of animal origin. How these diseases emerge and the ways in which they are transmitted are often poorly understood, which hampers our ability to detect, respond and limit their negative impact. Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), severe acute respiratory syndrome (SARS), Pandemic A (H1N1) 2009, highly pathogenic avian influenza (H5N1 HPAI), diseases caused by Lassa, Ebola and Nipah viruses are all recent examples of infectious diseases that have emerged at the animal–human-ecosystem interfaces. In addition, non-zoonotic and recurring epidemics, such as cholera, malaria, meningitis and measles, continue to present major challenges.

The factors that cause epidemics and new infectious diseases are complex. Environmental exploitation and degradation and poor environmental management provide opportunities for viruses and their vectors to mutate into more infectious and virulent forms. Population displacement, urbanization, poverty, overcrowding and weak health infrastructure provide ideal environments for infectious diseases to proliferate. Globalization, international transport and the growing demand for and the increasing trade in animals and animal products are spreading disease faster and wider; these factors facilitate the transformation of local outbreaks into epidemics affecting many countries at the same time. Antimicrobial resistance adds another layer of complexity to this constantly evolving landscape.

Essentially, as the world keeps changing, so do the risks and the management of disease outbreaks. There has never been a greater need for the animal and human health sectors to work together. Cross-sectoral and multi-disciplinary approaches have become vital to address the behavioural, physical, cultural, economic, policy and legal environments in which these diseases emerge, are amplified and transmitted.

Behavioural and social interventions have become an essential component of efforts to mitigate the effects of outbreaks, because many interventions rely heavily on community engagement, participation and ownership and on intersectoral coordination and collaboration for prevention, control and mitigation strategies to work. Central to this shift in approach is the commitment to integrated, technically sound strategies that include effective health communication in outbreak control objectives. Experts have come to realize that community understanding of diseases and their spread is complex, context-dependent and culturally mediated. Integration of participatory approaches into veterinary and public health responses are essential to look in the right places, ask the right questions and listen more effectively before making technical recommendations and implementing interventions.

Communication is central to this notion. It is a process that promotes dialogue among all the people involved in outbreak prevention and response, at the centre of which are affected communities and people at risk. This process can ultimately help strengthen relationships, build trust and enhance transparency among all those working towards averting or bringing an outbreak to an end.

The message that this toolkit carries is important. It challenges all those concerned to be proactive, to seek information and insights in a planned, systematic process, informed by evidence, effective models and good practice. It encourages the transformation of this understanding into meaningful interventions, grounded in local realities and is relevant for all those involved in outbreak preparedness and response.

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Acronyms

COMBI	communication for behavioural impact
FAO	Food and Agriculture Organization of the United Nations
HIC-DARM	Hear about a behaviour, be Informed about it, become Convinced that it is worthwhile, Decide to something about the conviction, Act on the new behaviour, Reinforce the action by feeling satisfied about participating and Maintain the behaviour
HPAI	highly pathogenic avian influenza
MPLA	People's Movement for the Liberation of Angola
MSF	Médécins Sans Frontières
UNICEF	United Nations Children's Fund
UNITA	National Union for the Total Independence of Angola
WHO	World Health Organization

Glossary

Aetiology: the science of causes; causality; in common usage, cause.

Behavioural and Social Interventions: A key component in outbreak response that addresses interventions that target individuals, social groups/networks and organizations at the household and community level. The purpose is to control an outbreak through preventing exposure, stopping transmission and preventing infection. This component focuses on:

- Identifying key risk reduction actions at the household and community level to prevent and mitigate negative health consequences;
- Ensuring technical outbreak prevention and control measures are community-located, feasible, appropriate and socially acceptable;
- Applying multiple approaches such as social mobilization, health education/promotion in order to promote the uptake of measures to stop further disease transmission and reduce risk; and
- Integrating psychosocial care and mental health responses within outbreak control.

Behavioural and Social Communication: a systematic and planned process of communication that addresses the way information is transmitted, perceived, understood and applied by individuals and groups in social and organizational settings. It employs a number of different methods and strategies to achieve specific behavioural results linked to outbreak control objectives.

Branding: the creation of a name, symbol or design that assigns particular characteristics to a product, making it distinct from other products.

Case-fatality ratio or rate: proportion (not a ratio or rate) or percentage of people with a disease who die as a result of the disease.

Community: a distinct group, generally larger than a household, of people who have a sense of belonging through sharing, who live in a common location and have common values, interests and goals

Community participation: the process by which individuals, families or communities assume responsibility for their own welfare and develop the capacity to contribute to their own and the community's development.[1] In the context of development, community participation refers to an active process whereby the beneficiaries influence the direction and execution of development projects rather than merely receive a share of the benefits.[2]

Communication for development: listening, building trust, sharing knowledge and skills, building policies, debating and learning for sustained and meaningful change.

Communication for behavioural impact (COMBI): a planning framework and implementation method for communication based on behavioural models and communication and marketing theory and practice to achieve behavioural results in public health programmes.

Control: applied to many communicable and some non-communicable conditions, control means ongoing operations or programmes aimed at reducing incidence and/or prevalence, or eliminating such conditions.

Cultural competence: a set of congruent behaviours, attitudes and policies that come together in a system, agency or among professionals to enable that system, agency or that group of professionals to work effectively in cross cultural situations.

Disease: symptoms of illness or impairment of normal healthy bodily or mental functions, caused by an infectious or non-infectious agent.

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1   Oakley and Marsden, 1987 State or process, means or end?: the concept of participation in rural development, Reading Rural Development Communications, Bulletin 21, Berkshire: Reading University

2   Paul, Samuel. 1987. "Community Participation in Development Projects: The World Bank Experience." In Readings in Community Participation. Washington, D.C.: EDI. Chapter 2.

Early detection: identification of a specific disease at an early stage in the natural history of the disease.

Epidemic [noun]: occurrence of cases of a disease that is usually absent from the community; alternatively, a situation in which the disease is usually present but suddenly reaches incidence levels in excess of the expected range.

Epidemic [adjective]: applied to a disease that causes an epidemic.

Epidemic-prone disease: disease that is normally absent from a community or present at a low-to-moderate level but which can suddenly become epidemic.

Epidemic threshold: critical incidence specified a priori, which, if exceeded, triggers declaration of an epidemic or predetermined public health responses.

Epidemiology: study of the distribution of diseases in a community and of the factors that affect their frequency.

Ethnomedical system: a concept for analysing health beliefs in terms of three interrelated dimensions: 1) the theory of aetiology/causation of sickness; 2) methods for diagnosis; and 3) prescription of appropriate therapies. In this manner, biomedicine can be analysed as an ethnomedical system, one potential option among several for individuals seeking health care.

Flights: an advertising campaign running for a fixed period of time over days, weeks or months.

Focus groups: a small group selected from a wider population and sampled, as by open discussion, for its members' opinions about or emotional response to a particular subject or area, used especially in market research or political analysis.

Free listing: A list of specific questions asked by the interviewer in which the respondent is asked to explain what comes freely to mind.

Gender: gender refers to the social dimensions being female or male in particular times and places, including differences in roles, responsibilities, access to and control over resources. Gender sensitivity and gender planning should be incorporated throughout the COMBI process. For more information see Moser, O. N. Caroline. 1993.Gender Planning and Development, Theory, Practice and Training. London: Routledge.

Health promotion: a comprehensive approach to promote individual and collective participation in health action by integration of various methods.

Hierarchy of resort: patterns of seeking health care in the event of illness. The term indicates that people often employ a variety of health resources in turn. For example, an individual or family may first seek care within the household before turning to local healers or resorting to the clinic.

Illness behaviour: a sociological term that refers to the roles, responsibilities, expectations and activities associated with becoming ill and seeking health care in a particular context.

Index case: the first case in a family or other defined group to come to the attention of the investigator.

Infection: The entry and development or multiplication of an infectious agent in the body of man or animals.

Kinship: Kinship indicates culturally recognized relationships defining roles and obligations between individuals and groups. In many contexts, kinship relationships extend far beyond those included in the conventional idea of a "nuclear family."

Medical pluralism: medical pluralism refers to the condition that most people have access to multiple medical systems from which to seek explanations and care.

Morbidity: any departure, subjective or objective, from a state of physiological or psychological well-being. In this sense sickness, illness and morbid condition are similarly defined and synonymous. Morbidity can be measured in terms of 3 units: a) persons who were ill; b) the illnesses (periods or spells of illness) that these persons experienced; c) the duration (days, weeks, etc.) of these illnesses.

Mortality: portion of the population that dies during a specified period.

Naturalistic ethnomedical system: naturalistic belief systems explain illness in terms of natural, impersonal forces. Examples include the germ theory of biomedicine, hot/cold models of disease causation, and models involving the imbalance of internal humors. Importantly, individuals do not think in terms of a single system and often have access to multiple, hybrid, and even contradictory systems.

Outbreak: equivalent to epidemic but usually taken to refer to the first cluster of epidemic cases or to a small epidemic.

Outbreak communication: WHO's approach to risk communication in outbreaks, with the objective of rapid promotion of outbreak control and mitigation of social disruption by communicating with the public to build, maintain or restore trust, usually through the media or public channels of information dissemination.

Pathogens: organisms capable of causing disease (literally, causing a pathological process).

Personalistic ethnomedical system: personalistic belief systems explain illness as the result of intentional forces, whether human (e.g., sorcerers, witches) or supernatural (e.g., spirits, ancestors). Importantly, individuals do not think in terms of a single system and often have access to multiple, hybrid, and even contradictory systems.

Prevention: actions that prevent disease occurrence. Actions aimed at eradicating, eliminating, or minimizing the impact of disease and disability, or if none of these is feasible, slowing down the progress of disease and disability.

Risk communication: the process by which national and local government authorities provide information to the public in an understandable, timely, transparent and coordinated manner before, during and after a crisis; also promotes effective exchange of information and opinion among scientists, public health and veterinary experts during the alert phase to better assess, manage and coordinate preparedness and response activities.

Social mobilization: planned mobilization of social and personal influences in all sectors, with the aim of prompting individual, family, community and social action.

Source: the person, animal, object, or substance from which an infectious agent passes to a host.

Introduction

Why is a toolkit for communication for behavioural impact (COMBI) in outbreaks necessary?

Disease outbreaks can have substantial health, economic and social costs. The public health imperative during an outbreak is therefore to control the event as quickly as possible in order to minimize morbidity, mortality and other negative impacts. Communication is integral to every public health response. It provides the basis for and precedes actions taken by people who are affected or at risk and the actions of people who are trying to respond. Yet, communication strategies are often designed after outbreak investigations and outside operational decision-making. As a result, the focus of communication has usually been message development and information dissemination. COMBI is a planning framework and implementation method that integrates behavioural and social communication interventions within public health programmes. Consequently, this toolkit represents a fundamental shift in the understanding and application of communication in an outbreak.

The risk for epidemics is increasing because of complex factors, at the root of which is human behaviour. Effective, strategically applied communication is therefore critical to address the behavioural and social aspects of disease prevention and control. Behavioural and social interventions consist of various multidisciplinary approaches, which include strategic application of communication for behavioural and social action. This toolkit will help in planning and implementing behavioural and social communication in a framework developed and adapted for public health programmes, COMBI, to achieve specific behavioural results for positive, protective public health outcomes.

Who is this toolkit for?

This guide will be useful for people designing more effective outbreak response measures. It can be scaled up or down, depending on the situation. It can be applied at sub-national and national levels and was designed for developmental communication and health promotion personnel working in multidisciplinary teams to investigate and respond to disease outbreaks. The toolkit is not a replacement for formal training; rather, the tools and templates provide a useful framework that can easily be adapted to local situations.

Outbreaks are frequently characterized by uncertainty and a sense of urgency, and timing is critical. This toolkit is meant to provide the essential information for responding to an outbreak from a behavioural and social communication perspective.

If you are dealing with an event, you can go directly to Section 2.

Why is COMBI useful for outbreak prevention and control?

Huge amounts of money have been spent on communication campaigns to prevent and control diseases such as highly pathogenic avian influenza (HPAI). The impact of many of these communication programmes, however, has not been clearly demonstrated, usually because of the divide between the people who design outbreak control interventions (e.g. epidemiologists, veterinarians and public health specialists) and those 'communicating' and 'mobilizing' communities. Technical interventions must be understood and applied in their behavioural, cultural, economic, political and social context. It is these settings that determine the success of control and prevention measures.

A method such as COMBI can reveal potential routes for amplification and transmission embedded in deep-seated cultural practices, which are critical to outbreak control but may not be identified in the interviews usually conducted in outbreak investigations.

How is this toolkit organized?

Sections 1 and 2 describe what an outbreak response is, the kinds of interventions that are necessary and why. They explain the rationale

for WHO's outbreak response strategy and list the steps used in applying COMBI. Section 3 gives practical tools and templates for collecting and analysing data. Section 4 provides essential resources, case studies and fact sheets for reference, as required. Section 5 lists other references, with links to documents, websites and academic papers.

The icons interspersed throughout the toolkit signal parts of the text that are essential, worth remembering or illustrate the application of an idea or concept.

The online resource allows downloads, ready-to-print blank templates and much of the cited reference material. COMBI is actually applied and planned far from the comfort of a desk!

What you will get from this toolkit

While many factors contribute to behavioural outcomes for the control and prevention of an outbreak, the outcomes cannot be achieved without structured, strategically planned communication interventions to support specific results. This toolkit indicates why behaviour is not straightforward and how behavioural and social communication interventions can be planned systematically with strategies that encourage community dialogue and contribute to bringing an outbreak under control.

What you will not get from this toolkit

An outbreak is an event. The underlying, long-term health challenges cannot be addressed during outbreak response but should be part of existing programmes and health promotion interventions. Behavioural and social interventions combine a number of different health interventions and is not limited to communication. This toolkit illustrates how the COMBI framework can be used for behavioural and social communication during an outbreak.
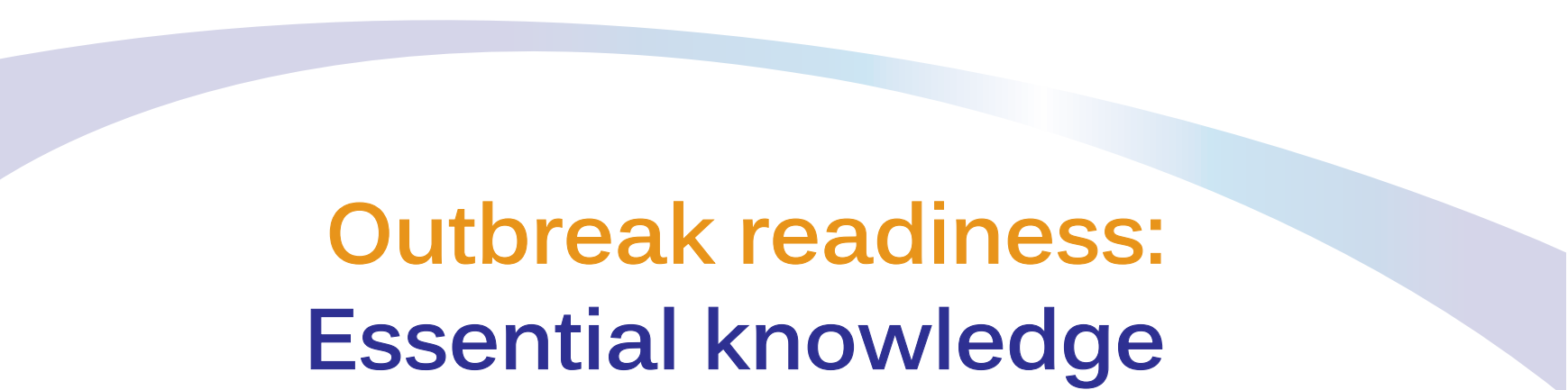
Before using the toolkit:

- Familiarize yourself with the contents, its uses and limitations.
- Familiarize yourself with common outbreaks in your country and the interventions being used to stop disease transmission.
- Discuss and identify arrangements by which health education and promotion staff could participate in rapid response teams to strengthen behavioural and social interventions for outbreak control.

Section 1

Outbreak readiness:
Essential knowledge before an outbreak

COMBI, health education, health literacy, health promotion, risk communication, outbreak communication and social mobilization

Various approaches and strategies contain communication elements that are relevant to behavioural and social interventions. Those referred to most commonly are described below.

COMBI is a planning framework and an implementation method for using communication strategically to achieve positive behavioural and social results. COMBI stems from consumer communication, linking education and information with marketing. COMBI begins from a 'zero base', that nothing can be assumed. Instead, through market research, the real barriers and constraints that prevent people from choosing to adopt healthy behaviour are identified. Section 4, part 2, gives a detailed description of the marketing, behavioural and psychosocial models on which COMBI is based.

COMBI can be used by communication, health education, health promotion, information, education and communication and social mobilization staff, who will follow a well-defined, robust, systematic framework. COMBI ensures that communication is appropriately applied and able to contribute to achieving tangible results.

Health education is constructed opportunities for learning that involves some form of communication designed to improve health literacy, including improving knowledge, and developing life skills, conducive to individual and community health.

Health literacy is the degree to which people are able to access, understand, appraise and communicate information to deal with different health situations. It contributes to promoting and maintaining good health across the life span.

Health promotion is a comprehensive approach to increase individual and collective participation in health action by integration of various methods. Usually, health promotion contributes to outbreak prevention and control by:

- improving individual knowledge and skills through health education, information and communication;

- strengthening community action through social mobilization;

- creating environments that are protective and supportive of health by mediation and negotiation;

- designing healthy public policies, legislation and economic and fiscal controls to enhance health and development through lobbying and advocacy; and

- reorientating health services by emphasizing prevention and consumer needs.[3]

Health promotion therefore consists of influencing policy, legislation and health service delivery through long-term, sustainable interventions; furthermore, each health promotion action has a communication element. Communication for the promotion of behavioural and social action during an outbreak is an entry point for a range of health promotion strategies, such as to address access to clean water, poverty and social inequalities. For more information, see Section 5.

Risk communication and outbreak communication: In risk communication, national and local government authorities provide information to the public in an understandable, timely, transparent and coordinated manner before, during and after a crisis. The objectives are to instil and maintain the public's trust in the local and national health system and to convey realistic expectations about the capacity to respond and manage an outbreak. Risk communication also promotes effective exchange of information and opinion among scientists and public health and veterinary experts during the alert phase, in order to better assess, manage and coordinate preparedness and response activities.

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3 WHO Regional Office for Africa (2001). Regional health promotion strategy. Brazzavile. http://www.afro.who. int/index.php?option=com_docman&task=doc_ download&gid=3203.

The focus of outbreak communication, is to promote outbreak control and mitigate disruption to society by communicating with the public in ways that build, maintain or restore trust.

Social mobilization: WHO defines social mobilization as "the process of mobilizing all societal and personal influences with the aim of prompting individual and family action". In this approach, individual and institutional allies are brought together to achieve a common objective. Social mobilization has often been used to raise local resources for a proposed social or health action, such as vaccination or reforming a judicial system. In outbreaks, for example, individuals, households, communities, society and organizations should all consider, promote and maintain a range of control and preventive activities, such as:

- early recognition of signs and symptoms;

- rapid search for treatment;

- compliance with the treatment protocol and prevention actions; and

- continuous surveillance of other members of the household until the outbreak is over.

Outbreaks and outbreak response strategies

What are outbreaks?

Disease outbreaks or epidemics are localized increases in the numbers of cases of illness that are clearly in excess of normal expectancy. While an outbreak is usually limited to a small focal area, an epidemic covers larger geographical areas and may have more than one focal point. The number of cases that defines an outbreak depends on past patterns of the disease, the mode of transmission, contact and case fatality rates and potential spread to other areas.

For some diseases under active surveillance, e.g. poliomyelitis or an unusual, acute, severe episode of an illness of unknown etiology, a single case constitutes an outbreak. Within a country, states and districts establish criteria for the number of cases that constitutes an outbreak on the basis of the local situation. For example, five cases of similar illness of acute onset within an incubation period or one death in a village might be used as the criterion for an outbreak.

Outbreaks are frequently marked by uncertainty, confusion and a sense of urgency. Therefore, the environment around an outbreak poses unique challenges in public health management.

Why focus on behaviour?

Disease outbreaks can have huge economic costs and equally devastating social costs. Understanding of behaviour and society can help to find effective ways for mitigating, preventing and controlling disease emergence and transmission. Epidemic risk is increasing, propelled by complex factors driven by human behaviour: globalization, mass movements of people by air, land and sea, increased urbanization and the demand for and trade in animals and animal products, are spreading disease faster and wider. Disease is amplified in certain settings, and some conditions provide an ideal opportunity for pathogens to mutate into more dangerous forms. HIV/AIDS, SARS and HPAI appeared without warning after interactions between animals, humans and the environment. Opportunities for outbreaks have increased as a result of:

- increases in travel, trade and tourism (e.g. SARS);

- animal pathogens crossing the interspecies barrier (e.g. H5N1 HPAI) to infect humans directly;

- unplanned urbanization, poverty, environmental degradation and natural disasters (e.g. cholera epidemics in urban slums in Haiti in 2010); and

- refugee crises and population displacement (e.g. hepatitis E in 2004 and meningitis in 2006 in Darfur, Sudan).

In recent years, there has been emergence or re-emergence of several communicable diseases, including avian influenza, chikungunya, cholera, meningitis, plague and viral haemorrhagic fevers like Ebola, Marburg, Rift Valley fever, yellow fever and Lassa fever.

Human behaviour is the common denominator for epidemic risk and ultimately prevention and control. What people do or do not do has a tremendous impact on outbreak control, and success therefore depends on the active participation and contribution of people, including those

who are affected and at risk. A one-size-fits-all response is thus not applicable, and the response must be adjusted to local conditions, including socioeconomic circumstances. Understanding is needed of how a community perceives and comprehends disease before strategies to affect behaviour are designed. Thus, communities must be recognized as active participants in response and management. Without this, an epidemic will continue to spread, and response operations will be extremely challenging, requiring more time and resources to achieve control. (See the case studies for Angola, Cambodia, Fiji and southern Sudan in Section 4, part 3.)

What is cultural competence?

Managing disease outbreaks requires understanding risk factors and the potential for exposure by individuals or communities. Working with people to identify these risks and, if necessary, modifying existing behaviours and systems to reduce exposure and further disease transmission requires cultural competence. Cultural competence is a set of congruent behaviours, attitudes and policies that come together in a system, agency or among professionals to enable that system, agency or that group of professionals to work effectively in cross-cultural situations (NHMRC, 2005).

Cultural competence leads to trust and trust is a core ingredient in timely reporting and early detection of outbreaks. Developing the public's trust before an outbreak means that the health system must also demonstrate cultural competence so that if modifications in behaviour are urgently needed, those who are at risk will understand, accept the changes and implement them themselves, in their family groups and in their community.

Each individual working at all levels of outbreak response needs to reflect on their ability to work across cultures. Understanding your own cultural lens and how that influences your decision-making and behaviour is the first step towards becoming culturally competent. For example, are your practices the same as the people who you will be working with in the event of a cholera outbreak? Where do you go to defecate? Do you prefer to use a pedestal toilet or a squat toilet?

How do you clean yourself after using these facilities?

In order to influence behaviour you need to understand the difference between your assumptions and their influence on your behaviour, and those of the people you are working with. Understanding is the first step towards respect and then being able to communicate effectively where there are differences, demonstrates cultural competence.

Outbreaks occur in all parts or our multicultural world. Managing them requires the ability to adapt quickly to working with people from different cultures. The UN Committee on Economic, Social and Cultural Rights (2009) defines culture as "encompassing a way of life, language, oral tradition … religion or belief systems, rites and ceremonies … food, clothing, shelter and the arts, customs and traditions through which they express their humanity and the meaning they give to their existence ". Culture is the way we do things around here.

Rationale for early response to outbreaks

The overriding goal of outbreak management is to control an event as quickly as possible in order to minimize morbidity, mortality and other negative disease impacts. The opportunity for rapid control of an outbreak is greatest if the outbreak is detected early and response measures are initiated quickly. Figures 1 and 2 illustrate the different consequences of early and late detection and response. Early response can prevent an outbreak from reaching its natural peak, greatly reducing morbidity and mortality. It is not always possible to identify an index case in each outbreak; however, an attempt should be made to detect cases as early as possible, with proper investigation of fevers of unknown origin.

Health promotion and health communication can be natural bridges to facilitate integration of preparedness and response components and enhance the required collaboration and partnerships at local level.

Figure 1
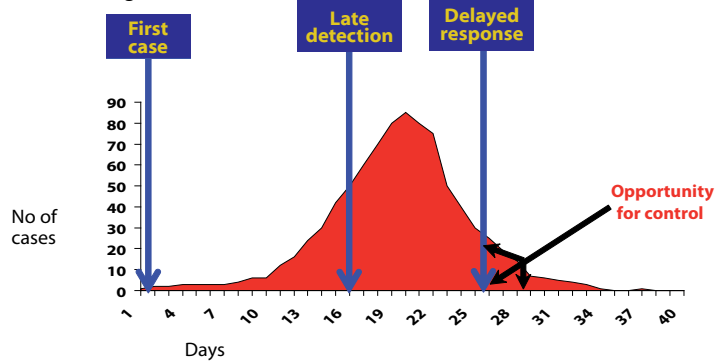
Late detection of an outbreak, resulting in delayed response and reduced opportunity for controlling the outbreak

Figure 2
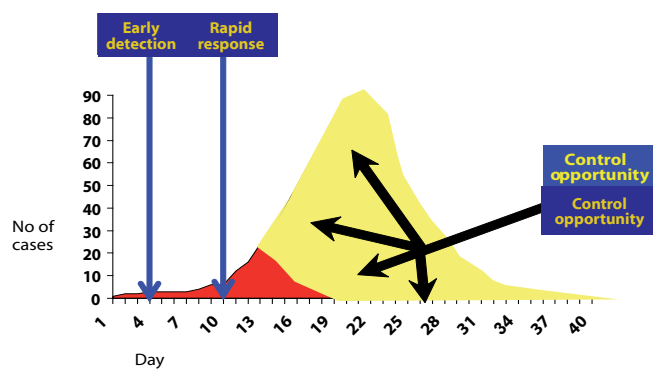
Early detection of an outbreak, resulting in rapid response and greater opportunity for controlling the outbreak and preventing it from reaching its natural peak

Figure 3
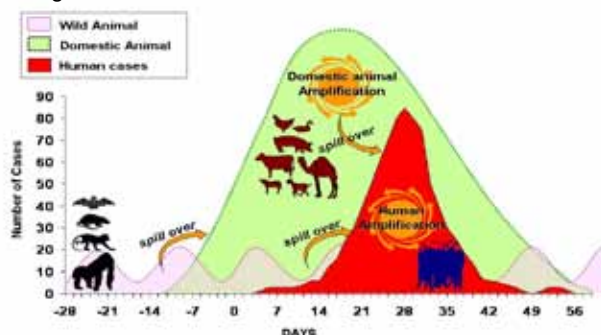
Amplification of emerging infectious disease pathogens in wild and domestic animals always precedes outbreaks in humans

Figure 4
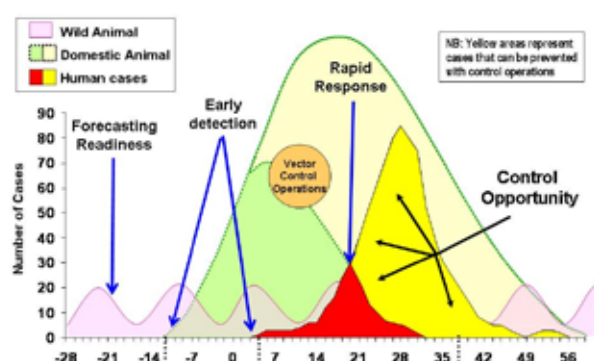
Phases of action for control of outbreaks based on animal surveillance

The human–animal interface

Figure 3 shows that amplification of emerging infectious disease pathogens in wild and domestic animals always precedes outbreaks in humans. Humans can be protected from zoonoses such as Rift Valley fever, Nipah virus infection and Ebola haemorrhagic fever by strengthening surveillance of animals and wildlife in order to detect the first cases, for example by noting a higher mortality of wildlife than usual or outbreaks in livestock. Close collaboration between the animal and human health sectors will allow rapid notification of public health authorities. Thus, animal surveillance is used as a trigger for preventive programmes to reduce the risk for human infection at source.

At-risk groups (e.g. individuals, communities, health-care providers and policy-makers) could be identified so that they are ready to adopt and sustain risk reduction and protective measures based on formative research and community dialogue and participation. In central Africa, deaths among great apes have been monitored for Ebola virus by nongovernmental organizations working in conservation (the Wildlife Conservation Society and Ecosystèmes Forestières d'Afrique Centrale), as an early warning system to alert human populations to Ebola outbreaks. A similar system exists for yellow fever in monkeys in South America.

Figure 4 shows four phases of action: (1) pre-event (preparedness, readiness), (2) alert (detection and risk assessment), (3) response (outbreak control) and (4) post-event (evaluation and recovery). Various strategies are used in each phases, with close collaboration and cooperation between the human and animal sectors.

Figure 5

Main components of an outbreak response strategy
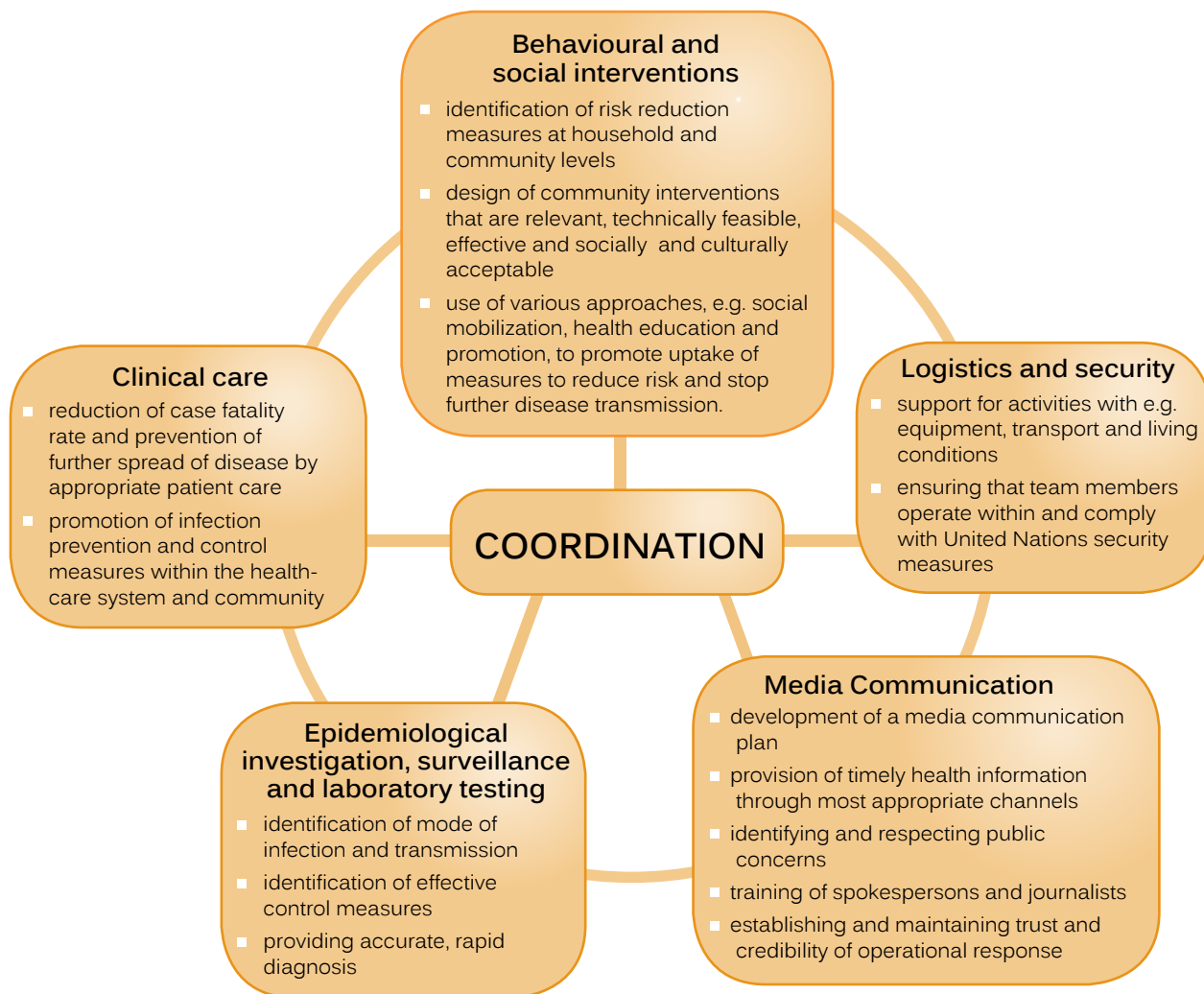
Elements of the outbreak control phase

Figure 5 shows the main components of an outbreak response strategy, their functions and their role. COMBI plans are part of behavioural and social interventions for effects on behaviour at individual and social levels.

Levels of communication

Understanding how communication occurs at different levels, the internal dynamics and the relations among these levels will help in designing better communication interventions.

- Intrapersonal: the thought processes, beliefs, attitudes and values that predict individual behaviour and decisions about health care. Neuroscience addresses how the brain is 'wired' and how this affects the choice of communication techniques and strategies. The individual or 'intrapersonal' level is profoundly sociocultural and shapes how

we view the world. Effective communication resonates with people's values, beliefs, priorities, resources and social, cultural and material circumstances.

- Interpersonal: Health information is exchanged all the time and is critical in supporting a person's progression from taking a decision to acting on the decision in a particular health behaviour. Sources of information must be identified; if the source is considered trustworthy, empathetic and credible, the receiver will be more receptive to health advice and will follow though with the promoted behaviour.

- Group: Understanding the role of communication in different groups, such as health-care teams, families and village committees, in making decisions that affect health-care practices will affect how

messages are designed, delivered and received. Gender dynamics and differences within groups are important to consider at this level, as members of a household, family, village or community will have different perspectives and perhaps different capacities and opportunities to communicate their views. The communication of behavioural objectives must also take into account the different burdens, constraints and access to resources or decision-making power of individual members of a group.

- Organizational: Understanding how organizations communicate to both internal and external audiences is important, as different government sectors and agencies will have to work together. A clear social mobilization strategy can help to identify the roles and responsibilities of different organizations and how to mobilize their staff to support the behavioural goals.

- Social: It is important to consider the different ways in which health information is disseminated through various channels to reach a broad range of professionals and other groups. This will include use of mass media and programme interventions such as health education and health promotion.

COMBI addresses all these elements together by integrating communication experience and learning and therefore coordinating a variety of expertise and inputs to respond to the different communication needs of different groups for a specific behavioural result.

Having a planning framework can help to ensure that activities are coordinated to support outbreak management. A systematic approach allows better understanding of an event, which in turns helps the circulation of accurate, relevant, appropriate information about mutually identified, technically sound risk reduction actions. It also ensures that relationships with communities and response agencies are cultivated and maintained by planning opportunities for communication, encouraging dialogue and listening.

What is COMBI?

COMBI is a planning framework and implementation method for integrating behavioural and social communication interventions into public health programmes. It incorporates lessons learnt from five decades of public health communication and private sector marketing. (See Section 4, part 2, on the marketing, behavioural and social models on which COMBI is based.)

> Strategic planning and behavioural and social communication begin with the fundamentals: People cannot act on a suggested behaviour if they are not aware of and knowledgeable about it, nor can they act if they are not engaged in a full, fair review of its benefits and advantages in relation to the cost and effort involved in putting it into practice.

The goal of COMBI is to achieve behavioural results. It has been used successfully in programmes to eliminate leprosy in India and Mozambique and lymphatic filariasis in India and Zanzibar (United Republic of Tanzania). It has also been used in dengue prevention and control in Malaysia and the Americas.

COMBI is rooted in people's knowledge, understanding and perception of the recommended behaviour. It involves actively listening to people and learning about their perceptions and understanding of the proposed behaviour and also about the real and perceived factors that would constrain or facilitate adoption of the behaviour.

Using COMBI will help you to respond more rapidly and appropriately during an outbreak by enabling you to:

- quickly understand the challenges of outbreak control from the perspective of the communities at risk;

- make sure that people (patients, risk groups and others) take appropriate action during an outbreak;

- motivate people to support outbreak control activities; and

- use the available human and financial resources more effectively.

What are the principles of COMBI?

The main goal of COMBI is specific behavioural results, and each COMBI plan must be based

on this imperative. All too often, the standard response to a crisis is to produce messages, leaflets, posters, T-shirts, radio spots and television advertisements, without assessing the relevance of these materials for the desired behavioural outcome and with little research before producing them.

COMBI has two general guiding principles for investigating an outbreak and planning interventions: determine the preliminary behavioural outcomes before producing any material like posters, pamphlets or radio spots; and conduct a rapid situational market analysis to refine the desired behavioural outcomes and determine how best to engage people with regard to the recommended behaviours. The behavioural outcomes should be reviewed, refined and changed to reflect the results of the situational market analysis. This process might have to be repeated several times until it is right.

Situational market analysis

The preliminary behavioural objectives undergo thorough appraisal during a situational market analysis. This might seem time-consuming and complicated, especially in an outbreak situation when information must be disseminated as quickly as possible. If this aspect is ignored, however, resources will probably be wasted and the materials may be ineffective. Furthermore, individuals and communities might show resistance to the interventions. Spending even a few hours on this activity is essential.

Behaviour adoption

It is relatively easy to raise awareness and provide information. What is difficult is to encourage people to apply what they know and then perform the recommended behaviour. People act on the information to hand.

COMBI planning is based on understanding how recommended behaviour is adopted and how this relates to communication. Understanding these processes will help in designing and tailoring messages to promote action by different groups and to identify the most appropriate channels and settings to reach specific audiences.

A simple model, known to COMBI practitioners as HIC-DARM, illustrates the adoption of new behaviour. The model is based on research in

behaviour adoption theory and practice and represents the way in which individuals accept and maintain new behaviour:

Each dimension of HIC-DARM calls for appropriate communication. If people have already heard about the behaviour but are not fully informed, information to raise awareness will be the starting-point. If they are already informed but are not convinced, then you will start with information needed to convince. There is typically a gap between the HIC part of this cycle—informing and convincing people—and the DARM part—promoting the next steps towards a new behaviour. Many health programmes manage to inform, educate and convince people about what needs to be done, but many fail to achieve any behavioural impact.

To fill this gap, COMBI draws on the experience of the private sector and the market research approaches that are so effective in influencing consumer behaviour. The principles of HIC-DARM apply to audiences at all levels, each of which requires a different kind of communication at each stage of behaviour adoption. Use of HIC-DARM allows segmentation of the audience and setting priorities on where to focus efforts.

The four Cs

First, we	**Hear** about the behaviour
then we are	**Informed** about it,
and later	**Convinced** that it is worthwhile
In time, we	**Decide** to act on the new behaviour.
and later we	**Act** on the new behaviour
We then	**Reinforce** our action by feeling satisfied about carrying out the behaviour
If all is well, we	**Maintain** the behaviour

COMBI replaces the old marketing concept of four Ps (product, price, placement and promotion) with four Cs of integrated marketing communication, which are more appropriate for health-related behavioural outcomes:

- **C**onsumers' needs, wants and desires provide an immediate consumer focus. The situational market analysis phase reveals what really motivates people, including

rationales that have nothing to do with health. The desire to protect one's family, income and community standing, and the need for respect and acknowledgement are all powerful incentives.

- **C**ost is not only price but also includes the effort and opportunity for adopting the recommended behaviour. Cost must be examined in relation to the 'value' of the proposed behaviour. If people consider the value to be absent or minor, they will be less motivated to adopt the behaviour. For example, the social costs of suspending traditional ceremonies that could amplify disease transmission (e.g. burial rites) might be too difficult for an individual and require collective decision and action.

- **C**onvenience is distinct from placement, as it goes beyond physical location to the accessibility and convenience of a behaviour or access to a service.

- **C**ommunication involves applying a mix of interventions far beyond promotion of a product or brand. No single intervention will bring about the desired behaviour. It involves sharing the other three Cs with the consumer. It is a solution that appeals to an existing want, need or desire, which offers more value than cost and is conveniently available.

Critical dimensions of community mobilization in outbreaks

Outbreak prevention and control interventions are only as effective as the people who represent and implement the programme. During an outbreak, trust and the credibility of the proposed interventions should be quickly established. Fear is a common, powerful, understandable instinct that compels people to act differently from the way they would under normal circumstances. An unknown outbreak can raise fear and cause anxiety. Ensuring that trust and credibility are maintained and that there is empathy with affected communities helps reduce anxiety, so that people are more likely to listen and understand messages and take appropriate action.

In many countries, Red Cross and Red Crescent volunteers and other grassroots organizations have built a reputation for providing services to local communities. As they usually work in the communities in which they live, people know them well and view them with a level of trust and respect. Understanding who is valued and trusted in the community allows COMBI practitioners to highlight and map opinion leaders and design strategies with trusted partners. Credibility is ensured by identifying the best sources of information about control measures in an outbreak. A doctor or nurse is usually more credible with regard to health issues than, say, a baker, a fisherman or a policeman; however, in certain situations, credibility can be enhanced by showing that people have had special training or authorization and know what they are doing. Some questions to ask would be:

- Who are currently the most credible, trustworthy sources of information in the community? Are they health workers, teachers, religious leaders, nongovernmental organizations, politicians, traditional healers?

- Does a credible, trustworthy source have particular characteristics, which the community recognizes?

- To what extent would training or appearance (e.g. a uniform) enhance perceptions of credibility and expertise within the community?

Two guiding principles in building trust and credibility in interventions are described below.

Mobilize existing social networks and groups

Existing social networks and groups should be involved. During COMBI planning, determine the groups that exist and what they do. Take time to assess how their work might affect your interventions. For example, grassroots organizations that run family planning programmes might not be useful during a mass vaccination campaign, as people might associate vaccination for yellow fever or measles with contraception. Rumours detrimental to the programme might start to circulate in this situation. In their own communities and families, however, grassroots workers can be a positive example if they themselves get vaccinated and persuade others to do so. Involve them in other ways, for example, by sending information (memos, press releases, frequently asked questions) about the campaign

and urging them to use their own contacts and influence to support the campaign.

It is important to provide adequate training and tools to people who are interacting with local communities. They must be convinced about what they are doing so that they in turn can convince others. Allow adequate time for volunteers and others to ask questions, and use role-play in training sessions so that difficult situations or questions can be simulated and the responses rehearsed.

Basic communication techniques should be reinforced, such as verbal and non-verbal communication. During outbreaks, people need reassurance, and their questions should be answered in a way that they understand and that allows them to make sense of what is happening. For example, during a mass vaccination campaign, if people believe that the vaccine will not work, just telling them otherwise will not change that view: they must be engaged to review how they came to the conclusion. This requires dialogue and exploration of possible reasons and why they should reconsider vaccination as a viable option to protect themselves, their families and their communities.

Ensure community feedback during and after an outbreak

Communities should be given regular feedback on how an outbreak is being managed and how the campaign is progressing. Feedback ensures two-way communication; information received from communities (i.e. current perceptions, rumours) can strongly increase the effectiveness of social mobilization strategies. Messages and materials should be pretested with the intended audience and any necessary adjustments made before mass production. Ensure that the intended effect of the materials is correct and that the messages are accessible, understood and acted upon.

Communities should also be informed once an outbreak has been controlled and control activities have ended. Feedback gives a sense of closure to a period of crisis and signals that normal community life can be resumed. People will also have a sense of accomplishment that they did their part in contributing to ending the outbreak. This can be acknowledged in many ways, including ceremonies, religious services and reports in the local media.

Monitoring and evaluation during outbreaks

Monitoring, evaluating, tracking and measuring results during outbreaks represent a science, and there is no shortage of manuals, toolkits and academic resources about how research, monitoring and evaluation can be integrated into public health programmes, including monitoring and evaluating health communication.[4] This section gives a basic overview, with specific attention to the realities of measuring and evaluating the progress and effect of behavioural and social communication in outbreaks. For more specific, detailed information, see the resources section of this toolkit.

Outbreaks are acute events that require rapid interventions. In view of the short time available to slow their escalation and to minimize loss of life, it is important to understand where results are achieved and where they are not, in order to adjust outbreak control measures appropriately. In longer-term interventions, control and random groups can be included in monitoring and evaluation; however, the rapid, targeted nature of outbreaks means that this is not an option, for ethical and practical reasons. It should nevertheless be possible to show that the behavioural objectives derived from rapid formative research have been met through effective communication; e.g. if everyone is washing their hands but the epidemic continues, the problem is probably associated with the technical recommendations. It is easy, therefore, to see the importance of monitoring and evaluation as well as the limitations of communication.

Three questions

Essentially, three questions are being asked in monitoring and evaluation:

- Are we doing the right things?
- Are we doing them properly?
- Are we making a difference?

Monitoring and evaluation need resources in terms of time and funding. Lack of money or time

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4   One of the most thorough manuals available in this area and one that was used liberally for much of this section is Parks W, Shrestha S, Chitnis K (2008). Essentials for excellence: researching, monitoring and evaluating strategic communication for behaviour and social change. UNICEF Pacific Office, Fiji. Available at: http://www.unicef.org/cbsc/files/Essentials_for_excellence.pdf.

should not, however, be an impediment to robust monitoring and evaluation during outbreaks. This should be considered from the beginning of an outbreak, ensuring that it is part of each phase as the plan unfolds. The monitoring and evaluation component, however modest, must be considered, planned, budgeted for and integrated into the COMBI plan at the outset. Specific indicators should be defined at the same time as monitoring and evaluation plans and behavioural and communication objectives.

As an outbreak evolves, regular monitoring makes it possible to adjust, address new issues or even discard aspects of the strategy that do not appear to be working. Monitoring and evaluation not only allow reporting back on progress and results, they can also drive and shape communication plans and strategies and the intervention itself. As we will see, even a behavioural objective can be made more effective by the inclusion of strong indicators with measureable results.

For the sake of clarity, the following definitions are used: 'Monitoring' improves the efficiency and effectiveness of a project. Information on progress towards targets and activities can indicate when things are going wrong, allow improvement or adjustment of the interventions and provide information for the entire outbreak team. This crucial feedback loop helps technical colleagues understand when interventions are not working and why. Monitoring involves routine surveillance through regular 'check-ups'.

'Evaluation' is the 'autopsy', determining whether the actual results were achieved and critically evaluating how they were achieved. Evaluation is an attempt to link a particular intervention to the results by comparing the original objectives with how well they were achieved and whether this is attributable to the intervention. In an outbreak, the ultimate evaluation is simple and difficult to avoid: 'Have the behavioural objectives been adopted, and, as a result, has the outbreak been controlled?' That is, has transmission stopped and can this be attributed directly to the outbreak control measures (the sum of all the outbreak response interventions)?

Identifying indicators

Indicators are essential to a monitoring and evaluation system because they are what is measured and/or monitored. The indicators can be used to ask and answer questions such as:

Who?	People who handle raw poultry or poultry products in XX location
How many?	Percentage of poultry handlers who have heard or seen the messages and activities in XX location
How often?	Percentage of poultry handlers who clean their hands before and after touching raw poultry products in XX location
How much?	Financial resources spent on cleaning products and utensils
	Human resources and time spent on cleaning

An indicator is a variable that allows verification of changes due to an intervention or shows results relative to what was planned. You should decide on your indicators early on, so that you can begin collecting the information immediately. Indicators are used to measure the results of your intervention. A result is a measurable or describable change within a cause-and-effect relation.

Outbreak response:
Actions during an outbreak

Introduction

The COMBI planning cycle for outbreak response consists of seven steps (Table 1). Section 2 refers to a number of tools, such as templates, charts and checklists, which can be used during the seven-step COMBI planning cycle. The tools that will be helpful for each step are presented at the beginning of the relevant section. The numbers do not represent any kind of order; in a real event, you will have to set priorities and decide which combination of tools is most applicable. All the tools are described in Section 3, with examples, and a blank workbook is provided, which can be used during field investigations and response missions.

Table 1. Seven steps of the COMBI planning cycle for outbreak response, with tools used and outcomes

Step	Tool	Outcome
Programme, management and administrative response structure	Tool 1: Reflective questions for assessing the organizational context of outbreak management and response	
	Tool 2: Identifying stakeholders	
	Tool 3: Mapping existing expertise and capacity	
	Tool 4: Frequently asked questions about monitoring and evaluation	
COMBI planning step		
Step 1. Identify the preliminary behavioural objectives	Tool 5: Preliminary behavioural objectives	Preliminary behavioural objectives
	Tool 6: Risk factors in the sociocultural context	
	Tool 7: Environmental scanning	
Step 2. Conduct a rapid situational market analysis	Tool 8: Tips for interviewing	Barriers and facilitating factors for adopting prevention and control measures; what communication can and cannot do
	Tool 9: Checklist for conducting a situational market analysis	
	Tool 10: Semi-structured interviews	
Step 3. Refine the behavioural objectives, state your communication objectives	Tool 11: HIC-DARM	Behavioural and communication objectives
	Tool 12: Template for channels and settings	
	Tool 13: Communication and non-communication issues	
Step 4. Design an overall strategy	Tool 14a: Restated behavioural objectives	A strategy
	Tool 14b: Restated communication objectives	
Step 5. Prepare implementation and monitoring plans and budget	Tool 15: Detailed implementation plan	Detailed implementation plans for the strategy and for monitoring and evaluation
	Tool 16: Monitoring table	
	Tool 17: Monitoring implementation plan	
Step 6. Implement and monitor the strategy, identify trends and adapt if necessary	Apply tools 15 - 17	Feedback and adjustments to the strategy
Step 7. Evaluate once the outbreak is over	Tool 4: Frequently asked questions about monitoring and evaluation	Impact, lessons learnt and good practice
	Tool 10: Semi-structured interviews	
	Tool 16: Monitoring table	
	Tool 17: Monitoring implementation plan	

Programme, managerial and administrative response structure

Before starting an intervention, you should be familiar with the existing response structure[5], how it is organized and who is responsible for the different activities. You should determine the available resources and how behavioural and social communications can support outbreak management. You should do this rapidly, and this section will help you to do that.

Tools	
Tool 1	Reflective questions for assessing the organizational context of outbreak management and response
Tool 2	Identifying stakeholders
Tool 3	Mapping existing expertise and capacity
Tool 4	Frequently asked questions about monitoring and evaluation

Decision-making bodies

Once an outbreak is suspected or confirmed, a crisis management committee is usually set up to coordinate and manage the outbreak at local and perhaps national level, depending on the size and location of the outbreak. This committee is headed by national authorities and includes representatives of relevant government departments, religious organizations, United Nations agencies and nongovernmental organizations.

The crisis management committee usually instigates establishment of a number of technical subcommittees, to plan and manage day-to-day implementation of various aspects of outbreak control. A technical subcommittee for behavioural and social interventions should be established as early as possible. This is usually described as the 'social mobilization, health education and promotion, information, education and communication' subcommittee. If one already exists, it should be used.

This subcommittee is responsible for designing and coordinating a range of activities related to behavioural and social interventions, such as:

- conducting rapid research among stakeholders (including affected and at-risk groups) ,
- drawing up a plan of action for behavioural and social communication,

- Identifying suitable people to advocate at community level,
- organizing and delivering training in communication and cultural competence for advocates and social mobilizers to support outbreak prevention and control,
- preparing messages and materials for certain activities,
- coordinating execution of the agreed plan of action,
- organizing psychosocial support for affected individuals and families,
- advocating on behalf of patients and the community and supporting a more responsive health care structure,
- monitoring the effect of outbreak control interventions from the perspective of affected communities in order to provide feedback to those responsible for outbreak management, including response staff.

Composition and roles of members of a behavioural and social interventions subcommittee

The group should comprise a team leader or coordinator and any number of interested, dedicated partner agencies and institutions. Different people with a variety of skills will be needed at different times, and careful thought should be given to the composition of the subcommittee. Focal points in relevant agencies, departments, institutions and local media should be identified and their updated contact information recorded.

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5   This section reflects the national authority response structure not the Interagency Cluster response mechanism. For more on this see: http://www.who.int/hac/global_health_cluster/about/en/index.html

Partners may wish to participate in different ways: some may be willing to send a representative to the subcommittee and to commit to planning and overseeing implementation of activities throughout the outbreak. Others may wish to offer the use of their staff and volunteers, or they may agree to include the messages in their information products, distribute the materials to their own clients, customers or constituents, or provide financial support or in-kind contributions, such as printing, media time and space or use of facilities.

Responsibilities should be assigned to the members of the subcommittee, so that the workload is shared and so that everyone can contribute their ideas, experience and expertise to the group.

Relations with the crisis management committee

The crisis management committee and the technical subcommittee responsible for behavioural and social interventions should be in regular contact, in order to:

- support and integrate overlapping activities;
- share information;
- ensure rapid integration of community feedback into designing strategies and decision-making;
- ensure the consistency of the messages from different agencies; and
- enable more effective allocation and use of resources.

Ideally, a representative of the subcommittee should be on the crisis management committee. If not, a reliable method of communication should be established between the two.

Coordination, roles and responsibilities

Effective behavioural and social communication interventions for outbreak response require strong management and coordination of the inputs from various stakeholders. In setting up the interventions, certain questions should be asked, such as:

- How do behavioural and social interventions fit into the overall outbreak response?
- Who is responsible for this component?

- What core strategies and interventions are being used (e.g. health education, health promotion, social mobilization, information, education and communication campaigns, risk communication)?
- Who are the stakeholders and what role can they play?
- What partner institutions will be involved? What resources do they have at their disposal?
- What will the management and supervision structure be?
- Who will provide administrative and logistic support?
- What human resources are already available and which are required?
- What are the training requirements?
- How will we monitor and evaluate the interventions?
- What type of formative research will be necessary to design an effective COMBI plan?

Supervisory structure

Supervision is a critical management component, which needs thorough planning. In planning activities, it is important to identify who will supervise each activity and how the resulting information will be used to guide decision-making.

The supervisory requirements may differ depending on whether individuals and/or agencies have been contracted or whether they are volunteers. Again, be clear about your expectations and responsibilities. Explain how performance and quality will be ensured and evaluated. Make sure there are sufficient rewards for volunteers. For example, a simple letter signed by the District Health Officer may be enough to enhance volunteers' credibility and stature in local communities and give them the confidence to carry out their work.

Information-sharing mechanisms

Regular feedback and reporting to the relevant subcommittees from people involved in community outreach activities allows community reactions to, and participation in, outbreak control and prevention to be monitored and adaptations to response strategies made as

required. This can be done informally through conversations with responsible staff or agencies, through focal points assigned for specific tasks or roles or more formally at daily or weekly meetings. In addition to regular meetings, daily reporting forms may be required. A regular time or place could be set for people to phone in or visit in order to report on how their work is going. Regular feedback serves to focus on worker safety and welfare, for example when reports are overdue or appointments missed. In turn, relevant information should be fed back to the crisis management committee and the broader outbreak management team.

Identifying stakeholders

In the context of an outbreak, 'stakeholders' are people, groups or institutions with a significant interest in outbreak management and response. When planning social mobilization interventions, all stakeholders should be involved and contribute to bringing the outbreak under control.

'Primary' stakeholders are people who are ultimately affected by the outbreak: the beneficiaries and those who live in affected communities. 'Secondary' stakeholders are people involved in planning and delivering outbreak response interventions, including technical experts, outbreak managers, representatives of government sectors and departments, public and private agencies and nongovernmental organizations. 'Tertiary' stakeholders are people who are not directly affected but who could have a significant influence on both primary and secondary stakeholders during response and recovery, for example neighbouring countries, international media, tourists and the private sector.

Mapping existing expertise and capacity

It is important to define the functions and skills that will be required for planning and implementing interventions. Time should be taken to identify existing expertise that could be drawn on, in terms of both people and institutions. These may include:

- Communication specialists are experts in the use and application of communication functions and techniques. They understand the communication process and will be useful during development of a strategy, to suggest ways that communication can overcome potential problems and barriers.

- Medical anthropologists and social scientists can offer a sometimes unique perspective on the sociocultural dimensions of outbreak response. They are useful for obtaining sensitive or critical information from affected communities. They take into account, culture, community social organization, the importance of kinship, family and community relations, local knowledge and how communities view the outbreak.

- Community development, outreach, animal health and agricultural extension workers have intimate knowledge about the communities in which they work and can be recruited as mobilizers or advocates. They usually have extensive contacts and are trusted sources of information and support. They have practical, realistic understanding of local economic, political and social dynamics and will know what kinds of interventions are likely to be accepted or rejected by communities.

- Journalists (print and broadcast, radio and television producers) are extremely important contacts, as they usually have first access to local information and can inform the public through the mass media. They can be commissioned to write features and specific articles and produce radio programmes, although they are not the key decision-makers.

- Graphic designers can be asked to design materials such as posters, leaflets and pamphlets. Look for those who have already worked for local groups and agencies and have a good track record.

- Trainers and facilitators have different roles that require different skills. A trainer should have good facilitation skills but should also be an expert in the subject. A facilitator supports training but is not an expert and should be neutral and impartial to the issues being discussed. Consider the training and facilitation requirements, and identify people or institutions that could offer expertise. Plan your training requirements early.

- Materials may have to be prepared rapidly during an outbreak, especially if there are specific language, demographic or

cultural requirements. Ensure that printing companies have the capacity to produce in-house, as some small agencies subcontract work if they do not have the machinery themselves, adding time and possibly cost to the process.

You should also determine your needs in terms of logistics and communication infrastructure. A successful intervention requires strong logistics. You should establish a system for procuring supplies and a distribution network to ensure that all outlets are stocked with the supplies and equipment needed for the intervention, including, e.g. vehicles, drivers and maintenance.

You should have a clear picture of the available communications infrastructure, as your planning and activities will have to be adapted to the availability of information and communication technology. Your mapping should include an assessment of what communication infrastructure, channels and resources exist, what can be provided and what you will have to do without, so that you can start finding alternative solutions.

Be clear about the roles and responsibilities of these different groups and draw up specific terms of reference for any individual or agency contracted to deliver products or provide a service. Ensure that you are familiar with their capacity and what to expect, and be clear about what resources are available and how they will be disbursed.

Consider the health and welfare of the personnel involved and give them the necessary information to make informed decisions and protect themselves. People involved in direct community outreach in affected areas may come across sick people or families and should fully understand the potential risks and how to avoid them.

Have the questions above ready, so you will know who to go to in order to get things done. You can draw a flowchart or list them, as you prefer.

Planning formative research, monitoring and evaluation

Evaluation starts with formative research during the rapid situational market analysis. You should start to define indicators and to prepare moni-

toring and evaluation plans at the same time as the behavioural and communication objectives are formulated. The monitoring and evaluation plan can be finalized as you prepare your overall strategy and your detailed plan of action. Table 2 outlines the three areas of research.

Your efforts will 'pay off', as effective completion of each step will make the subsequent steps easier. From conception to design, monitoring and eventually evaluation, research is part of COMBI planning, design and implementation.

Where are we now? Formative research

In outbreaks, it is easy to consider that there is no time for the formative research stage: that the situation is too volatile, evolving too quickly or requires immediate action. Nevertheless, any amount of time—even hours—spent on formative research provides important information. Rapid formative research gives insights and understanding about the real barriers and challenges to the adoption of behaviour at household and community level. It provides information on what people who are affected or at risk know, feel and are doing about the event and the control and prevention measures. Solutions may emerge from the communities themselves through structured dialogue. Formative research may also challenge the assumptions of officials and response staff about community understanding, perception, motivation and adoption.

Formative research can be combined with secondary research, such as programme reports and previous surveys (e.g. studies of knowledge, attitudes and practices, demographic health surveys and multiple indicator cluster surveys). Talking to staff in local projects can also give a sense of the situation in the field. Even if you have only an afternoon, speaking with communities and response workers and observing what is taking place with some of the tools of situational market analysis ('top-of-the-mind', 'moment-in-the-life-of' and 'day-in-the life-of' analyses, structured and semi-structured interviews, focus groups) will provide information for better understanding the situation, the people and the communities you are trying to reach. In the case of a zoonotic disease, an analysis of the market and supply chain is essential for identifying at-risk groups.

Table 2. Research required for evaluating progress

Main question answered	Broad purpose of research	Type of research
Where are we now? Are behavioural and social communication needed? Who needs them, why, how, when and where?	To examine current situation, set objectives and baselines for subsequent measurement and determine key concepts	Formative Situation analysis, baseline measurement
How well are we doing? To what extent are the planned activities actually realized? How well is the information provided, and how well is dialogue supported? What early signs of progress can be detected?	To monitor inputs and outputs; assess reach, quality, participant satisfaction and early indications of behavioural, organizational and social change	Monitoring Processes and early changes
How effective was our intervention? What behavioural outcomes are observed at various levels? What do the outcomes mean? What difference did behavioural and social communication make?	Measures behavioural, organizational and social change outcomes and determines the contribution of behavioural and social communication to these outcomes	Evaluation Outcomes and impact

Assessing immediate reactions and pretesting

Understanding people's reactions to messages and materials and pretesting the design and packaging of communication products will improve interventions and help avoid costly mistakes. Materials like radio and television spots, posters and brochures must be part of a strategic plan and not be designed without input from technical staff, community representatives and intended recipients. This phase can help identify unintended interpretations and reactions to communication products.

On a practical level, this phase helps to determine the clearest, most compelling approaches, those that need refining and whether the work will achieve the desired impact. It also provides evidence for future monitoring and evaluation of the communication initiatives. Focus groups, intercept interviews and natural exposure testing can provide information to improve communication products. Well-moderated focus groups can target key audiences and promote constructive dialogue for designing behavioural and social communication interventions. Ensure marginalised groups are represented.

Monitoring and early changes

Four main forms of monitoring are used to answer the question "How well are we doing?", which allow assessment of reach, quality and participant satisfaction and of early indications of behavioural impact.

- Implementation monitoring and process evaluation are used to compare what is supposed to be happening with what is actually happening, by tracking planned inputs and outputs, usually in a basic monitoring system such as a logical framework, work plan or timetable.
- Process evaluation is used to examine how well activities are being carried out, according to parameters such as reach, quality, participant satisfaction and level of stakeholder participation. Process evaluation allows for ongoing refinements to a strategy.
- Behavioural monitoring is used to measure intermediate results of programme activities with selected participants. It helps to explain what is happening as a result of outputs such as training and how they are linked to observed changes in behaviour.
- Monitoring of the most significant changes involves systematic collection and participatory analysis of 'stories of change' from participants. The stories may be positive or negative and may include changes in a person's behaviour, group attitude, a community's or organization's capacity, a policy or social conditions.[6]

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6   See Davies R, Dart J (2004). The most significant change 'MSC' technique: a guide to its use. Cited by Parks et al. (2008). Available at: http://www.mande.co.uk/docs/MSCGuide.pdf.

The seven steps of COMBI planning

This section describes the seven-step process for applying COMBI, which is illustrated in Table 1. The steps describe preparation of a plan with the goal of achieving clearly defined behavioural objectives during an outbreak.

In practice, this is not a linear process: you will move back and forth between the steps as new insights emerge. As you progress through the steps, you will begin to appreciate the importance and relevance of each to the whole process. The situational market analysis shapes the behavioural goals, which in turn form the basis for the communication objectives, which are the basis for the overall COMBI strategy. The most frustrating steps will be those in which you refine your behavioural and communication objectives. If these are done well, the subsequent steps will be easier!

The tools listed for each step were designed to guide you. To help you along, some of the tools are illustrated with examples. You can find blank versions in an additional supplement.

Step 1: State your preliminary behavioural objectives

Time spent on determining the behavioural outcomes and conducting a rapid situational market analysis will 'pay off'. The situational market analysis shapes the behavioural and communication objectives and the interventions themselves. It can determine the success of control and response operations, and epidemiologists, clinicians and public health specialists should pay as much attention to this step as do the people planning behavioural and social communication strategies. The focus on behaviour is important, as effects on behaviour can slow or amplify an outbreak's spread, either saving lives or putting more people at risk.

Tools	
Tool 5	Preliminary behavioural objectives
Tool 6	Risk factors in the sociocultural context
Tool 7	Environmental scan
Outcome	
■	Preliminary behavioural objectives

Assessing the behavioural context

Before you conduct your situational market analysis, you should take stock of what you already know about the epidemiological situation, using tool 6. This tool helps you get started in the complex task of identifying behavioural objectives.

The behavioural objectives will depend on the disease outbreak and the control strategies, e.g. vaccination, early diagnosis and treatment, surveillance and case management. This first statement of the behavioural objectives will be based on the initial understanding of the disease, its causes, community practices and the desired behaviour(s) for controlling the disease as determined by disease experts. Preliminary behavioural objectives can therefore be identified from the data initially collected by the outbreak investigation team and what team members know about the communities at risk. If you have no information, you will have to do rapid research, preferably with the investigation team. You can then define your preliminary behavioural objectives.

Example of use of tool 5: Preliminary behavioural objectives for Marburg haemorrhagic fever

Marburg haemorrhagic fever is a highly contagious viral disease, similar to Ebola, which is prone to outbreaks in Africa. In Table 3, the left-hand column gives examples of epidemiological risk factors for exposure to and transmission of Marburg. The risk factors are associated with contact with deceased or living infected people or with eating infected bush meat. The right-hand column gives examples of interventions that could affect exposure to and transmission of the disease, including early diagnosis and isolation of infectious cases and avoiding physical contact with infected people unless wearing suitable protective equipment.

Table 3. Definition of preliminary behavioural objectives for Marburg haemorrhagic fever

What are the epidemiological risk factors for exposure and transmission?	What interventions could reduce and prevent exposure and transmission?
■ Contact with body fluids (blood, sweat, saliva, vomit, semen, stools) of infected people 　■ Taking care of people with the disease 　■ Contact with the body of a person who has died from the disease	■ Early diagnosis and isolation of infectious cases ■ Avoiding physical contact with infectious or suspected infectious cases and instigating protective behaviour: 　■ Using gloves when caring for sick people 　■ Giving separate eating utensils to sick people 　■ Safe funeral practices 　■ Sick people staying at home and avoiding gatherings and meetings 　■ Hand hygiene
■ Eating infected bush meat ■ Reusing needles and/or syringes	■ Cooking food thoroughly ■ Safe injections

Next, explore the link between epidemiological risk factors, actual household and community practices, the beliefs and values behind those practices and any modified practices that are still considered culturally appropriate. This will help you to identify the risks of certain individuals or groups or the risks related to certain events, such as funerals, that should be changed or adapted to prevent further transmission. Understanding the values and beliefs behind the practices will help to design messages that build on existing family and community beliefs and rationale. Understanding modifications can help you build culturally appropriate safe practices. (See tool 7.)

You should consider any external factors that might affect adoption of control measures and the implications they will have on the response strategy overall and the social mobilization strategy in particular. Table 4 has been filled in with the example of Marburg haemorrhagic fever and shows the importance and relevance of understanding what may motivate or hinder communities to act upon health advice. It also demonstrates why it is sometimes difficult for communities to comply with what experts may consider to be relatively simple health measures. Risk reduction and health protection behaviour should be feasible, practical, achievable and culturally appropriate. (See tool 7.) For more details on risk reduction and control measures in relation to animal and zoonotic diseases, see FAO.[7]

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7   Good emergency management practice (2010). Rome, Food and Agricultural Organization of the United Nations. http://www.fao. org/ag/againfo/programmes/en/empres/GEMP/index.html. Last accessed 1st July 2011.

Table 4. Example: risk factors in the sociocultural context, Marburg haemorrhagic fever

What epidemiological risk factors have you identified?	What are current household practices in relation to the epidemiological risk factors?	What are the beliefs and values behind the practices?	What are the social or community norms related to the practices?
Contact with bodily fluids (blood, sweat, saliva, vomit, semen, stools) of infected persons ■ Taking care of sick people with the disease ■ Contact with dead people who have the disease Eating infected bush meat	Women are the primary caregivers of sick household members. Women also take care of young children present in the household. Traditional rituals and ceremonies are conducted for purification of survivors, family members and contacts with sick people. Deceased people are washed by their close family members and laid out so that those who knew them can touch and mourn them for several days before burial.	The status of women and their value is defined by their role as mothers and wives and consequently how well they take care of their families. Blood is associated with witchcraft and healing. The deceased becomes an ancestor, and touching and mourning over the body ensure that the ancestor does not return from the dead and bring misfortune.	Women stay at home and take care of household land. Traditional healers carry out purification practices. A feast is expected, which is hosted by the family of the deceased. It is expected that an item belonging to the deceased will be placed on the grave.

Table 4 shows that women are the primary caregivers and should therefore have access to information on the risks and how to protect themselves and their families if they become sick. You should consider how to reach women, who may either be at home or taking care of land away from the household. The kinds of traditional rituals and ceremonies should be explored, and traditional healers should be consulted and engaged on how to make the practices safe during the outbreak. Funerals and feasts related to traditional burials should also be addressed, and ways of humanizing the ceremonies but still making them safe should be negotiated with family members, religious leaders and community members. Cultural competence will increase the likelihood of modified practices being accepted.

Table 5 gives an example of an environmental scan.

Table 5. Example of use of tool 7: environmental scan

Social and cultural issues Religious and traditional beliefs and customs	Economic issues	Political issues Politics, ethnicity, community relations	Environmental issues Geography, season, climate
▪ What is the dominant religion? ▪ Are there local characteristics, such as multiple belief systems? ▪ How strongly do communities follow their faith and how active are religious institutions in daily life? ▪ How do religion and culture affect how communities understand and manage disease and faith, e.g. burials and funeral rites, traditional medicine? ▪ How can funeral rites during outbreaks take into account cultural practices? Example: During the Ebola outbreak in southern Sudan (2004), traditional mourning and burial rites were suspended. In these communities, mourning and burial rites are a way to manage misfortune; without proper burials, the spirit is thought to wander and could bring bad luck to those left behind.	▪ Do communities have the means to put into practice risk reduction practices, e.g. replacing personal items that might have to be destroyed. ▪ Will local jobs and sources of income be affected, e.g. will marketplaces be closed and vendors and hunters lose income? ▪ Will sources of protein be lost or reduced, and how will they be replaced? ▪ Will communities be able to access services? How will they get to clinics and hospitals, e.g. bus, foot, bicycle? Example: Outbreaks of avian influenza will affect nutritional status and food security if poultry is the main source of local protein and food.	▪ Which main ethnic and cultural groups are affected by the outbreak? ▪ What is the relationship between local authorities and local communities? ▪ How trusting are local communities of authorities? ▪ Is there conflict or tension that might affect how outbreak response is perceived and managed by local authorities? ▪ What are the relationships between health staff and management at national and local levels? Example: During the Marburg outbreak in Angola (2005), medical staff took advantage of the outbreak to demand payment of unpaid salaries before responding to the outbreak.	▪ Will seasonal, climatic or geographical factors affect outbreak response, and are special arrangements required, e.g. will it be easy to reach affected communities and will this have implications for fuel and transport? ▪ Do communities have different practices according to the season? Example: During the avian influenza outbreak in Turkey (2006), some communities brought their animals indoors to protect them from the cold. In some communities in Africa, poultry are kept in structures that have only small doors, for security. Hence, only children take care of poultry.
Where to obtain further information: Religious leaders, traditional healers, health workers, local communities and women's groups	**Where to obtain further information:** Local authorities, trade groups such as chambers of commerce, vendors and market owners, shopkeepers, community members, women's groups	**Where to obtain further information:** Representatives of local institutions and organizations, traditional authorities, religious groups, nongovernmental organizations, and women's groups	**Where to obtain further information:** Local authorities, nongovernmental organizations, United Nations agencies, local communities, and women's groups

As a result of this exercise, the preliminary behavioural objectives might be:

- People with symptoms must come within 24 h to the nearest health centre for appropriate diagnosis and treatment.
- Avoid physical contact with infectious people.
- Cook food thoroughly.

Remember that these are *preliminary* objectives. Once you have outlined your objectives and specified which behaviour might reduce the risk for infection and spread of the outbreak in

communities, you should conduct a situational market analysis (Step 2) to determine whether the objectives are feasible, practical and culturally appropriate. On the basis of this analysis, you will refine and finalize your behavioural objectives.

'SMART' objectives

At this point, your objectives will not be specific enough. In step 3, when you define and review the completeness of your behavioural objectives, you can assess them against the 'SMART' criteria. Are they:

Specific?	Vaccinating everyone between the ages of 9 months and 14 years of age with yellow fever vaccine
Measurable?	Reaching 45 000 people
Appropriate?	50 locations chosen with community representatives that are easily accessible points for the population
Realistic?	Enough staff and financial resources have been allocated to make this possible.
Time-bound?	Vaccinations will be given over 2 days, on 24 and 25 October 2011.

Setting 'SMART' objectives is important in outbreak settings, as there is a strong link between the objectives and the measures for instigating risk reduction practices. Remember that outbreak control consists not only of sensitizing communities but also of promoting risk reduction in the face of an outbreak.

You can also review your behavioural objectives in relation to the 'five Ws': who, what, when, where and why. A clear statement of an expected behavioural result will specify who is expected do what, when, where and why, and reflects the link between the behaviour and the ultimate goal.

For example:	
Who?	45 000 people (i.e. everyone between the ages of 9 months and 14 years)
What?	Will come or be brought by their caregivers to be vaccinated against yellow fever by health workers
When?	On 24 and 25 October 2011
Where?	At pre-advertised, fixed sites in 50 locations
Why?	Vaccination is the single most important measure for preventing yellow fever and will give 10 years of protection.

You should check that these essential questions are answered in the behavioural objective. Select a limited number (one to three) of desired behavioural outcomes, In making the selection, you should ensure that they will help to achieve the overall goal.

Remember!

Focus on those behaviours that will have the greatest impact in meeting your outbreak prevention and control objectives.

Step 2: Conduct a rapid situational market analysis of the preliminary behavioural objectives

Private sector marketing and its use of anthropological research have taught us two lessons. First, the importance of 'listening to the consumer' in order to move beyond identification of risk behaviour (what people do to put themselves and others at risk) and behavioural objectives (what people should do to protect themselves and others), to understanding the reasons that people do what they do. Secondly, businesses do not sell a product or service, they sell how their product or service meets a need, want or desire that people already have.

A situational market analysis of the preliminary behavioural outcomes helps in understanding the desired behaviour from the perspective of the affected communities. It allows you to identify any socio-cultural beliefs or practices that might be barriers to the adoption of control and prevention measures. With this understanding, you can solicit community engagement to consider practices that will realistically reduce risk. Understanding the culture of the community will help you engage people appropriately to modify behaviour.

The analysis will also highlight problems that cannot be solved by communication alone and will highlight those issues that should be addressed in order for communication to be effective. For example, the analysis will identify the services and drugs that should be available and in place or the importance of adequate knowledge about the rationale for the outbreak and control strategy by agencies and other stakeholders, before you embark on behavioural and social communication targeting at-risk or affected populations.

Tools	
Tool 9	Checklist for conducting a rapid situational market analysis
Tool 10	Semi-structured interviews
Outcome	
■	Identification of barriers and facilitating factors for adopting prevention and control measures
■	A clear understanding of what communication can and cannot do

The situational market analysis also examines how local communities are responding to the outbreak response. Even if you have established a multidisciplinary outbreak response team, many investigations will inevitably be running at the same time. You should determine where there is agreement and where there are differences of opinion and ideas. As demonstrated in responses to severe acute respiratory syndrome and other recent epidemics and outbreaks, coordination of efforts with local and international partners is essential. (Descriptions of how COMBI was applied to respond to outbreaks of Ebola haemorrhagic fever in Sudan and measles in Fiji are given in Section 4, part 3.)

Outbreak control measures in relation to the four Cs of integrated marketing communication

Integrated marketing communication offers a conceptualization of marketing as the 'four Cs', which is more appropriate to health-related behavioural outcomes than the more conventional concept of the four Ps (product, price, placement and promotion). As stated in Section 1, the four Cs allow us to examine the calculation of cost and value of the behaviour for the existing needs, wants and desires of individuals and communities. It identifies the real (rather than assumed) factors that would constrain behaviour adoption or facilitate it.

The first C is 'consumer need, want or desire', rather than the P of 'product'. It focuses on the

consumer and the consumer's perception of need, want or desire, which may be 'at the top of the mind' or hidden. Companies do not create needs, wants or desires; they respond to existing needs or, at best, stimulate those that are latent. Health programmes respond to the need and desire for good health; this need does not have to be created, as it already exists.

In a situational market analysis, you examine what consumer need, want or desire is addressed by the recommended behaviour and explore how this is perceived by individuals. For example, in an animal outbreak that affects humans, preserving animal health is linked to economic stability and food security rather than avoiding sickness. These become key motivators for acting on public health advice.

The second C is 'cost' (in contrast to the P of 'price'), which reflects a combination of monetary, opportunity and effort costs. You should examine the 'cost' of the recommended behaviour in relation to the 'value' promised if the behaviour is carried out. The focus is on the value perceived by the individual and not on 'benefits'; a behaviour may have benefits, but they are not considered valuable to the person. This is the decision-making point for the consumer: if the cost–value ratio is unbalanced, in that the cost seems too high for the value promised, the consumer will reject the offer. In recommending healthy behaviour, this is usually the heart of the engagement with people, facilitating their cost–value calculation and listening to their concerns, fears and reservations.

In the situational market analysis, you should explore the cost–value ratio for the recommended behaviour as perceived by individuals and communities. For example, in the case of infectious diseases transmitted by contact with body fluids of infected people, stopping the normal burial practices of touching and mourning the dead has heavy social costs. Communities must come to a favourable assessment of suspending social practices (protecting those who are still alive) against the perceived cost of not paying respect to those who are dead. This perception will have to be considered in planning the agreement of communities to adapt strongly held practices.

The third C, 'convenience' (in contrast to the P of 'placement') goes beyond the physical place-ment and location of a product and addresses how convenient it is for the consumer to obtain the service or carry out the desired behaviour. Factors such as health centre location, opening hours, the availability of service providers and the nature of the recommended behaviour are dimensions of the third C. The situational market analysis should explore individuals' perception of how easy it would be to carry out the recommended behaviour.

The first C ('consumer need, want or desire') and the third C ('convenience') are part of the cost–value calculation. If the cost (including the convenience factor) is seen as too high in relation to the promised value (linked to 'consumer need, want or desire'), ways must be found to either lower the cost or engage people in seeing the high cost as worthwhile for the promised value. If the cost in terms of convenience is too high, the disease programme might attempt to make it easier for people to perform the behaviour; for example, instead of having people come to a booth for a yellow fever vaccination, it could be delivered at home. This is not a communication issue but a programme issue that might hamper communication to convince people to come to a booth. The situational market analysis brings this problem to the attention of the outbreak managers to help them decide on which strategy to implement and why.

The fourth C, 'communication' (reflecting the P of 'promotion'), is integrated, engaged communication, consisting of a judicious mix of public relations, advocacy, administrative mobilization, advertising, mass media, folk media, community mobilization, personal 'selling', counselling and point-of-service promotion. Communication involves more than a simple focus on promoting a product or service and producing posters, T-shirts and pamphlets; it demonstrates that there is no single 'magic communication bullet'.

Communication is sharing with the consumer information related to the other three Cs: "Here is a marvellous solution to the need you have at a wonderful cost–value ratio and so conveniently available." It involves engaging the consumer in examining the cost–value ratio, which is quite different from simply promoting a brand. It should be done in a massive, repetitive, intensive and persistent way.

Be aware!

Conducting a situational market analysis can be highly frustrating! It can use up to 80% of your planning time, but, if it is done well, the subsequent steps become relatively easy and, more importantly, are more likely to promote community participation in outbreak prevention and control. A strategy and action plan will emerge naturally from the situational market analysis. Even in the emergency situation of an outbreak, time must be found to do this, if only to test assumptions. As you would never calculate an epidemiological curve without collecting field data, you would never produce communication materials and products without getting to know the people affected.

Tools for data collection

Tool 9 is a checklist, which gives you an overview of the kind of questions you might want answered during the situational market analysis. Used in conjunction with tools 6, 7 and 8, it is useful for organizing the collected data, validating what you already know and finding information about:

- at-risk groups and populations;
- languages and ethnicity;
- the communities' knowledge, awareness and perceptions about specific disease and outbreak protocols;
- behaviour and social norms in the communities of interest;
- community understanding of outbreak-related terms, such as 'pandemic' and 'social distancing';
- information sources, channels and settings;
- household and community practices;
- concepts of health and illness;
- the sociocultural, economic, policy and environmental context;
- cultural, religious and traditional practices;
- vulnerable and neglected populations and strategies to address their needs;
- community members' experience with psychological reactions to crises;
- people with influence and social mobilization partners, such as health-care workers, extension workers, animal health workers, policy-makers, local authorities, religious leaders, business owners, teachers, community leaders, women's groups and older children, traditional healers;
- potential obstacles and other factors that might prevent the adoption of emergency measures;
- existing communication capacity and additional needs;
- lessons learnt from past disease outbreaks;
- existing programmes and interventions; and
- other topics unique to the outbreak or community.

The situational market analysis will address questions such as "What existing information can we apply?", "What information do we need to collect?" and "What is the best method for obtaining the information?" Information can be collected quickly by listening carefully to what people are saying about the outbreak and how they perceive and respond to what is happening. In order to obtain the information in the checklist, you will need a combination of tools 8, 9 and 10. The methods include:

- semi-structured interviews, such as interviews with key informants, 'top-of-the-mind' and 'day-in-the-life' analyses with e.g. affected families, health workers, community leaders and social mobilization partners;
- focus group discussions with representatives of the intended groups;
- direct observation of community responses during the outbreak; and
- dialogue with the community (interpersonal communication) and with an existing or created representative group of community members.

If a formal mechanism for community engagement does not exist, you may consider establishing a community advisory board, with members drawn from the local community, to promote community participation. This will require knowledge of the local culture to ensure the "right" people are representatives. The board could collect and analyse information in order to set priorities. This is particularly important in

outbreak settings, where communities are asked to adapt rapidly to new conditions and adopt new measures at a time of great risk and uncertainty. The community advisory board should also collaborate with the technical subcommittee and, when appropriate, could serve as an expanded version of that subcommittee.

Of the various research tools used in data collection, you should decide which will be most appropriate for your circumstances. The tools discussed in the section on analytical tools are specific to outbreak settings.

Important points to remember

- The scope of the situational market analysis will depend on the resources available. The analysis should be done systematically, first by checking assumptions made on the basis of initial discussions with health staff and members of the outbreak response team.

- During a situational market analysis, it is important to triangulate and cross-check whether similar (or different) themes arise from discussions with different groups. This will help to verify concerns or identify issues that require deeper investigation.

- If designed well, the situational market analysis will assist in future monitoring and evaluation to assess progress against the objectives. Assessment against the baseline or 'before intervention' is achieved by using carefully selected indicators and data collection methods, both while the outbreak response is under way and after it is over (Step 6).

Take time to familiarize yourself with these tools, and be flexible when using them. For example, you can incorporate a 'day-in-the-life-of' or a 'top-of-the-mind' analysis into a focus group discussion. Similarly, during direct observation, you will collect information that will guide focus group discussions. In Step 3, you will collate and analyse the information collected during the situational market analysis. It is therefore important that you plan the collection of information carefully to ensure that you obtain as much relevant information as possible.

Step 3: Refine the behavioural objectives, state the communication objectives

The next step is to collate, analyse and use the collected information to refine the behavioural objectives and define the communication objectives. These will then guide you in designing the strategy and COMBI plan.

Tools	
Tool 11	Behaviour adoption: HIC-DARM
Tool 12	Template for channels and settings
Tool 13	Identifying key communication and non-communication issues
Outcomes	
■	Behavioural objectives
■	Communication objectives

Restating the behavioural objectives

The first step in designing a strategy is to restate the behavioural objectives on the basis of the results of the situational market analysis. Tools 9–13 are designed to help you organize and analyse the data collected. Having done this, you can then restate your behavioural objectives. Please take a moment to familiarize yourself with all the tools and to understand the purpose of each one.

If yellow fever is used as an example, on the basis of the situational market analysis and subsequent team discussions, you might arrive at final behavioural objectives such as:

Overall goal: To contribute to the control of a yellow fever outbreak in Utopia district

Behavioural objectives:

■ To prompt approximately 45 000 people (i.e. everyone between the ages of 9 months and 14 years) in Utopia to come (or be brought by their caregivers) to the nearest fixed vaccination site and accept yellow fever vaccination from health workers on 24 June 2008

■ To prompt approximately 400 000 people (i.e. everyone except pregnant women, infants under 9 months of age and very sick adults) in Utopia to accept yellow fever vaccination from health workers at their homes between 24 and 26 June 2008

■ To prompt approximately 20 000 at-risk people in Utopia to assume, during the period of the current yellow fever outbreak, that any symptoms of fever and headache are yellow fever and to seek immediate (within 24 h) diagnosis and care from their nearest health centre.

Tool 13: Identifying key communication and non-communication issues

By analysing the results of the situational market analysis and reviewing the behavioural objectives, you will be able to distinguish what your behavioural and social communication strategy will and will not be able to achieve. You can now start to define your communication objectives.

Tool 13 should help you to identify what you should consider in designing your strategy. The left-hand column of Table 6 lists emerging issues for your behavioural and social communication strategy, such as the need to persuade households to chlorinate their water. The right-hand column contains a list of emerging issues that cannot be tackled by behavioural or social communication but require hardware and consumable items, such as an adequate supply of chlorine tablets. This tool can be used to identify the prerequisites for effective implementation of the behavioural and social communication interventions, with the example of a cholera outbreak.

Table 6. Tool 13: Identifying key communication and non-communication issues; example of cholera outbreak

Emerging Issues that can be addressed by communication and social mobilization interventions	Emerging Issues that require non-communication interventions

■ Persuade households and families about the rationale for chlorinating water for consumption
■ Persuade families of the importance of having clean water from chlorinated communal pumps
■ Persuade households and families of the need to use latrines and wash hands after use
■ Persuade households that the cost of chlorination is worth the value they receive, even if chlorinated water tastes 'odd'
■ Cultural perceptions of what is 'dirty' and 'clean' and how the disease can be spread
■ Notion that it is culturally unacceptable for males and females to use the same latrine, even within the same household
■ Poor maintenance of communal pumps
■ Persuade households and families to act differently now, even If cholera outbreaks are common
■ Rumours that chlorination causes impotence
■ Groups that need special communication
   ■ Women and young girls who fetch and use water
   ■ Men who will influence the family's acceptance of chlorinated water
   ■ ndividuals and agencies responsible for maintaining communal pumps
	■ Appropriate, adequate supply of chlorine tablets available to households
	■ Quality assured system for water chlorination at communal pumps
	■ Adequate chlorinated water for all households served by the communal pump
	■ Available, accessible supplies of soap if its use is being promoted, e.g. cost for poorer households
	■ Location of communal pumps: if not conveniently located, a temporary water supply may be needed closer to households

Table 7. Tool 14: Defining behavioural and communication objectives;
example of yellow fever

Behavioural objectives	Communication objectives to achieve the behavioural objectives
■ Population ■ To prompt approximately 45 000 people (i.e. everyone between the ages of 9 months and 14 years) in Utopia to come (or be brought by their caregivers) to their nearest fixed vaccination site and accept yellow fever vaccinations from health workers on 24 June 2008	■ To ensure that XX people in (district/village) understand that there is yellow fever in their communities ■ To raise awareness of the seriousness of the situation and the importance of preventive action during the outbreak ■ To ensure that XX people in (district/village) receive clear, accurate information about the signs and symptoms of yellow fever, where to get help and what they need to do during the outbreak ■ To address concerns about vaccine safety and side-effects
Health-care workers ■ To ensure that all health workers serving the XX population (district/village) are able to diagnose, treat and communicate information and advice about the yellow fever outbreak	If knowledge is an issue: ■ To ensure that XX health workers serving XX population (district/village) are aware of and understand the recommendations, polices and response interventions If trust and vaccine safety are issues: ■ To ensure that all XX health workers in XX (district/village) understand and are convinced of the efficacy and safety of the vaccines being used If capacity is an issue: ■ To ensure that XX health workers in XX (district/village) are able to recognize early signs and symptoms of yellow fever If providing appropriate information to patients is an issue: ■ To ensure that XX health workers in XX (district/village) are convinced of and are able to communicate effectively the importance of early diagnosis and vaccination and the benefits and risks of the vaccine to XX caregivers in XX (district/village)

For HPAI, the behavioural and communication objectives may show the pattern illustrated in Table 8.

Tool 14: Defining behavioural and communication objectives

COMBI largely involves carrying out a variety of communication actions that contribute to achieving specific behavioural outcomes. Once you have defined your final behavioural objectives, you should identify what you need to communicate, to whom and under what circumstances in order to achieve the objectives.

During the situational market analysis, you should have identified key facilitating factors and constraints to achieving your behavioural outcomes. This is where your communication interventions are used. For example, the situational market analysis might have indicated people not knowing where to receive treatment as a constraining factor. In this case, communi-

cation should focus on point-of-service promotion, the objective being to make people fully aware of where treatment centres are located.

If the situational market analysis indicated that people are concerned about the side-effects of drugs, a communication objective would be to reassure them by explaining what the side-effects are, why they occur and where to get help.

The behavioural objectives of an outbreak response are the basis for the communication objectives, and several communication objectives may be directed to securing the intended behavioural result. Examples of behavioural and communication objectives for a yellow fever programme are shown in Table 7.

Table 8. Tool 14: Defining behavioural and communication objectives; example of highly pathogenic avian influenza

Behavioural objectives to reduce risk	Communication objectives to achieve the behavioural objectives
- To ensure that XXX households in [location] with backyard poultry: - Report suspected avian cases to local veterinary authorities within 24 h - Report suspected human cases with high fever after contact with sick birds or animals to local health authorities within 24 h - Separate their poultry from contact with humans and wild birds by enclosing them by locally accepted, feasible methods	- Ensure that XXX people in [location] receive clear, accurate, timely information on causes and signs of avian influenza in animals and humans and what help is available, e.g. compensation and antiviral agents. - Ensure that XXX people in (location) know where and how to report suspected cases in animals and humans. - Raise awareness of the seriousness of the situation and the importance of preventive action at individual, household and community levels. - Minimize public alarm by appropriately addressing and correcting misinformation and rumours. - Ensure confidence in authorities and agencies is maintained by regular, transparent reporting and community feedback

Establishing specific indicators

Once you arrive at this stage, you should consider how to measure whether the behavioural and communication objectives are being achieved. You should establish specific indicators of the intended changes, which are easily collected during an outbreak. In the example of avian influenza, you would identify how the behavioural objectives of reporting and separation

will be measured, by whom and for how long. Similarly, the communication objectives require specific indicators to capture whether information is readily and easily available, whether risk perception has been heightened and whether rumours are being addressed. (See section on monitoring, Step 6.)

Step 4: Design an integrated strategy

The next step is to restate your behavioural and communication objectives. Once you have done this, you can design your overall strategy. Read the four case studies in Section 4, part 3, to determine the rationale for the interventions used in four different countries and disease outbreaks.

Tools	
Tool 14a	Restate the behavioural objectives
Tool 14b	Restate the communication objectives

Outcomes
■ An integrated strategy linked to the behavioural and communication objectives

The five-pointed star of integrated communication action

A successful behavioural and social communication intervention calls for a judicious, integrated mix of five communication action areas, illustrated in the five-point star in Figure 6. These actions will be integrated into a strategic communication plan (discussed in Step 5) around your behavioural goals. The communication action plan calls for engaging people at all levels of society through a wide array of media and in a variety of settings, such as their homes, clinics, at work, in church, in civic groups, in school and at community events. In doing so, you should broadly outline the proposed communication actions for achieving your objectives in terms of the five communication action areas shown in Figure 6.

Figure 6
The 5 communication action areas

Public advocacy and mobilizing decision-makers and administrative structures involve activities addressed at various levels in order to put the outbreak and its control measures on the political and administrative agenda. They also involve persuading influential people and organizations to advocate and organize support for the proposed interventions. It is essential to mobilize all health staff, so they are fully informed of an emerging public health crisis before it is announced to the public via the media. This ensures that they are aware and support public interventions; it also ensures that their credibility is intact, as their constituents will begin to seek advice and confirmation of the problem from local health centres.

Experience confirms that the public needs a sense of the urgency of a situation and a sense of being at risk in order to consider taking appropriate action. Outbreak and risk communication are essential parts of outbreak management and should be coordinated within this action area.

The mass media (radio, television and print) may be the most accessible forms of information, especially for urban populations, but they should be supplemented with strategies that address communities in rural areas and areas that are difficult to reach.

Public advocacy can include administrative meetings, memos and briefings; use of the mass media (radio, television and newspapers) through news coverage, talk shows, soap operas, celebrity spokespersons and discussion programmes; and meetings and discussions among government representatives, local and community organizations and the leadership.

Community mobilization through involvement and participation is critical to bringing an outbreak under control and mitigating the consequences of a crisis. It involves mobilizing community leaders (political, social and religious, influential people and organizations) and members to discuss the risks associated with the outbreak and what actions can be taken to protect the community. For this, detailed knowledge of the community and its culture is needed. The members may already have experience of dealing with disease outbreaks and have a local approach to prevention and control. While this approach may be different from those used in biomedicine, it may be complementary. It is essential to address community culture, beliefs and practices in order to avoid a negative response to social mobilization.

Community mobilization can be done through: community group meetings; traditional media, such as a town crier; grassroots organizations; schoolchildren; religious institutions; and traditional healers. See Strategies for mobilizing communities during an outbreak, p. 39)

Personal selling and mobilizing local networks and advocates can be done by properly trained personnel directly with communities and families and greatly enhances control efforts. The approach of personal counselling includes careful listening to people's concerns about the proposed interventions so that they can be addressed promptly. This is a powerful means of engaging individuals and households, especially if supported by other strategies.

Community development workers, volunteers and community health workers are often credible, trustworthy sources of information. Schoolchildren are good advocates in the household and communities. Surveys in several countries showed that, although community health workers are often the most trusted sources of information, they are not the most accessible.

Promotional materials and advertising serve to remind communities that there is a problem and that they must be vigilant until the outbreak is declared over. Examples of promotional materials are leaflets, pamphlets, banners, flags, danglers and radio and television spots. These should be used strategically, in the local context. The techniques of advertising (such as flights, branding and positioning) remind people of the benefits of the promoted behaviours and why they should participate and continue to be vigilant. Communication specialists can give advice on how to use and mix such interventions. Messages and materials should be pretested with the intended audience—not with health professionals—before they are produced and disseminated.

Point-of-service promotion consists of visible promotional signs and symbols at service points. It can be used to emphasize the availability and accessibility of support for the recommended healthy behaviour. Public sector health centres are rarely promoted as points of service for particular kinds of health care, and, in many countries, signs promoting the availability of carbonated, sugared water are found more often than a sign pointing to a health centre. People need reminders not only for fairly obvious actions (such as where to buy a carbonated drink) but also for where the health centres are and what services are provided.

Remember!

No single communication activity or material will have the desired behavioural impact. In a COMBI strategy, different but integrated actions that are appropriate to the behavioural objectives are combined. Do not limit yourself to the suggestions given above; you might identify more. The five communication action areas provide a framework for planning activities and tasks. The combination you use will be determined by the information collected during the situational market analysis. Activities and tasks will then be integrated into an overall strategy to achieve the behavioural and communication objectives. Take the time to examine the case studies.

Useful tips

Choose and use appropriate media: Use communication experts, who can give guidance on the choice and mixture of media that will give the best coverage of a defined target group. While the mass media can provide district-wide coverage, local community channels of communication are also effective in reaching people at a more personal level. The mass media can influence decision-makers at all levels to support the programme, and national coverage also gives credibility to district-level activities. Many countries have a 'social cost rate' for the production and broadcast-ing of public health programmes; competitive rates should therefore be explored and negotiated with the director or manager of a radio or television station. Without face-to-face communication (personal selling), outbreak prevention and control is ineffective!

Be creative in using existing channels of communication: It is better to use what exists rather than setting up new systems. If a country has a popular radio drama, explore how to introduce behavioural themes into the script, rather than investing in producing an entirely new soap opera. If there is no tradition of radio soap operas, do not try to introduce such an expensive format.

If there are drummers in the village, work with them. If old-fashioned mobile sound systems on bicycle rickshaws are still used, work with them. New techniques such as mobile phones, SMS and social media may be appropriate for certain groups. Try to have your activities included in exist-ing health shows or as features in newspapers with a health section. Usually, you will not have to pay but just make a strong argument for inclusion of your proposed intervention. Ensure that your strategies reach marginalised groups.

Strive for engaged communication: On radio and television, one of the most popular and inex-pensive formats for engaged communication is talk shows or call-in shows. These formats prompt vicarious interaction and participation. Listeners or viewers feel involved in the conversation or telephone call, even without making the call or being present in the studio. This imagined involve-ment facilitates engagement and reflection on the recommended behaviour.

Address the issue of side-effects: Letting people know about the potential side-effects allows them to prepare for any unusual symptoms after they have received vaccination or treatment, and they will be less likely to worry or panic if they experience a side-effect. They should also be told where to get treatment if they have a reaction to treatment. A simple question-and-answer pamphlet covering the commonest questions people are likely to ask could be prepared and used in briefings and materials for partners in the programme. These will probably have to be updated as the outbreak unfolds and new information becomes available. The media should be briefed throughout an outbreak response.

Think in terms of advertising flights: Think in terms of advertising flights when planning for broad-cast of media spots. For example, broadcast during a 3-week flight, with radio posts six to eight times a day, 5 days a week; television spots two to three times each evening, 5 days a week in the same flight period; and full-page newspaper advertisements about three times a week. Then, leave the public alone for another 2–3 weeks and come back again with a flight of another 3 weeks. Adapt this strategic application of advertising to your prevention and control programme.

Step 5: Prepare implementation plans and a budget

The plan of action should spell out the activities for operationalizing the strategy clearly, comprehensively and in detail. Identify the activities required for achieving your communication and behavioural objectives within each of the five communication action areas listed in Step 4.

Tools	
Tool 15	Detailed plan of action and budget
Tool 16	Monitoring table
Tool 17	Monitoring implementation plan
Outcomes	
■	Detailed implementation plan and budget
■	Monitoring and evaluation plan and budget

The plan of action should include all the preparatory activities as well as detailed tasks for implementing the strategy under each category of communication in the five-pointed star (Figure 6). This step should be completed by the relevant subcommittees, and you should ensure that the stakeholders who will contribute human and financial resources are brought in. The group might also include department and agency decision-makers who will be involved in dissemination, such as the heads of local education departments, churches and nongovernmental organizations. The subcommittee should discuss whether certain activities are feasible, who will be responsible for them, what resources are required and who will finance the activities. Decisions should be made about which activities are priorities.

Tool 15 (Table 9) is a template to help in preparing a detailed plan of action. Use it to list specific activities under each of the five communication action areas, and, against these, list who is responsible, how much the activity will cost and a timeline for action. This example of a planning and monitoring tool shows how detailed activities for each communication action area should be listed, to ensure that the planning team is clear about who is doing what, when and how and that progress is tracked. Working through this template and estimating the cost associated with each activity will allow you to draw up a detailed budget. Depending on the available resources, you may have to set priorities on the activities in your plan.

Table 9. Tool 15: Detailed plan of action for communication interventions

Strategy	Communication intervention							
Mobilizing decision-makers	Task		Responsible person	Budget	June (week)			
					1	2	3	4
	1.1	Prepare a two-page briefing on mass vaccination to be executed on XX. To be prepared in xx languages.	District medical officer		■			
	1.2	Share the briefing paper and social mobilization plan with district departments and nongovernmental organizations that will be directly involved in implementation. Share the plan of action and secure commitment to specific actions.	District medical officer			■		
	1.3	Agree and set up a management and implementation structure to oversee and coordinate the social mobilization plan and organize a schedule of regular meetings.	District medical officer		■			
	1.4	Prepare and distribute a memo to all health personnel in the district, informing them of the mass vaccination plan, urging their support and explaining what they should do.	District medical officer		■			

A thorough, clear plan of action is important for securing resources. You may find that groups and organizations will help if they understand exactly what they can contribute to outbreak control. Agencies may provide funds directly for specific activities or provide in-kind services, equipment or experienced personnel.

Tools 16 and 17: Monitoring table and plan

The plan for effective monitoring should be clearly stated in order to quantify the behavioural and communication objectives for various stakeholders. In order to measure changes during the response phase, you should identify relevant indicators to assess the reach and quality of your interventions, participant satisfaction and early indications of behavioural change.

The following three types of monitoring[8] could be used:

(i) Monitoring of emerging trends and news also makes it possible to keep track of changes in community perspectives, structure and power levels, which may require or suggest adaptations or changes in programme directions. It includes monitoring of rumours and communication hoaxes and their impact on targeted groups and communities.

(ii) Implementation monitoring and process evaluation are used to compare what is supposed to be happening with what is actually happening, by tracking planned inputs and outputs, usually through a basic monitoring system such as your work plan. It also indicates how well activities

8   These steps were adapted from: UNICEF (2008). Essentials for excellence: researching, monitoring and evaluating strategic communication in the prevention and control of avian influenza/pandemic influenza. Paris; and Schiavo R (2007). Health communication: from theory to practice. San Francisco, Jossey-Bass.

are being carried out in relation to e.g. reach, quality, participant satisfaction and stakeholder participation, and allows ongoing refinement of the COMBI strategy. It includes monitoring of intermediate steps (e.g. message retention, awareness and skills) in the process that lead to behaviour adoption by different groups.

(iii) Behavioural monitoring allows measurement of intermediate behavioural outcomes of programme activities in selected participants. It helps explain the result of outputs such as training and how such outputs are linked to the long-term changes envisaged in your objectives. Behavioural monitoring is applied to each community, group and stakeholder (including community members, health workers, business owners, religious leaders, policy-makers and other influential people and partners) considered and engaged in outbreak readiness and response. The findings can be organized and categorized into three stages for each group as 'behaviour readiness', 'behaviour adoption' and 'behaviour maintenance and sustainability'.

Collecting monitoring data

Information for monitoring can be derived from various sources, including meetings and discussions with a crisis management committee, surveillance officers, health workers performing vaccination and people directly involved in health education, social mobilization and community outreach. The complexity of monitoring and data collection will increase with the measurement level. **Implementation indicators** can be verified by routine reporting of progress against e.g. the work plan, meeting reports and attendance sheets. This could be done daily, weekly or monthly, depending on the nature of the outbreak and the outbreak response.

Process and **behavioural** indicators require more research, for example in semi-structured and structured interviews and observations, community dialogue and other activities carried out in collaboration with stakeholders. You will need information to:

- track (and measure) changes in order to assess what has and has not changed since the start of the interventions;

- interpret changes in order to understand why and how change occurred and to what extent any change can be attributed to the interventions or to other programmes (contribution analysis); and

- assess perceptions and attitudes to determine what people feel about any change and what has and has not worked well.

This research should be done at strategic times during outbreak response, e.g. after implementing activities with a specific result, such as broadcasts or interviews on local radio, house-to-house visits or outreach work in marketplaces. Make sure the monitoring includes open-ended questions and participatory research methods to maximize the likelihood of capturing information in categories that you may not have accounted for.

You should set up systems to manage and share all monitoring information, for example by coordinating meetings and supervision, and give regular feedback to technical and management committees. (See the case study of measles in Fiji for a description of how to incorporate behavioural monitoring in epidemic response.)

Step 6: Implement and monitor the strategy

Monitoring and evaluation are important elements of COMBI. We cannot emphasize strongly enough the need for **early planning** of how your interventions will be monitored and evaluated. You should start to define indicators and prepare your monitoring and evaluation plans as soon as you have set out your behavioural and communication objectives (Step 3).

Apply tools 15 and 17 in step 5
Outcomes

    ■ Feedback to measure progress and results in order to adjust the strategy if necessary

The monitoring and evaluation plan will be finalized during Steps 4 and 5, as you plan your overall strategy and draw up a detailed plan of action and budget. In outbreak situations, monitoring the implementation and impact of your social mobilization interventions will allow you to adapt the activities and messages in response to the unfolding situation. The aim of monitoring is to give senior management and other stakeholders early indications of progress (or lack of) in achieving the objectives. Continuous, careful monitoring of relevant indicators and processes generates information for evaluation (Step 7) and, more importantly, early identification of any problems, so that they can be rectified.

The situational market analysis will answer the questions **"Where are we now?"** and **"Will this work?".** Monitoring answers the questions **"How well are we doing?",** "To what extent are the planned activities being realized?" "Are our messages reaching our target groups, and are they clearly understood?" and "Have there been changes in what people and organizations are saying or doing as a result of our communication interventions?" In an outbreak setting, you will probably not have time to conduct the usual baseline surveys to describe the situation before the interventions. The baseline will probably include immediate reactions to and the current context of the outbreak, which will help identify the essential design features of your outbreak communication interventions.

Adjusting the strategy

Monitoring may indicate that your strategy should be changed. For example, during a mass vaccination programme, the teams might experience difficulties in certain locations because of the circulation of negative rumours. On investigation, you might find that the local community leaders have poor understanding of the vaccination programme because they were not consulted and therefore did not contribute to its design; as a result, they are not endorsing and adopting the interventions publically, raising suspicion about the vaccine among community members. If the community leaders you involved were not representative of the area or community, you should perhaps hold special meetings and activities to address this issue. You might also involve local religious leaders or other stakeholders to assess their perceptions about the intervention and to allow them to participate and contribute to the design and implementation of any further interventions and activities.

Example of a monitoring table

Tool 16 gives examples of the questions asked in each type of monitoring and some examples of indicators, methods of collecting information and reporting the findings. These are only examples. A participatory approach to data dissemination and discussion in the targeted communities and stakeholder groups is preferred. The community advisory board should participate in and approve all phases and elements of the research design, data collection, data analysis and data discussion and dissemination.

Step 7: Evaluate once the outbreak is over

The aim of evaluation is to assess the relevance, performance and success of outbreak interventions. Evaluation is used to measure behavioural, organizational and social behavioural changes and to determine the contribution of behavioural and social communication to the changes. Essentially, evaluation answers the question *"How well did we do?"*

Tools	
Tool 4	Frequently asked questions about monitoring and evaluation
Tool 10	Semi-structured interviews
Tool 16	Monitoring table
Tool 17	Monitoring implementation plan
Outcomes	
▪ Impact	
▪ Lessons learnt	
▪ Good practice	

Ideally, an evaluation is a measure of progress made against the initial baseline situation, the information obtained before or during a situational market analysis. You should ask questions such as "Was the response timely?", "Was it appropriate?" and, if relevant, "Were the containment measures effective?" and "What are some of the lessons learnt?" Data are collected throughout programme implementation and then analysed during and after the outbreak.

The two main types of evaluation are: o**utcome evaluation, which** focuses on whether the strategic communication objectives, usually stated in terms of behavioural or social behavioural results, have been achieved within a given time; and i**mpact evaluation, which is an** assessment of the sustainability of any changes found in outcome evaluations. It is used to determine whether the overall goal has been achieved and the contribution made by strategic communication.

At a minimum, an evaluation should allow you to determine whether your interventions made a difference and whether this difference will contribute to future outbreak preparedness and response. This type of research needs time, careful planning and resources and should ideally be conducted by a skilled evaluator or evaluation team. Evaluation is usually resource-intensive, because it should be comprehensive.

The same tools used in the situational market analysis and in monitoring can be used to collect data for the evaluation, such as:

- semi-structured interviews, including 'free listing' and 'top-of-the-mind' analysis;
- unstructured and structured observations;
- focus group discussions and community meetings;
- structured interviews with a questionnaire;
- community dialogue; and
- interviews with stakeholders.

Ideally, the monitoring system should be designed for the collection and analysis of data for impact evaluation.

What evaluation can achieve

The aim of the evaluation should be to capture the perspectives of all stakeholders. This is important in evaluating outbreak control, when events occur quickly, with little time to collect all the information for decision-making. Evaluation is a continuous process, and monitoring and data collection systems should be in place long before the programme is implemented.

Evaluation is used to review the decisions that led to a certain action. It can be used to mend and rebuild trust that might have been breached during the response. It signals accountability to

stakeholders and strengthens relationships that might have to be reactivated if another outbreak occurs. Listening to different stakeholders will help you to:

- make decisions on future operations, policy or strategy;
- identify successful strategies that could be extended or replicated;
- modify unsuccessful strategies;
- use input from stakeholders; and
- share information on outbreak-related issues and obstacles.

Planned evaluation can help communities to come to terms with what happened during the outbreak. It can be an important part of grieving (which may last many years) and provide some closure to outstanding questions and issues. Planned evaluation can also help response agencies to identify their weaknesses and strengths and to find new ways of working together and help authorities to understand which protocols already exist and work well and what needs to be changed or expanded.

Behavioural and social communication should be evaluated in the context of the overall evaluation of whether the outbreak response (including case management, surveillance and laboratory and media elements) was effective.

Questions that might be asked are:

- Are the behavioural modifications needed long term? What are the chances that the behaviour (and therefore prevention of future outbreaks) will be sustained? Was the level of community participation such that the behavioural adaptation will persist in the long term?
- What qualitative information can the evaluation of the behavioural and social communication interventions contribute to the evaluation of the overall outbreak response?
- Did you fully understand the behaviour, social norms and cultural and other factors ? What should be considered in future interventions?
- What are the gaps? How should we address them?

Outbreaks provide unique opportunities for identifying the factors that drive the emergence and amplification of epidemic-prone and new diseases, such as poverty, displacement due to war and lack of access to clean water and sanitation. They also provide opportunities to identify factors for success in preventing and mitigating epidemics and emerging diseases. Most importantly, they give a sharp reminder of the importance of preparedness and readiness.

Behavioural and social communication is critical, and the lessons learnt can be incorporated into longer-term strategies to address developmental, institutional and policy interventions.

Tools and templates for data collection and analysis

Introduction

This section contains descriptions of the tools that can be used for rapid data collection during an outbreak, before, during and after the rapid situational market analysis. Some can also be used during monitoring and evaluation. The tools are designed to help you:

- understand the organizational and programme context and assess what information is already available and what is missing;
- collect information during the rapid situational market analysis; and
- organize your findings to define the behavioural and communication objectives that will be used to design a COMBI plan.

Some of the tools in this section have been introduced and explained elsewhere, and are duplicated for convenience. Before using the tools, it is important to understand their purpose and to choose those that are most relevant to the requirement and context. As what people say they do and what they actually do may differ, a combination of tools and methods should be used to ensure an accurate representation of the situation in the field. For example, direct observation is used to collect information that will help focus group discussions. There is already a wealth of reference material on conducting qualitative and quantitative research and it is not described in detail here. This section provides tools to help you gather data relevant to outbreaks rapidly. Tools 1–7 will help you assess what already exists, tools 8–10 will help you collect information during a rapid situational market analysis, and tools 11–17 will help you to organize, analyse and use the collected information. (See Table 1 page 16).

Tools for understanding the organizational context

Tool 1. Reflective questions for setting up behavioural and social interventions

- How do behavioural and social interventions match overall outbreak management and response? What kinds of behavioural and social interventions should be considered for this outbreak?
- What is the relation between the communication element and other behavioural and social interventions?
- Who is responsible for these components?
- Which partner institutions will be involved, and what are their areas of responsibility?
- What is the management and supervision structure?
- How can information be fed back to assist outbreak management decision-making?
- Who will provide administrative and logistic support?
- What is the existing human resource capacity, and what human resources are needed?
- What are the training requirements?
- Who are the stakeholders and what role can they play (strengths, weaknesses, opportunities and threats)?
- What type of formative research will be necessary?
- What organizations, projects and programmes might have useful information for outbreak control?
- How will you monitor and evaluate your activities?

Tool 2. Mapping stakeholders

Describe and categorize stakeholders.

'Primary' stakeholders are the people who are ultimately affected by the outbreak, such as the beneficiaries and affected communities.

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'Secondary' stakeholders are the people involved in planning and delivering outbreak response interventions, including technical experts, outbreak managers, government sectors and departments, public and private agencies, health-care workers and hospital managers, nongovernmental organizations and social mobilization and communication partners (e.g. community leaders, teachers, religious leaders, women's groups, business owners, older children).

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'Tertiary' stakeholders are entities that are not directly affected but that could influence both primary and secondary stakeholders during the response and recovery, such as neighbouring countries, international media, tourists and the private sector.

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Tool 3. Identifying existing expertise and capacity

What functions and skills will be required for planning and implementing your interventions? Take time to identify existing expertise that you could draw upon in terms of individuals and institutions, and record your findings as shown in Table 10.

Table 10. Example of form for identifying existing expertise and capacity

Expertise and capacity	Yes	No	Contact information
Communication or social mobilization specialist, with emphasis on communication for behavioural and social behaviour impact			
Anthropological or social science research			
Health promotion, health education, information, education and communication, social mobilization			
Extension and animal-health workers			
Community development and outreach workers			
Training and meeting facilitation			
Material production and printing (e.g. graphic design, artist)			
Media relations; writing and editorial capacity (print and broadcast, radio and television producers)			
Marketing and advertising			
Monitoring and evaluation			
Event planning and implementation and other logistics capacity			

You should also determine your needs for logistics and communication infrastructure. Implementation of a successful strategy will require strong logistical backup. You should include an assessment of what exists already, what can be provided and what you will have to do without, and then find alternative solutions.

Be clear about the roles and responsibilities of the different groups and draw up specific terms of reference for each individual and agency that is contracted to deliver products or provide a service. Make sure you understand their capacity and what to expect, and be clear about what resources are available and how the individual or agency will be paid. As many professionals have overlapping competences and knowledge, always operate in a team setting, so that everyone's skills and talents can be maximized.

Remember!

Consider the health and welfare of the personnel involved and give them the necessary information to make informed decisions and protect themselves. People involved in direct community outreach in affected areas may come across sick people or families and should fully understand the potential risks and how to avoid them.

Tool 4: Frequently asked questions about monitoring and evaluation

Describe and categorize stakeholders.

Q1: When should I plan for monitoring and evaluation?

A1: Monitoring and evaluation planning is an integral part of COMBI and should start immediately, with formative research, definition of an adequate budget, human resources and processes for the further monitoring and evaluation components and phases.

Q2: What if I do not have baseline data?

A2: Start collecting data as soon as possible. As change may take some time, you may be able to compare your findings with data collected after the intervention has begun. Ask partners, local authorities and other agencies for relevant information that was collected in similar situations or for similar populations. Remember, some evaluation is better than none.

Q3: What kind of budget should I dedicate to evaluation?

A3: The budget depends on the size and scope of your project and the challenges you may face. As a general rule, the monitoring and evaluation budget should be around 5% and not more than 10% of the total project budget.

Q4: What kinds of research, monitoring and evaluation methods should I use to collect information?

A4: These depend on the cultural context and the situation. For example, in some cultures, focus groups may be difficult to form, as people might be too intimidated to express their opinions in the presence of other community members. In this context, multiple in-depth interviews or anonymous questionnaires before and after an event might be more appropriate. Tracking surveys remain the best method for monitoring behavioural results at various intervals, but other methods should also be considered. This manual includes examples of a variety of tools that are already used in COMBI.

Q5: What is the ultimate measure of a successful COMBI intervention?

A5: While we monitor, discuss and evaluate intermediate steps and indicators, these are important only to give a COMBI specialist an idea of progress being made towards behavioural results. The ultimate measure of a successful COMBI intervention is achievement of the behavioural objectives, which contribute to improving public health outcomes of outbreaks. This reflects standard public health communication theories and practice.

COMBI planning step 1: Defining preliminary behavioural objectives

Tool 5. Defining preliminary behavioural objectives; understanding the context of interventions

Example: Preliminary behavioural objectives for Marburg haemorrhagic fever

The preliminary behavioural objectives defined on the basis of an analysis of the epidemiological risk factors for exposure and transmission and the interventions that could reduce and prevent exposure and transmission of Marburg virus (Table 5) are to ensure that:

- people with symptoms go to the nearest health centre for appropriate diagnosis and treatment within 24 h,
- other people avoid physical contact with infectious people and
- households cook food thoroughly.

Tool 6. Risk factors in the sociocultural context

Example: Marburg haemorrhagic fever (See Table 4.)

Tool 7. Environmental scanning

Example: Marburg haemorrhagic fever (See Table 5.)

COMBI planning step 2: Rapid situational market analysis

Tool 8: Tips for interviewing

- Do pretest the interview schedule and questions beforehand for clarity and to make sure that the questions cannot be misunderstood as offensive or judgemental.
- Do introduce yourself, the reason for the interview and how the information will be used.
- Do try and establish a rapport with the interviewee.
- Do assure the interviewee that what is said will be treated with confidence.
- Do ask the interviewee if he or she minds if you take notes or tape the interview.
- Do record the exact words of the interviewee as far as possible.
- Do keep talking as you write the answers.
- Do keep the interview to the point.
- Do watch for answers that are vague and probe for more information.
- Do provide an opportunity for the interviewee to ask questions and seek clarification.
- Don't offend the interviewee in any way.
- Don't say things that are judgemental.
- Don't interrupt the interviewee in mid-sentence.
- Don't put words into the interviewee's mouth.
- Don't show what you are thinking by changing your tone of voice.

Tool 9: Checklist for conducting a situational market analysis

The following checklist can be used as a guide and adapted as necessary. The goal of the analysis is to ensure that the proposed risk reduction behaviour is feasible and culturally appropriate. You must also identify the ways in which social mobilization and communication can support the public health objectives of outbreak control and the uptake of risk reduction behaviour. Some audiences might require different communication messages and approaches for specific activities.

At-risk groups and populations

- Can particular targets or beneficiaries be segmented or identified? For occupational exposure to the disease, e.g. health workers, traditional healers and abattoir workers; for household or community exposure to the disease, e.g. women who care for sick household members.
- Are there particularly vulnerable or high-risk groups that should be reached?

Knowledge, awareness and perceptions

- What do you know about the culture and practices of individuals and communities?
- What do individuals and communities know about the cause and transmission of the disease?
- What are the local terms or descriptions of the disease?
- What are the individual and community perceptions of the risk posed by the outbreak?
- Have they experienced previous outbreaks, and how have they managed them?
- What are the messages currently circulating within the community?

Information sources, channels and settings

- Where and from whom do people get information and why? Who are the 'trusted' and 'credible' information sources, and what makes them so, e.g. local leaders, religious leaders, health-care staff, influential people (formal and informal)?
- What media or channels of communication are available to promote your messages? Which channels are the most popular and influential? What traditional media are used? What are the current patterns of social communication? What active community networks and structures exist, and how are they perceived by the local population? What other organizations are addressing the issue in the community?
- Which settings are suitable for communication interventions, e.g. clinic, home, village?

Household and community practices

- What are the current health-seeking and health-care practices?
- Do the existing practices amplify the risk, and what beliefs and values support them?
- Are there existing practices that reduce risk, e.g. hand-washing, cooking food thoroughly, chlorination, and what beliefs and values support them?
- How are decisions made about seeking health care in communities and households?

Sociocultural, economic and environmental context

- Are there social and political tensions that would affect adoption of risk reduction practices?
- Do people have access to sufficient resources to implement the risk reduction practice? Do they have access to clean water? Are health services available and accessible? Is it difficult to transport sick people to clinics or hospitals?
- Are there traditional beliefs and social norms that might stop people from implementing risk reduction practices? And are there traditional beliefs and social norms that might favour implementation of risk reduction practices?

Tool 10: Semi-structured interviews

Semi-structured interviews are useful for collecting information during a situational market analysis and during monitoring and evaluation. Open-ended questions with probes and prompts are used to elicit a wide variety of detailed responses on topics of interest. Who your informants are depends on the local context, but they might include child caregivers, local health service personnel, traditional healers, community leaders (elected or self-appointed), religious leaders, government officials and members of nongovernmental organizations.

A number of tools can be used for semi-structured interviews.

Free listing

The respondent is asked to say what comes freely to mind in answer to a specific question posed by the interviewer. For example:

- What are the common diseases of poultry in this area? [asked of a poultry farmer or wet-market butcher during an avian influenza outbreak]

- What are the local names for 'mosquito' here? [asked of a child caregiver, traditional healer, nurse or local shop-keeper selling medicines during a yellow fever outbreak].

- What preventive methods do people have to manage yellow fever here? [asked of a child caregiver, traditional healer, nurse, or local shopkeeper selling medicines during a yellow fever outbreak]

- What are your main concerns about [local term for e.g. avian influenza, Ebola haemorrhagic fever, yellow fever]?

- What kind of information do you need or would you like to have?

- Where do you obtain most of your information at present?

- How do you want information to be given to you?

- Do you know whether any particular group of people requires special information?

- Do you know whether another language or dialect is spoken in the community?

Focus group discussion

Focus group discussions can be used during a rapid situational market analysis and during monitoring and evaluation. Groups of 6–12 participants are manageable. Participants are not selected randomly, and you should make sure that the groups are homogeneous. If you visit several places to conduct semistructured interviews, you could organize two focus groups in a few communities (men and women separately if necessary). Spread the focus groups across each of your strategic communication settings.

Representatives of participant groups are usually sufficient for each discussion, such as child caregivers, government officials, local health service personnel, traditional healers, community leaders, religious leaders and members of nongovernmental organizations. Always collect background information on the respondents so that you can characterize the people interviewed, and give these details in your report.

Skilled facilitation of discussions is extremely important. Open-ended questions with probes and prompts are used to elicit detailed responses on topics of interest. For example, a focus group discussion around a given disease outbreak might include questions such as:

- What are the common diseases in this community?

- What is the most important disease?

- What about (the disease that is experiencing an outbreak) [use local terms obtained from earlier free-listing]?

- Who is responsible for looking after children in this community?
- Who usually first detects illness in children?
- Who decides what should be done about the illness? We are interested in knowing everyone involved.
- If a child gets (the disease that is experiencing an outbreak), what treatment is given here? What is the first treatment usually given? Who decides?
- Under what circumstances would you send a child with (the disease that is experiencing an outbreak) to a (name one by one the different treatment options available in the community)?
- How can (the disease that is experiencing an outbreak) be prevented?

Top-of-the-mind analysis

A 'top-of-the-mind' analysis allows you to explore people's perceptions of and immediate associations with the outbreak and the outbreak control interventions. It involves simply asking people to say the first thing that comes to their mind when they hear a particular word or phrase (linked to the behaviour or service being explored), then the second thing that comes to mind, then the third. In this way, after a round of questioning, you acquire a sense of what is on the minds of your beneficiary group. This can be done quickly, on the spot, as you are conducting interviews or meeting people. It gives a rapid insight into what people are thinking and feeling about an issue and helps you to define your behavioural and communication objectives.

First, identify the purpose of the tool. You might want to compare the perceptions and associations of different groups on the same topic, for example community members and health workers on 'isolation' or 'cholera'.

Secondly, explain the process, so people understand what you are trying to do. Try a few associations with words not related to the topic you are exploring. What is the first thing that comes to mind when I say 'insert word'? What is the second thing that comes to mind when I say 'insert word'? What is the third thing that comes to mind when I say 'insert word'?

Thirdly, interpret the results. Simple software such as Excel® can be used to generate graphs from the data collected.

Fourthly, use the data. A 'top-of-the-mind' analysis can provide useful information for developing messages and interventions. Look for where there is overwhelming consensus or dissension as this will give you clues about areas that require further investigation or when current perceptions and associations should be changed.

Day-in-the-life-of and moment-in-the-life-of analyses

A 'day-in-the-life-of' analysis is used to explore the situations and daily context for which risk reduction behaviour is being recommended. This type of analysis is used to record the daily activities of the people you wish to engage, from the time they get up to the time they go to sleep. It helps you to identify communication contact points, settings and channels and to localize the suggested behaviour in their daily lives. This provides a better understanding of the factors that would support or act as barriers to adoption of the behaviour. It helps answer the questions "How can we give individuals and families information?", "What is the most appropriate channel or location for providing information?" and "How can we reduce the 'cost' of the proposed behaviour if it poses a problem in daily activities?"

For instance, a day-in-the-life-of analysis might reveal that most adults in the community are away from home most of the day, working in the fields. This will raise various strategic questions, such as "How can we provide information to this group of people?" and "How can we reduce the 'cost' of the recommended behaviour, by making it less difficult for them to leave their fields to be vaccinated?" The results of the analysis might be recorded as follows:

Name and occupation: Location:		
Time of day or segment	Activity	Observations and notes: Opportunities for promoting risk reduction practices, e.g. settings, channels and languages
Morning		
Mid-day		
Afternoon		
Evening		

Are there any foreseen challenges or difficulties in carrying out recommended risk reduction practices?

The aim of a 'moment-in-the-life-of' analysis is to capture the 'cost' of a behaviour at the moment it is to be performed. Role playing or simple observation reveal the actions required to perform a recommended behaviour. What might appear to be straightforward (e.g. go to the clinic for vaccination) might be extraordinarily complex. A moment-in-the-life-of analysis can reveal obstacles, attitudes and opportunities that were not previously considered. If we can appreciate the process of performing a given behaviour and how people react to it, we can better prepare them for the moment of action and help to facilitate its acceptance. A moment-in-the-life-of analysis helps us to get into the mind of our 'customers', to understand what may go through the minds of household members at the moment of action. This will show what can be done to help foster acceptance of the behaviour being recommended.

A moment-in-the-life-of analysis should be based on:

- what people have to do to perform the behaviour (e.g. travel, find someone to look after their children) and how convenient is it to adopt the behaviour (e.g. take four to seven tables at one time);
- the role of volunteers or institutions: whether they encourage or discourage the behaviour;
- the burden on the individual (e.g. financial, convenience, reputation, economic, physical discomfort) to undertake the action; and
- the obstacles that could be removed or better explained at the outset to make the behaviour easier to accept.

COMBI planning steps 3 and 4: Refining objectives and designing an overall strategy

Tool 11: HIC-DARM

This tool helps you determine your target groups and the level of the messages for different groups. HIC-DARM provides a framework for 'market' segmentation, which allows you to identify priorities within the population and direct particular messages or actions to them. In general, a segment is a subset of a larger population that shares certain characteristics. The two main advantages to segmentation are that you can meet the needs of smaller segments better than if you target everyone, and, if you are operating with limited resources, you can become more efficient and effective if you determine which segments require more resources than others and tailor your strategies accordingly.

With HIC-DARM you can segment your target groups in relation to where they are within the behaviour adoption process. Each dimension of HIC-DARM calls for an appropriate communication intervention. It might help to think of HIC as the information part, when you assess people's understanding of the disease, how it is transmitted and where people should go for treatment. DARM relates to the interventions and getting people to take action. If you find that most people haven't heard about the disease, you should concentrate your activities on informing them about the disease and the prevention and control programme. If people already have this information, you might concentrate on convincing them to take action by publicizing endorsements of people who have already taken action and what it did for them. In reality, you will need a mixed strategy to deal with the spectrum of behavioural and communication challenges.

Tool 12: Template for channels and settings

This tool will help you to establish the most appropriate channels, voices and settings for your communications. To design your strategy, you need good understanding of the communication environment. MS.CREFS describes the communication process: a **M**essage from a **S**ource, sent via a **C**hannel to a **R**eceiver with a certain intended **E**ffect and opportunities for **F**eedback, in a particular **S**etting. An MS.CREFS analysis will allow you to establish the most appropriate channels, use existing structures, identify the most credible voices to carry your messages and find the most suitable settings for different audiences. It also allows you to identify where problems are likely to occur. Using a combination of analytical tools, you should obtain the following information as part of an MS.CREFS analysis.

Message

Message development is a complex art and is a synthesis of various factors. The final message(s) will be informed by the combination of the behavioural objectives, the effect being sought, and the channels and materials used. Messages should focus on what people can do, both individually and collectively. They should address specific actions that could prevent exposure, prevent infection and stop further transmission.

You should also understand the current messages circulating about the disease and the related behaviour. What information do people want or need? What language(s) are appropriate? What messages may trigger action? Are there any persistent rumours? Can you anticipate any negative messages that might circulate and create a problem?

Messages need to be tailored to the disease and reflect local sociocultural and economic realities. The language used must be easily understandable and not too technical. The central message should be clear; giving too many messages can be confusing and could put people in a position in where they will prioritize which actions to take or they may be overwhelmed by the number of things to do - and simply do nothing.

The types of messages and relevant concepts in the health communication literature[9],[10] that are useful in outbreak settings are:

Types of messages:

◻ *rational appeal*, the delivery of technically sound information, which appeals to logic and common sense;

◻ *emotional appeal*, intended to elicit an emotional response, e.g. feeling good, laughing, amazement, shock;

◻ *threat (fear) appeal*, which there is much controversy for use in public health campaigns. Fear appeals are used with caution in non-emergency health programmes, such as for smoking and heart disease. In an outbreak, fear and anxiety may already be present, depending on the outbreak (such as rapid spread of a highly infectious disease), whether of known or unknown origin. Messages may therefore have to address existing fears and concerns.

Relevant concepts:

◻ *perceived threat,* consists of perceived susceptibility (the degree to which a person feels at risk for experiencing the threat);

◻ *perceived severity*, the magnitude of harm expected from the threat);

◻ *perceived self-efficacy,* one's confidence in one's ability to take the recommended action; and

◻ *perceived response efficacy*, one's belief that the recommended action will have an effect.

In a study on emergency readiness and health behaviour in the USA, Paek et al.[11] found that campaigns to increase people's perceptions of self-efficacy and response efficacy were more effective than those that emphasized such issues as the likelihood or potential severity of emergencies and disasters. They also found that emotional appeals based on subjective norms, i.e. those that appealed to what the family and loved ones might think or want, might be effective. In addition, to increase self-efficacy, you should identify the barriers, e.g. knowledge, skills, cost, belief and emotions, that inhibit a person's perceived ability to perform an action, and you should address these directly in the strategy.

Sources

Who are the currently credible, trustworthy sources of information in the community? What makes them so? Are there particular individuals (sports personalities, actors, politicians) who would be seen as credible, trustworthy sources of information? Do credible, trustworthy sources have particular characteristics that the community holds dear? For the particular behaviour being promoted, who might be credible, trustworthy sources of information about the behaviour in the community? To what extent is the health staff a credible and trustworthy source of information? To what extent do their training and appearance (e.g. a uniform) enhance perceptions of credibility and expertise? To what extent are teachers and schoolchildren sources of information?

The credibility of the person who delivers the message influences the degree to which it is accepted. For instance, people may pay more attention to a message if a well-known doctor rather than a local shopkeeper delivers it, and a young person might be more likely to persuade other young people to take action rather than an older person, who may be seen as authoritarian. Remember that appearance makes a difference in how a source is perceived; therefore, care and sensitivity should be shown in dressing and presenting oneself. Credibility, expertise, trustworthiness and empathy are important.

9   Siegel M, Lotenberg LD (2007). Marketing public health strategies to promote social change. 2nd Ed. Sudbury, Ontario, Jones and Barlett.

10 Evans WD, Hastings G (2008). Public health branding, applying marketing for social change. Oxford, Oxford University Press.

11 Paek H et al. (2008). Applying theories of behaviour change to public emergency preparedness: implications for effective health and risk communication. Paper presented at the 94th Annual Convention of the National Communication Association, San Diego, California, TBA. Available from http://www.allacademic.com/meta/p259806_index.html (last accessed 16 February 2011).

Channels

What are the existing channels of communication in the community? What communication channels were used in past health communication campaigns? What channels have been used in political campaigns? Are there community meetings as part of the local governance structure? Are mass media readily available? What proportion of the community has and listens to the radio or watches television? How many read newspapers? What are the popular radio and television channels or programmes? What are the most widely read newspapers? What traditional media are used for communication? Are houses of prayer potential channels of communication for health messages? Are there places where people congregate (formally or informally) and share information? What new, inexpensive channels of communication can be introduced to the community? Are there skilled advertising agencies in the community adept at using the available channels of communication?

It is important to identify the most appropriate channel, either mass media (radio, television and news-papers) or interpersonal channels, such as door-to-door visits, traditional theatre and community meetings. Non-verbal communication, including the body language, facial expressions and posture of the person delivering a message are important. The right channel must be used for the right target audience; generally, the most effective strategy is a selective mix of channels. A campaign that is overly reliant in the media or on interpersonal communication will not be as effective as one that blends the two. With one reinforcing the other, media messages can reach and reinforce those delivered intrap-ersonally or by other means, resulting in more effective reach and communication. Consider the use of new techniques such as SMS, mobile phones and social media.

Feedback mechanisms

What feedback mechanisms are available in the community that would make it possible to determine whether messages are being heard and understood as intended? What feedback system might have to be put in place for such a check if ir does not exist? It is important to ensure that communication interventions are appropriate and effective and engage the receiver. Feedback provides such assur-ance and allows fine-tuning of communication actions.

Settings

In what setting will the various communication interventions envisaged take place? At people's door-steps? In their living-rooms? At health centres? Under trees? In facilities with or without electricity? In the village chief's courtyard? In a school hall? On the road? How does the setting affect the design of the communication intervention? Do particular settings suggest convenient times for communication action?

The setting can facilitate or hinder communication. Too much noise, an inappropriate time, a setting that is inappropriate to the subject being discussed, too many distractions or a setting that is too hot or too cold affect how messages are heard and interpreted. Locations such as religious venues, health centres, cafes, marketplaces and schools have unique features that affect the dynamics of communi-cation, which must be considered in planning the five COMBI communication actions.

Identify the target audiences and the effect being sought by the messages in order to determine who should deliver the messages, how and when (Table 11).

Table 11. Tool 12. Template for channels and settings

	Audience		
	Households (caregivers, decision-makers)	**Community health workers, traditional healers, religious leaders, volunteers, extension and animal health workers, village leaders**	**Media (local, national, international)** **Journalists, producers, editors, owners**
Sources of Information that are trustworthy and credible	Health workers Traditional healers Religious leaders Village leaders Volunteers	Peers Hierarchy (administration) Other agencies	First-hand accounts of experience Expert knowledge and opinion Institutions and agencies
Channels of information dissemination	Word of mouth Local radio Group meetings Face-to-face meetings Information leaflets and posters Mobile phones	Memos and circulars Standard operating procedures Telephone, mobile phone Information leaflets Group meetings Face-to-face meetings	Telephone, mobile phones E-mail Face-to-face meetings Group meetings Press releases and briefings
Feedback to ensure that the strategy is effective	Interviews (key informants) Self-reporting Observation	Reporting Observation	Media surveillance Journalists' reports to health officials Accuracy, consistency and correlation of health advice in media with public health advice
Settings (locations)	Houses Neighbourhoods Villages	Health clinics Training venues Meetings	Press briefings Interviews and interview opportunities (e.g. events such as drug distribution and locations like local hospitals) Informal

Tool 13: Communication and non-communication issues

This tool can be used to identify what should be in place to ensure that behavioural and social interventions can work effectively. An example of emerging issues in a cholera programme that require these two types of communication is given in Table 6.

Tool 14a. Restate the behavioural objectives

Have the objectives changed as a result of increased understanding of the sociocultural context? Remember that the objectives should state who should do what, when, where, why and how. This will provide the basis for your strategic plan. The next stage will help you to define the overall strategy to achieve the behavioural and communication objectives.

An example from a dengue haemorrhagic fever programme.

The three main behavioural objectives for reducing risk are:

- to prompt residents in every household in xxx district to carry out a 30-min inspection of their houses every Sunday, both inside and out, for potential mosquito larval sites over the next xx weeks (x date–x date);

- to prompt every person with fever during the next xx weeks to assume that it is dengue haemorrhagic fever and to go immediately (at least within 24 h) to the nearest health clinic for diagnosis and treatment; and

- to prompt every village, community or block to form a dengue volunteer inspection team to conduct weekly larval site inspections around the community (not within houses) and to take action to rid the area of the breeding sites.

Tool 14b. Restate the communication objectives

In the example above, the communication objectives for achieving the behavioural objectives are to ensure that:

- xx people in (district/village) understand that there is a potential outbreak of dengue haemorrhagic fever in their communities and to raise awareness of the seriousness of the situation and the importance of preventive and control actions;

- xx people in (district/village) and dengue volunteer inspection teams receive clear, accurate information about the signs and symptoms of dengue, where to obtain help and what they should do;

- all health-care professionals in public and private clinics serving xx people in (district/village) are able to diagnose rapidly and give appropriate treatment and advice on dengue; and

- information on the outbreak, how it is being managed and the measures being taken to provide rapid diagnosis and treatment is communicated in a timely, relevant manner.

COMBI planning step 5: Developing detailed plans of action and a budget

Tool 15: Detailed implementation plan

The example of a planning and monitoring table below lists detailed activities for each communication action area. This ensures that the planning team understands who is doing what, when and how, and that progress is followed-up.

Table 9. Tool 15: Detailed plan of action for communication interventions

Strategy	Communication intervention						
Mobilizing decision-makers	Task		Responsible person	Budget	June (week)		
					1	2	3	4
	1.1	Prepare a two-page briefing on mass vaccination to be executed on XX. To be prepared in xx languages.	District medical officer					
	1.2	Share the briefing paper and social mobilization plan with district departments and nongovernmental organizations that will be directly involved in implementation. Share the plan of action and secure commit-ment to specific actions.	District medical officer					
	1.3	Agree and set up a management and implementation structure to oversee and coordinate the social mobilization plan and organize a schedule of regular meetings.	District medical officer					
	1.4	Prepare and distribute a memo to all health personnel in the district, informing them of the mass vaccination plan, urging their support and explaining what they should do.	District medical officer					

COMBI planning steps 6 and 7: Monitoring and evaluating interventions

Tool 16: Develop a monitoring table

The tool below lists examples of questions asked in each form of monitoring, with some examples of indicators and methods of collecting the information.

Key questions	Indicator	Data collection method
Are activities being implemented as planned? Are outputs being delivered as planned? Are activities within the budget?	On the basis of the implementation schedule, plan of action and budget, for example: ■ number of participants in meetings ■ number of posters produced and distributed ■ number of radio spots aired ■ number of volunteers trained and engaged in social mobilization ■ number of households visited ■ costs within budget	Activity reports Attendance sheets Financial reports
Process	**Indicator**	**Data collection method**
Is the message or activity reaching the people for whom it was designed? Is participation good? To what extent are outbreak interventions being adapted to local needs? Is there a recent change or trend that should be considered? Are there any changes in the social, political or policy context that might affect the control measures and the COMBI strategy?	Examples of quantitative indicators: ■ % of target population who have heard or seen messages and activities ■ % of target audience who understand, like or agree with messages ■ % of target audience who know the symptoms of the disease ■ numbers of women and men who have been actively involved in social mobilization and other outbreak control interventions Examples of qualitative indicators: ■ Existence of circulating rumours or messages that promote non-participation ■ Participants feel that their concerns and ideas are taken into account by the local outbreak management committee ■ Interventions are perceived as relevant and responding to the expressed needs of the target population ■ Examples of quantitative indicators ■ % accurate media reporting and coverage ■ Examples of qualitative indicators: ■ Evidence of communication hoaxes that undermine response strategies ■ Evidence of conflicting messages	Rapid surveys, interviews and observation through: ■ central location intercept interview ■ focus group discussions ■ observation at service and delivery points ■ interviews with field personnel involved in outbreak response ■ observation of field staff carrying out interventions in local communities ■ review and analysis of media coverage Informal conversations and meetings with key. grass roots organizations, journalists etc

Table 12. Tool 16. An example of a monitoring table

Behaviour	Indicator	Data collection method
As a result of the interventions, are target populations adopting the desired behaviour? Objective 1 Objective 2 Objective 3	Examples of quantitative indicators: ■ % of target population who have adopted the desired behaviour ■ % who can describe risk reduction practices and say they are carrying them out Examples of qualitative indicators: ■ Members of target populations believe that the proposed behaviour is effective in reducing risk ■ Observation of applied risk reduction practices	Local authority report cards Rapid survey Health facility data or investigation forms Focus groups Key informant interviews

Table 13. Tool 17. An example of a monitoring implementation plan

Indicator Description (include quantitative and qualitative parameters)	Activity (for implementation and some categories of process monitoring ONLY)	Baseline	Expected Change/	Data Collection Method	Frequency of data collection	Responsible Organization
Sample implementation indicators: Attendance and quality of participation in local meetings re: outbreak control and response	■ Community meetings and dialogue ■ Workshop, Health fair or point-of-service	If your meeting is part of a series, or builds upon a previous event, compare with attendance data from previous relevant meetings	**Attendance**: XX% increase in the participation of community members in local events on outbreak control and response organized within the last XX days/weeks. **Quality of participation**: New information/facts and suggestions by event participants that are critical to outbreak control interventions or sheds new light on a specific issue	■ Activity reports (meeting minutes, supervision reports, mission/travel reports etc) ■ Situation updates ■ Attendance sheets	At each event	Staff member of local partner or member of COMBI team or someone else involved in event planning and evaluation (e.g. outside agency or M&E consultant) or previously trained community member(s)
Sample process indicator: message exposure and retention	This is not activity-specific since multiple activities of an integrated COMBI plan contribute to changes in this indicator	Percentage of intended populations who may know/remember key facts highlighted by your core messages (prior to your implementation)	% of intended population who have heard/seen messages and activities re: your plan and remember key core messages after XX time from launch of your interventions	Rapid surveys, interviews and observation with key audiences and stakeholders through: ■ Central location intercept interview ■ Focus group discussions ■ Observation at service and delivery points ■ Interviews with key field personnel involved in outbreak response ■ Observation of field staff carrying out intervention in communities	At regular intervals after program implementation/launch (days, weeks, month, etc.) depending on outbreak duration and level of urgency on collecting data early on	Staff member of local partner or member of COMBI team or someone else involved in program monitoring and evaluation (e.g. outside agency or M&E consultant) or previously trained community member(s)

Tool 17. Develop a monitoring implementation plan

Once you have established indicators for each monitoring and evaluation category (see tool 16), you can use a table like that presented below to summarize the data collected on the first two to three indicators for each category. The outbreak management team should agree on the main indicators and expected changes from baseline.

Indicator Description (include quantitative and qualitative parameters)	Activity (for implementation and some categories of process monitoring ONLY)	Baseline	Expected Change/	Data Collection Method	Frequency of data collection	Responsible Organization
Sample behavioural indicator: Adoption of recommended outbreak/ emergency behaviour (e.g., sheltering in place, immunization, etc.)	This is not activity-specific since multiple activities of an integrated COMBI plan contribute to changes in this indicator	Percentage of intended population who practiced recommender behaviour prior to your implementation	% of intended population who have adopted the desired behavioural practices within XX days/ weeks from implementation of intervention	■ Local authority report cards ■ Rapid survey ■ Health facility data/ investigation forms ■ Focus groups ■ Key informant interviews	At regular intervals after program implementation (X days, X weeks, X month, etc.) depending on outbreak duration and level of urgency on early data collection	Staff member of local partner, or member of COMBI team, or someone else involved in program monitoring and evaluation (e.g. outside agency or M&E consultant) or previously trained community member(s)

Section 4

Essential resources, case studies and fact sheets

Introduction

This section is divided into four parts: anthropological approaches for outbreak response, behavioural interventions, case studies and essential facts on major outbreak-prone diseases.

Anthropological approaches for outbreak response

Introduction

A set of anthropological concepts is presented to guide in the selection of appropriate questions and methodological tools to use in COMBI planning, for more effective interventions and strategies. The section gives an anthropological perspective on outbreak response and shows how anthropologists can help in understanding the sociocultural context of individual, community and even institutional behaviour during an outbreak.

Ideally, outbreak response teams should include or have access to an anthropologist or similarly trained social scientist, but this may not always be possible. This section focuses on anthropological concepts that apply to the seven steps of COMBI planning outlined in Section 2. When possible, the concepts are linked to examples and case studies to illustrate their utility for planning and evaluating outbreak control. The aim is to identify participatory opportunities for community dialogue and engagement with stakeholders in order to aid decision-making and make rapid adjustments to unanticipated problems or opportunities. Anthropological concepts can be used throughout COMBI planning, from the initial situational market analysis to the refinement of behavioural objectives, the design of an overall COMBI strategy and monitoring and evaluation of interventions.

This section shows how several basic anthropological concepts can be used to maximize the behavioural impact of outbreak communication strategies. The effectiveness of this approach depends on moving beyond the identification of risk behaviour (what people do to put themselves and others at risk) and behavioural objectives (what we want people to do), to the reasons underlying why people do what they do. An anthropological approach to communication gives priority to understanding motives, values and cultural models as a necessary basis for effective social mobilization strategies with sustained behavioural impact.

This section proposes a flexible analytical framework comprising basic anthropological concepts, guiding questions, participatory tools and measurable objectives that can be used in making decisions about communication and social mobilization strategies in a variety of outbreak contexts. An anthropological perspective situates individual behaviour and decision-making within the cultural, technological and environmental context in which the behaviour 'makes sense', both by being locally appropriate and by being seen as desirable or wise. Understanding why people do what they do requires continuous research and meaningful community engagement throughout COMBI planning and evaluation. The approach should result in improved trust and mutual understanding among stakeholders, more timely identification and reporting of cases, more appropriate communication channels and content, more humane interventions and more effective social mobilization strategies. The flexibility of anthropological approaches provides rapid feedback throughout the planning, implementation and monitoring of communication and social mobilization interventions, thus allowing for rapid adjustment of strategies to unforeseen problems or opportunities.

Contribution of anthropological research to outbreak response

Anthropological research can provide essential information during all stages of an outbreak for the design, implementation and adjustment of social mobilization strategies. As contributors to COMBI planning, anthropologists build a bridge between the communities affected by an outbreak and the professionals providing medical interventions and outbreak control measures by establishing trust and mutual understanding. Anthropologists therefore make recommendations about building engaged, respectful, trustful relationships with communities for more realistic, effective communication and social mobilization strategies. Trust is built not only with formal community leaders but also with the women, men and children in the communities. They also identify informal networks and

groups that are marginalized socially, because of gender, ethnicity, age or religion, who have no right to speak officially. Purposeful engagement reveals distinctive circumstances and constraints, perceptions and beliefs, perceived needs and relevant practices that could exacerbate—or mitigate—the risk for disease transmission. Effective behavioural and social interventions coordinated with good policy are often necessary for full community cooperation in the management of infectious diseases; however, they will not suffice alone, without trust, understanding and a sense of participation in outbreak prevention and containment efforts.

In an anthropological approach to outbreak prevention and control, a collaborative model of dialogue and engagement is created rather than a 'top-down' model of broadcast communication. Anthropological research during an outbreak involves determining how to:

- ensure maximum involvement of affected communities,

- identify local resources and obstacles for effective social mobilization,

- obtain sometimes sensitive and critical information and

- avoid misunderstandings and prevent and resolve conflicts.

Such research takes into account the social organization of the community and emphasizes the importance of kinships and gender roles in households and the community, as well as local knowledge and beliefs about illness and outbreaks. Using many of the tools in this toolkit, anthropologists can identify and analyse local behaviour, community beliefs and everyday practices that could affect disease transmission. This can help to identify behaviour that is a priority for reform and also cultural resources or practices that could improve the effectiveness of an outbreak response. Outbreak response planners can use anthropological research to design more culturally sensitive and humane measures, which will not only improve the effectiveness of behavioural and social interventions but can also minimize the risk for community alienation or inflicting additional trauma on the population. Maintaining good community ties is not just cultural sensitivity; as many of the case studies in this toolkit show, community engage-

ment and trust combined with culturally sensitive interventions can be crucial for preventing behaviour such as hiding cases that would otherwise exacerbate the risk for transmission and spread of infection (see the case study of Marburg virus).

By involving communities as fully as possible, anthropologists can give them a sense of ownership in managing and controlling an outbreak of infectious disease. Affected communities will respond positively if they feel that the intervention teams are listening to their questions, understand their concerns and give straightforward answers that make sense from a local point of view. Such participatory community engagement not only minimizes the risk for alienating populations but also creates opportunities for the collection of data and feedback that can help planners to adjust and maximize the effectiveness of social mobilization strategies for outbreak prevention and containment.

Key anthropological concepts

Several anthropological concepts can guide the choice of questions and tools throughout COMBI planning:

- the distinction between 'disease' and 'illness';

- personalistic' versus 'naturalistic' ethnomedical systems;

- medical pluralism and explanatory models;

- illness behaviour and 'hierarchies of resort'; and

- gender, kinship and 'household production of health'.

These concepts provide a basis for an indefinite, flexible series of questions of practical utility for COMBI research and planning.

Questions that might be asked in anthropological research include:

- Which household and community members do people trust for the management of illness?

- To whom do people turn first for advice about illness? To whom do they turn subsequently as they negotiate their hierarchies of resort?

- What sorts of misunderstandings and problematic behaviour can arise when local understanding of illness does not match the biomedical understanding of disease?

- What sorts of information or advice are priorities for different people?

- How do people understand the reasons for their illness?

- Do people understand whether and how their illness can be transmitted to others?

- What steps do relatives or members of the community take to care for the sick as well as to protect themselves and the community from illness?

- On whom does the burden fall when family members become ill? What are the associated costs and risks?

An anthropological approach begins with the assumption that effective communication strategies must be grounded in and cognizant of people's cultural and material lives, their needs and responsibilities, their attitudes and commitments, their beliefs about health, illness and disease causation and the priorities and constraints that are the basis for their practices.

'Disease' versus 'Illness'

The distinction between the concepts of disease and illness has long been of central importance to the discipline of medical anthropology. It should be the first step in understanding the sociocultural context of outbreaks, because it can explain the often contradictory behaviour of individuals, families, communities and even health professionals and institutions. A distinction between disease and illness was first proposed in 1977 by Leon Eisenberg, who was trying to account for significant differences between professional and popular understanding of sickness in order to remedy common problems of mutual misunderstanding and confusion and resulting problems of adherence to prescribed treatments.

'Disease' refers to the clinical manifestations of abnormal physiological function or infection by a pathogen. The concept of disease is central to clinical biomedicine and epidemiology and should be familiar to anyone involved in infectious disease control. The concept is crucial for the COMBI steps of identifying epidemiological

risk factors and specifying behavioural objectives. Moreover, it helps in understanding the behaviour and practices of health-care teams and institutions involved in preventing and controlling outbreaks of infectious disease.

'Illness' refers to the culturally mediated perceptions and experiences of being sick. A primary finding of medical anthropology is that the cultural definition of an illness and the associated social expectations, experiences and health-seeking behaviour depend at least as much on social factors and cultural norms as they do on the biological characteristics or symptoms of the disease itself.

The distinction between illness and disease highlights the behavioural importance of the social and cultural systems that people use to understand illness and the related roles and decision-making strategies used by people seeking to get well. The distinction has been criticized for portraying illness as localized and culturally mediated, while disease is left unquestioned as universal and objective. An alternative approach is to regard 'disease' as applicable only to the ethnomedical system and the explanatory models used by biomedical experts and epidemiologists. This view allows COMBI planners to take into account the assumptions behind the actions of all stakeholders, not only community members, during an outbreak.

When people experience illness, they often discuss their symptoms first with family members or friends and only later go to healers or treatment providers, who question, evaluate and perhaps provide diagnostic or therapeutic options. During this process, the experience of trouble or sickness is transformed from disconnected symptoms into a labelled condition of illness that other members of the community can understand. This gives the illness a particular cultural meaning and the patient and caregivers a set of culturally defined roles, with associated expectations for treatment and care. As will become clear in the following sections, understanding the social processes that guide decision-making about illness and the roles and expectations that go with it can be useful for identifying and controlling disease outbreaks in a timely, culturally appropriate, effective manner.

Understanding personal experience of illness and related health-seeking behaviour requires

investigation of local medical systems. A 'medical system' is conventionally defined as the knowledge, beliefs and practices that are learnt and shared by a group of people. Cultural systems of belief help people to cope with illness, and medical systems provide explanations for how and why people get sick as well as guidance for what to do when confronted with illness. All medical systems can be characterized by at least three elements: explanations of the cause of illness, mechanisms for the diagnosis of illness and prescription of appropriate actions or therapy on the basis of the diagnosis. Decades of cross-cultural study in anthropology indicate that all human groups have medical systems that contain these elements. The same could be said for modern biomedicine, which medical anthropologists have argued can be studied like any other ethnomedical system.

For the purpose of COMBI planning, rapid anthropological assessments involving all the relevant stakeholders can aid in understanding how different groups experience and explain the causes of illness, the types of medical advice and treatment they seek, the people to whom they turn when they become ill and the roles and responsibilities expected of patients, healers and caregivers. Anthropological understanding is important for identifying both epidemiological risk factors and opportunities for early detection of cases, incorporation of traditional medical practitioners into communication and social mobilization strategies and increased community engagement with outbreak prevention and control efforts.

'Personalistic' and 'naturalistic' ethnomedical systems

The conventional anthropological distinction between 'naturalistic' and 'personalistic' ethnomedical systems, although admittedly oversimplified, can be useful for understanding health-seeking behaviour and the social roles and practices associated with illness episodes in particular contexts. Naturalistic medical systems generally give etiological explanations that are restricted to describing symptoms, are oriented to the patient's body and focus on a single level of causation associated with environmental interactions and perceived bodily imbalances or disturbances. Naturalistic medical systems explain illnesses in impersonal and systemic

terms. The primary function of the medical practitioner is therapeutic, involving the prescription of symptomatic treatments, restrictions on diet and activity and other therapeutic interventions (some of which may exacerbate or mitigate disease transmission). In contrast, personalistic systems extend beyond bodily symptoms to the complex domain of social relations, with living people, ancestors or other spiritual entities. As the name implies, the theory of illness causation is that illness is caused by the purposeful intervention of an agent, either human or otherworldly. Importantly, personalistic systems do not generally distinguish illness from many other sorts of misfortune that might befall an individual, family or community. Therefore, the function of the healer is primarily diagnostic rather than therapeutic. The ill individual seeks answers to three questions: What technique was used to make the victim ill? Who is responsible? And why was the victim targeted?

Naturalistic medical systems are often characterized by more or less formalized training; practitioners may gain prestige by sharing their skills and knowledge and even be loosely organized into something like professional associations. These might represent an opportunity for disseminating information and incorporating local healers into early reporting and social mobilization strategies. In personalistic systems, practitioners are more often esteemed and sought out for their individual spiritual gifts. A shaman or similar practitioner in a naturalistic system generally gains prestige by guarding his or her ethnomedical knowledge rather than sharing it. As many anthropologists have reported, shamanic practices tend to be idiosyncratic, as there are rarely formalized systems for the dissemination or codification of their knowledge (with the notable exception of individual apprenticeship). One implication of using personalistic systems for conducting situational analyses is that information gathered from a few key informants may not be representative of the full spectrum of practices characteristic of other practitioners. Likewise, the diversity of practices and the lack of associations, organizations or professionalization require different tactics for incorporating these important, often highly esteemed community members into social mobilization strategies and efforts for early reporting of unusual cases.

One reason for distinguishing between and incorporating both sorts of ethnomedical system in infectious disease control is that distinctive diagnostic practices and therapeutic recommendations can put people at increased risk for infection. This is particularly so when caregivers are culturally required to have close personal contact with an ill family member, as is often the case. Caregiving is generally considered to be of utmost importance in many communities throughout the world, and efforts to modify caregiving behaviour in order to mitigate transmission should take this social fact into consideration. (This is vividly illustrated in the case study of an outbreak of Marburg haemorrhagic fever in Angola, in which failure to address these issues had deadly consequences.) Understanding the epidemiological implications of ethnomedical practices requires anthropological research into local medical systems, and this understanding is used to devise culturally sensitive intervention strategies to reduce the risk for transmission without causing the sorts of social disruption that can lead to loss of community trust or even increased risky behaviours, such as intentional hiding of cases.

In addition to helping identify epidemiological risk factors that are otherwise difficult to detect and defining culturally practicable behavioural objectives, research into ethnomedical systems also provides opportunities for more effective outbreak prevention, detection and control with COMBI planning, by integrating such systems and practitioners into social mobilization. Regardless of the predominant medical system in a community, people often seek the help of traditional practitioners at some time during an illness episode. Establishing connections and relationships with traditional practitioners in either type of ethnomedical system should be the first step in community outreach, creating relationships of trust with respected figures that have practical utility for early detection and reporting of cases as well as social mobilization for rapid outbreak response.

Of course, it is merely a practical simplification to distinguish between personalistic and naturalistic medical systems, since, in reality, most people all over the world make decisions by accessing many different medical resources, from popular household remedies to the facilities and services of modern biomedicine. This

situation is called 'medical pluralism' in the anthropological literature.

Medical pluralism and explanatory models

The medical anthropologist Arthur Kleinman has argued for thinking in terms of three overlapping and interconnected sectors of health care that together comprise the condition of medical pluralism: the popular sector, the folk sector and the professional sector.[14] Each has its own way of explaining and treating illness and of defining the roles of and relationship between healer and patient.

The popular sector is the lay, nonprofessional, nonspecialist domain of society. This sector is usually where illness is first experienced and defined and where health-seeking behaviour is first initiated. It includes all the therapeutic options that people use before consulting a specialist like a folk or biomedical practitioner, including self-diagnosis and self-treatment and advice and treatment from family, friends, trusted community members and other nonspecialists. This is arguably the most important sector for communication strategies and social mobilization, as it is estimated that 70–90% of health-care decision-making takes place in the popular sector, in both western and non-western settings.[15]

Kleinman proposed the useful concept of 'explanatory models' to describe people's social and cognitive models of illness. Like the disease–illness distinction, the concept was designed for practical application to account for the differences in perceptions and beliefs that create confusion and difficulties in clinical interactions, often resulting in poor therapeutic adherence and undesirable outcomes. Kleinman's point was that both the patient and the healer (and even the anthropologist) always use explanatory models of illness, which are partly conscious and partly outside of awareness, and often comprise an amalgam of elements from different health systems and sectors. Kleinman

14 Kleinman A (1980). *Patients and healers in the context of culture*. Berkeley, California, University of California Press.

15 Kleinman A, Eisenberg L, Good B (1978). Culture, illness, and care: clinical lessons from anthropologic and cross-cultural research. *Annals of Internal Medicine*, 88:251–258.

suggested that clinicians could communicate more effectively and thus bring about better behavioural outcomes by eliciting patients' explanatory models, with questions such as:

- What do you think caused your problem?
- Why do you think this illness happened at this particular time? How bad do you think this illness is?
- What worries you most about this illness?
- What kind of treatment are you expecting or hoping to get?
- What are the results you expect from treatment, and what do you think is the most appropriate treatment for this type of illness?

In a clinical setting, the answers to these kinds of questions allow the health-care provider to understand the patient's cultural beliefs (explanatory models) about their illness, thus obviating potential problems of miscommunication and misunderstanding, to improve the efficacy of therapy and adherence to treatment.

Note that these questions resemble those that a medical anthropologist (and the COMBI team) would ask about ethnomedical systems and folk models of illness. Although the concept of explanatory models is generally applied at an individual level, Kleinman acknowledged that, when many aspects of an explanatory model are shared by a large group of people, they could properly be characterized as a folk model or even an expression of a larger ethnomedical system.

Illness behaviour and hierarchies of resort

The concept of explanatory models is linked to another important concept in the medical anthropological literature: 'hierarchies of resort'. This refers to the patterns and priorities of health-seeking behaviour over time and between medical sectors and health systems, from popular to folk to biomedical. The degree to which infectious disease control efforts can be integrated with local medical services and with ethnomedical understanding of etiology, diagnosis and possibly even treatment can improve the local efficacy of social mobilization for outbreak prevention and response. To

this end, understanding people's explanatory models and the related concept of hierarchies of resort has considerable practical use in designing COMBI plans.

Medical pluralism is the norm in most social contexts. There are generally no simple one-to-one relations between a society and a single ethnomedical system, especially as clinical biomedicine is increasingly being distributed to just about every corner of the world, even as many traditional ethnomedical systems continue to thrive and expand to new territories. Thus, multiple health sectors and medical systems coexist in most contemporary contexts, and people who are ill can generally choose from a wide variety of medical options.

Another important set of concepts from medical anthropology and the sociology of medicine consists of the 'sick role' and 'illness behaviour' or 'health-seeking behaviour'. These concepts refer to the roles people assume and the decisions people and households make once they have been labelled as ill, by themselves, their family, folk practitioners or biomedical experts. People make behavioural decisions about illness and health in a sociocultural context, and these decisions often shape the course of an outbreak, for better or for worse.

In the event of a socially recognized illness, people in every culture have particular social roles: the sick patient, the healer, the supportive family member or friend. Thus, everyone involved is expected to know what to do. In many cases, these rules and norms interact with gender roles and the division of labour in a household regarding decision-making, access to resources and beliefs about who bears the moral responsibility for the well-being of individual and family health. When a person adopts the sick role, his or her regular social responsibilities might be temporarily altered or suspended. The sick role has its benefits, yet at the same time new social expectations and responsibilities are enforced, for both the patient and the caregivers. If people fail to meet these expectations, the results can be extremely disruptive. Case studies of outbreak interventions in which caregivers were prevented from meeting their basic social obligations and the resulting trauma and undesirable behavioural consequences are described below.

Anthropological studies of illness behaviour often focus on patterns of seeking health care. As mentioned earlier, these patterns are commonly referred to as 'hierarchies of resort'.[16] When people perceive that they are ill, they act on this perception; they seek advice and perhaps eventually seek treatment. In the context of medical pluralism, people have many options. The concept of hierarchies of resort is especially useful for investigating the context of individual decision-making and community behaviour regarding illness and healing.

In general, people's hierarchies of resort begin with seeking treatment at home. In the event that self-treatment, self-medication or other household remedies do not work, the patient and his or her family may resort to health-care options outside the home, including consultation with specialists. If the patient still does not get well, the illness gets worse or financial resources run low, the patient may again decide to change course. Ethnographic descriptions of medical decision-making and health-seeking behaviour comprise an important part of the medical anthropology literature devoted to the description and understanding of ethnomedical systems, decision-making processes and illness behaviour in the context of medical pluralism.

The concept of hierarchies of resort provides a useful set of questions for the situational market analysis and COMBI planning that can help in understanding who people trust and to whom they turn first when they are ill, under what conditions and in what order they pursue various medical alternatives, resources and practitioners. The investigation of illness roles, health-seeking behaviour and local hierarchies of resort should be part of the initial situational market analysis in COMBI planning and will probably prove to be useful in planning social mobilization strategies for outbreak prevention and control.

People seeking care look for guidance from community members—mothers, medical doctors or traditional healers—whom they trust to dispense advice and treatment. Thus, people all over the world use hierarchies of resort when setting priorities on advice about illness and seeking appropriate forms of care. The patterns that guide health-seeking behaviour and decision-making provide an opportunity for COMBI

planners to identify and build relationships with the people whom community members already trust for health advice. These leaders should be contacted as quickly as possible so that they have clear, appropriate information and effective resources to disseminate to community members seeking help or advice. Moreover, as folk practitioners are likely to be some of the first members of the community outside households to notice unusual clinical symptoms or cases, they should be given clear guidelines for reporting to health authorities in order to maximize the rapid response.

People's thinking about illness is always guided by 'explanatory models' about the causes, which of course influence what are considered to be the appropriate actions to get well or help others get well. COMBI planning should include research into including traditional healers as educators, advisors and even first responders. The case studies in this guide and the medical anthropological literature suggest that participatory, empirically guided social mobilization efforts to involve communities and draw on existing practices and resources for social mobilization can help ensure trust, mutual understanding, local applicability, sustainability and cultural relevance.

'Household production of health', gender and kinship

A common anthropological criticism of behaviour change models in public health is the focus on individual decision-making, ignoring the larger sociocultural context of social roles and relationships. Research has revealed that the distinctly 'western' concept of the individual as an independent, autonomous decision-maker does not translate well into many other contexts. Social scientists are increasingly understanding individual health (and risk) behaviour by considering wider relational units of analysis, such as households, kin, clans, social classes, ethno-linguistic groups and even organizations.

Household production of health

For reasons that have already been mentioned, medical anthropologists working in communities and public health settings have long

16 Cassell EJ (1985). *The healer's art.* Cambridge, Massachusetts, MIT Press.

emphasized the importance of a concept called the 'household production of health'. This is particularly important for outbreak communication and social mobilization strategies, as it has been estimated that most health-care decisions and therapeutic interventions are first made in households. As a conceptual unit of analysis, a household is conventionally defined as a group of relatives and perhaps non-relatives living in the same dwelling most of the time and engaged in complementary or shared tasks. Because a person's health status is affected by household factors such as access to basic infrastructure, nutrition, clean water and health care, household members may have many risk factors in common. At the same time, family roles—usually defined by age and gender—often result in different health outcomes and exposures, even within the same household. For example, differences in gender roles can exacerbate both exposure and access to health-producing resources. The case study of a Marburg haemorrhagic fever outbreak in Angola is a good illustration of the importance of understanding gender roles and their relation to behavioural risk factors. Likewise, the case study of avian influenza in Cambodia illustrates how gender roles associated with the handling and preparation of poultry result in different sources of exposure for different family members. Furthermore, when illness strikes a family member, other members are often involved in different aspects of decision-making and in the provision of care.

Gender

Consequently, gender should be a central focus of COMBI research and planning, especially as women provide virtually all the health-care labour in the household in almost every context that anthropologists have investigated. In the event of an outbreak, it is important to conduct rapid situational research to determine the gender dynamics in households. The questions might include:

- In the event of illness, who is the primary caregiver in the household, and what does the role entail? Who is the primary decision-maker in the household for expending resources on outside consultation with healers?

- What are the associated epidemiological risk factors, financial and opportunity costs and emotional burdens for the caregiver?

- What resources and hierarchies of resort are available for whom?

As adult women are often responsible for providing care and for the household management of illness, the situation is particularly problematic when the female head of a household falls ill, especially in households where there are no other nearby relatives to take care of the primary caregiver. One example of the importance of gender considerations in COMBI research and planning is the observation that, in many cases, heavy demands on mothers reduce the likelihood of accessing primary health care outside the household, even in the event of serious illness.

Kinship

In many parts of the world, what constitutes kin (family) is different from what is conventionally called the 'nuclear family'. Kinship often extends well beyond the walls of the household and exceeds the sanguineous ties of so-called 'blood relations'. This fact is important for COMBI research and planning, as in many places extended kinship networks are actively involved in medical decision-making and for providing health-care advice and even treatment. In some places, extended kin groups are so important in the management of illness and medical decision-making that they have been called 'therapy management groups' in the anthropological literature. In these contexts, strategies for convincing 'management groups' about the importance of behaviour change are more likely to bring about actual changes in the behaviour of an ill person than interventions that target the person alone.

Social ties beyond kinship can also have implications for outbreak response and social mobilization strategies. For example, social ties are stronger in some communities and weaker in others. In the event of an outbreak, infection is likely to spread more rapidly within communities characterized by strong social ties, as there may be more frequent, physically intimate interactions between community members, regardless of kinship. For example, in Uige, Angola, an infant may be breastfed by any woman in the community in the absence of the mother. During the 2005 outbreak of Marburg haemorrhagic fever, three women became infected after successively breastfeeding and taking care of their

neighbour's orphaned infant. All three women contracted the disease and died.

In the event of an outbreak, COMBI research and planning should take into consideration the relative strength or weakness of social ties in the affected community. Where social ties are particularly strong, the patient's family members might not want the patient to be placed in an isolation ward or hospital. This could violate deeply held cultural values about 'illness roles' and be seen as abandoning the sick person precisely when he or she needs their care most. In this cultural context, many families would prefer to provide home-based care than to leave the ill person alone in a hospital. Conversely, in communities where social ties are not as strong or where people are more comfortable with the idea of putting a sick family member in hospital, the hospitalization or isolation of a sick family member might not cause as much social distress.

Anthropologists have long recognized that different people have different conceptions of kin and the relationships that bind people together in a community. People are tied to one another in meaningful ways through roles and expectations. As several case studies and examples in this guide illustrate, the importance for COMBI planning of research into kinship systems and other social ties should not be underestimated, both as a means of identifying epidemiological risk factors and as a resource for social mobilization through interpersonal communication. Untangling kinship and clarifying the roles and expectations will provide practical information for COMBI planners that is relevant to issues as diverse as predicting population movements in the event of an outbreak, obstacles to the adoption of certain protective behaviours and resources and opportunities for culturally tailored, flexible social mobilization strategies for outbreak response and control.

Marketing concepts and behavioural theories and models

Interagency documents on behavioural interventions

The following two documents are examples of global priorities for control and prevention by behavioural interventions. The documents were prepared to provide technical guidance for people preparing communication strategies, messages and materials, and they describe important premises for effective communication activities for reducing the transmission and impact of disease.

Influenza A (H1N1):

Behavioural interventions for reducing the transmission and impact of influenza A (H1N1) virus: A framework for communication strategies. WHO/UNICEF, 2009. http://www.who.int/csr/resources/publications/swineflu/framework_20090626_en.pdf
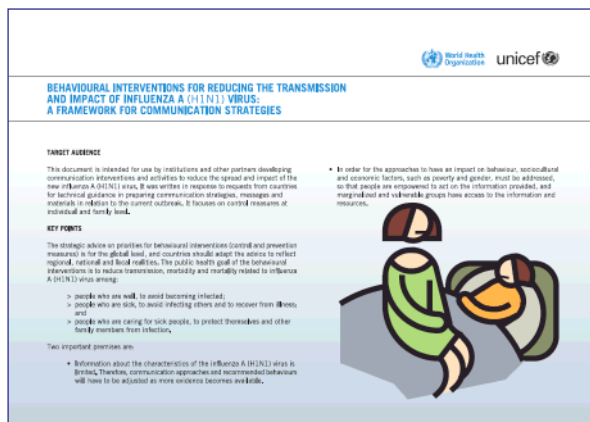
Content:

- Importance of sharing information about the new influenza A (H1N1) virus and empowering people to adopt risk reduction practices
- Guiding principles for communications about the new influenza A (H1N1) virus
- Checklist for strategic communication planning and implementation
- Priority behavioural goals in a country with cases of influenza A (H1N1) virus infection
- Priority behavioural goals for home care of influenza A (H1N1) illness
- Sequences of communication planning

Avian influenza:

Summary and recommendations from the WHO/FAO/UNICEF ad hoc meeting on behavioural interventions for avian influenza risk reduction, Geneva, 2006 http://www.who.int/csr/disease/avian_influenza/adhocsummaryreport.pdf.

Content:

- Background
- Method
- Key behavioural interventions for reducing animal to animal and animal to human transmission (H5N1)
- Priority behaviours
- Proposed outcomes and indicators

Marketing concepts and techniques

COMBI borrows, builds on and integrates many features of private-sector marketing techniques as well as established theoretical behavioural models used in public health, based on decades of research. Rather than limit itself to theoretical constructs and marketing jargon, however, COMBI was designed as an integrated, simplified, pragmatic method for affecting people's behaviour for health, often under challenging circumstances. COMBI gives evidence and arguments to technical and medical staff that communication will be more effective only if the interventions and fundamental programme requirements are in place. On their own, traditional marketing and psychosocial behavioural constructs are not enough, particularly in outbreak situations. Unlike private sector marketing, public health and social development interventions in outbreaks are rarely for selling a particular product or behaviour and might even be introducing a behaviour perceived as against a person's or a community's best interests. This section of the toolkit briefly addresses the theoretical basis of COMBI in marketing and social psychology. Although not an exhaustive survey, it is a useful overview of COMBI's foundations.

Marketing approaches can provide insights that can be applied to behavioural impact in outbreak scenarios. Marketing essentially begins from the premise that human beings constantly seek to improve themselves and are therefore always weighing the 'benefits' or 'value' of a given service or product versus the 'cost'. This is called 'exchange theory'. Marketers seek to identify what consumers need and then create circumstances in which the cost–benefit analysis favours the purchase or adoption of a product or behaviour. Costs can include the tangible, like money, and the intangible, like time.

There is no neutral assessment of an individual's cost–benefit analysis. We each assess a situation on the basis of what is most important to us at a given time and place. In public health, it is often mistakenly assumed that benefits to overall (national, community) public health will be perceived as benefits by the people being asked to make the change. Tobacco smoking, refusing vaccination or having unprotected sex are personal decisions, in which people have evaluated their situation and made a decision that reflects their own self-interest. They have decided that it's not worth changing their behaviour: they enjoy smoking; they hate the feeling of condoms. The small risk of getting sick is worth the inconvenience of going to a clinic.

Marketers seek to understand this deceivingly simple calculation by:

- getting to know the audience in order to understand their behaviour and what benefits and costs are associated with a particular exchange;
- adjusting products, prices and locations to maximize the benefits identified as important to the consumer and to minimize the costs; and
- promoting exchange by emphasizing the benefits and explaining how to minimize costs.

Whether selling shoes, shampoo or shelter, the core concepts are the same. The audience or customer must feel that the exchange being promoted is better than the alternatives, including the most difficult alternative: doing nothing.[16] Public health goals may not be as straightforward as selling more shampoo; rather, a range of behavioural changes are necessary to reduce mortality or even to get someone to a vaccination clinic. The change is often for an effect due to group action, which cannot be traced back to an individual. The necessary behaviour might be unpopular or perceived as negatively affecting the lives of the people whom the campaigns seek to reach.

Marketers know that simply telling people about something, increasing their knowledge or even changing their attitude is not enough to affect what they do. Instead, by understanding the 'competition' and the alternative behaviour available, more targeted, realistic, effective strategies can be found. Flooding people with information about 'how to' protect themselves from human immunodeficiency virus, for example, could be like teaching someone who is afraid of water how to dive. Instead, research shoud be conducted to frame behaviour in a context that addresses individual fears, misinformation and personal motivations. Making a decision to change behaviour is a process, and research into values, motivations and competition can provide insight into how behaviour can best be influenced.

Despite these challenges, the basic marketing principles of competition, exchange and audience segmentation; the four Cs of integrated marketing communication (consumer, cost, convenience and communication); behavioural psychology; anthropology; and media theory can result in more effective health communication interventions to promote behavioural adaptation and reinforce existing practices in public health programmes.

Behavioural models in health interventions

Many behavioural models can be used to understand and improve the way in which human behaviour can be affected. Some models focus on communities, like the 'state theory of organizational change and diffusion of innovations' theory. Others address interpersonal relationships and how social networks can affect actions. Ecological models address the constant interplay between environment, the individual and behaviour. Media effects theories address the impact of the media on how we think and behave. In fact, most theories do not exist in isolation but were influenced by and incorporate elements of others for a new or updated perspective or application. No theory is the best or most effective, as they are often used together, depending on the behaviour desired and context.[17] At best, behavioural models provide a guide for considering and predicting behaviour and a framework for designing a campaign. Like some other models, COMBI blends sometimes complicated theories, making them practical and applicable for work on behavioural effects in health and social development.

The four most commonly used and applicable theories are explained in detail, with a quick summary of other influential models used as the basis for COMBI. Glantz et al. (cited by Redding et al.[18]) found in 1997 that the most commonly used models in health behaviour change were the 'health belief' model, the 'theory of reasoned action or planned behaviour', 'social cognitive theory' and the 'transtheoretical model'.

The 'health belief' model was first described in the 1950s and is one of the commonest and oldest models for explaining health behaviour. It was originally based on psychosocial studies of why people did not partipate in screening and vaccination.[19] Essentially, the model predicts that people will take action only on the basis of:

- perceived susceptibility: They perceive themselves as susceptible to the condition.
- perceived severity: They perceive that the medical, clinical or social consequences will be severe.
- perceived effectiveness: They perceive that a course of action is available to reduce susceptibility or the severity of the condition.
- perceived cost: They perceive that the barriers are outweighed by the benefits.

The concept of self-efficacy has since been added to the theoretical construct. Self-efficacy is a fundamental concept for many of the theoretical models examined here. First introduced by the Canadian psychologist Albert Bandura,[20] self-efficacy is essentially a person's confidence in his or her ability to perform a specific action.[21,22] Self-efficacy and the four perception considerations of the health belief model determine the probability that a person will performing the desired action.

17 Paek H et al. (2008). Applying theories of behaviour change to public emergency preparedness: implications for effective health and risk communication. Paper presented at the 94th Annual Convention of the National Communication Association, San Diego, California, TBA. Available from http://www.allacademic.com/meta/p259806_index.html (last accessed 16 February 2011).

18 Redding CA et al. (2000). Health behaviour models. International Electronic Journal of Health Education, 3: 180–193. http://www.iejhe.siu.edu.

19 Hochbaum GM (1958). Public participation in medical screening programs: a sociopsychological study (Public Health Service Publication No. 572). Washington DC, United States Government Printing Office.

20 Bandura A (1977). Self-efficacy: toward a unifying theory of behaviour change. Psychological Review, 84:191–215.

21 Redding CA et al. (2000). Health behaviour models. International Electronic Journal of Health Education, 3:180–193. http://www.iejhe.siu.edu.

22 Janz NK, Champion VL, Strecher VJ (2002). The health belief model. In Glantz K, Rimer BK, Lewis FM, eds, Health behaviour and health education: theory, research and practice. San Francisco, Jossey-Bass.; (2008).

'Cues to action' are activities, events or strategies that can encourage the given behaviour. They are essentially motivating factors. When perceptions of susceptibility and severity are high, cues to action need not be severe; but when perceptions are low, intensive cues to action are more important for motivating action.

Practically applied, each of the four main constructs of the health belief model can be used ino designing campaigns. For example, determining people's perceptions helps highlight where focus should be placed, and the severe consequences of inaction and the effectiveness and ease of a proposed action can provide the basis for a campaign. Strategies to improve self-efficacy and designing cues for action to encourage people to adjust their behaviour are useful health belief approaches. As the model is considered to be based on cognitive theory,

however, it has been criticized for not taking into account the influence of emotions, in particular fear.[23]

COMBI approaches include the health belief model concepts of susceptibility to formulate strong behavioural objectives. Knowing what people think and feel about a particular action are at the core of COMBI practice.

The **'theory of reasoned action'** and its extension, the **'theory of planned behaviour'** are used to explain why, even if people consider a behaviour to be important, they still follow social expectations and what is considered acceptable by the people closest to them. The theory of reasoned action argues that a person's attitudes (their beliefs and values relative to the outcome of a particular behaviour) and subjective norms (their belief about what the people close to them think about the behaviour) can predict behav-

Table 14. Social cognitive theory constructs

Construct	Description
Environmental	Factors outside the person
Situation	One's perception of a behaviour
Behaviour capability	One's knowledge and skills to perform a behaviour
Expectations	One's anticipation of the outcomes of a behaviour
Expectancies	How good or bad one evaluates the outcomes to be
Self-control	Regulation of one's own behaviour
Reinforcements	Responses to a person's behaviour that affect how likely it is that the behaviour recurs
Observational earning	Acquiring a new behaviour by watching someone else perform it and perform the outcomes
Self eficacy	One's confidence in one's own ability to perform a behaviour
Emotional coping	Response strategies used to deal with emotionally challenging thoughts events or experiences
Reciprocal determinism	Dynamic interaction of the person, the behaviour and his or her environment

23   Glanz K, Rimer BK, Viswanath K (2008). Health behaviour and health education: theory, research, and practice, 4th Ed. San Francisco, John Wiley & Sons Inc.

ioural outcomes.[24] Thus, the intention to perform a behaviour strongly predicts to whether we do it or not. The theory of planned behaviour modified the reasoned action model by adding the idea of self-efficacy with the concept of perceived behavioural control, which is essentially people's feelings about their ability to perform the behaviour. Therefore, the likelihood that people will engage in a recommended behaviour depends on whether they are convinced that it will prevent risk, whether they feel confident in performing the behaviour and the degree to which the benefits are perceived to outweigh the cost.

It has been argued that, because most research with the theory of reasoned action focuses on the prediction of behavioural intention rather than on the behaviour itself, its use is limited, particularly as the theoretical correlation between intention and behaviour has been described as 'not impressive'.[25]

Practitioners of COMBI must consider attitudes and the subjective norms or influence of the most important people in any context, whether opinion leaders, family members or co-workers. Early market research will help to reveal existing attitudes, beliefs and values and guide the design of a more effective behavioural intervention. Intending to perform a behaviour is only a first step: moving people from intention to action is a difficult hurdle to cross.

Social cognitive theory has its roots in social learning theory,[26] which essentially states that people learn not only from their own experience but from observing the actions of others. Social cognitive theory states that behaviour is determined by interactions between behaviour, the individual and the environment.[27] It emphasizes the cognitive: what people think about behaviour. Behaviour is dynamic, as it is influenced by simultaneous interactions between the environment (external factors like family and friends

as well as the physical environment) and situation (people's perception of their environment). This tripartite relationship, behaviour–individual–environment, is called 'reciprocal determinism', meaning that changes in one factor will affect the other two and how a given behaviour is seen. "Behaviour is not simply a product of the environment and the person, and environment is not simply a product of the person and behaviour".[28] The constructs of social cognitive theory are listed in Table 14.

Albert Bandura, the father of social cognitive theory, emphasized human thought processes in his work. He said that people consider their capacities in terms of personal characteristics, emotional arousal and coping, behavioural capacity, self-efficacy, expectation, expectancies, self-regulation, observational and experiential learning and reinforcement. A person's perceptions of the environment, called 'situations', can both facilitate and deter behaviour. The possibility that someone will change their behaviour, according to social cognitive theory, is based on self-efficacy, goals and outcome expectancy. People who consider that they have self-efficacy can change their behaviour and overcome obstacles; without it, they lack motivation and the belief that they can overcome the challenges to change their behaviour. Bandura considered that self-efficacy is the most important aspect of social cognitive theory. His self-efficacy hypothesis is seminal and has been integrated in some form into most subsequent models and theoretical constructs.

Other important concepts include 'observational learning', modelling positive outcomes of healthy behaviour with credible role models; ensuring behavioural capability by making certain that the knowledge and skills to perform a behaviour have been shared; providing reinforcement for the behaviour, self-reinforcement being the ulti-

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24 Paek H et al. (2008). Applying theories of behaviour change to public emergency preparedness: implications for effective health and risk communication. Paper presented at the 94th Annual Convention of the National Communication Association, San Diego, California, TBA. Available from http://www.allacademic.com/meta/p259806_index.html (last accessed 16 February 2011).

25 Redding CA et al. (2000). Health behaviour models. International Electronic Journal of Health Education, 3:180–193. http://www.iejhe.siu.edu.

26 Miller, N. E., & Dollard, J. (1941). Social Learning and Imitation. New Haven: Yale University Press.

27 Bandura A (1986). Social foundations of thought and action: a social cognitive theory. Englewood Cliffs, New Jersey, Prentice-Hall.

28 Rimer BK, Glanz K (2005). Theory at a glance: a guide for health promotion practice, 2nd Ed., Washington DC, National Cancer Institute, National Institutes of Health, United States Department of Health and Human Services.

mate goal; expectations, which is the outcomes a person anticipates as a result of the behaviour; and expectancies or incentives, the values a person places on given outcomes.

One critique of social cognitive theory is that it is based on the assumption that changes in situation and environment will change behaviour, whereas there are many examples in which behaviour did not change just because the environment did. Others have argued for the influence of emotion, which can be determined by biology and evolution. What one does in a fit of anger or jealously, for example, might not be consistent with one's normal behaviour.

In the case of COMBI, social cognitive theory theory offers much to be considered. The importance and influence of environment, personal situation and a person's attitude to a given behaviour are central to COMBI. Bandura's contribution of self-efficacy is an important detail in our work. Applying this theory practically could mean that behavioural strategies should adjust a person's environment to support the behaviour, considering for example changes to product, place and price. Adopting other strategies could also be useful, like ensuring there are appropriate opportunities for observational learning and modelling appropriate behaviour in the community, while introducing small, achievable changes to gradually increase self-efficacy. (See also section on marketing.)

The **'transtheoretical model of stages of change'** was first described by James Prochaska and colleagues in 1977. It is based on the idea that change occurs in stages and that strategies to change behaviour should be designed to match the stage in which the individual is determined to be. This stage-based model should be familiar for COMBI practitioners, as it has similar constructs to HIC-DARM. The main tenet of the transtheoretical model, that behaviour is not influenced all at once but incrementally, is a useful framework for examining behavioural change. People do not necessarily pass through the stages of the transtheoretical model in order but enter and exit the stages at any time, often repeating steps before moving forwards again towards longer-term adjustments to their behaviour.

As its name suggests, the transtheoretical model integrates many theories and principles of social psychology and behavioural change, including social cognitive theory (changes), the theory of reasoned action (benefits and costs) and the health belief model (benefits and barriers), as well as adopting Bandura's concept of self-efficacy and elements of media effects theory. The transtheoretical model addresses behavioural change as four different but complementary constructs: stages of change, process of change, decisional balance and self-efficacy.

'Stages of change' are those through which people pass as they work towards long-lasting behavioural change. They are usually illustrated as a spiral, which illustrates how people, even if they return to previous stages, collect valuable information and skills that help their overall progression. The stages of change are:

- pre-contemplation: no intention of taking action within the next 6 months,
- contemplation: intent to take action within the next 6 months,
- preparation: intent to take action within the next 30 days and some steps taken in this direction,
- action: overt behaviour changed for less than 6 months and
- maintenance: overt behaviour changed for more than 6 months.

The 'processes of change' are the cognitive, emotional, behavioural and interpersonal strategies and techniques used by individuals and 'change agents' (therapists, counsellors) to change problem behaviour. These processes are:

- consciousness raising: learning new facts, ideas and tips to support healthy behaviour change;
- dramatic relief: experiencing negative emotions (fear, anxiety, worry) that accompany unhealthy behavioural risks;
- self-reevaluation: realizing that behavioural change is an important part of one's identity;
- environmental reevaluation: realizing the negative impact of unhealthy behaviour or the positive impact of healthy behaviour on the proximate social and physical environment;

- self-liberation: making a commitment to change;

- helping relationships: seeking and using social support for healthy behaviour change;

- counterconditioning: substituting healthier alternatives and cognition for unhealthy behaviour;

- reinforcement management: increasing rewards for positive behavioural change and decreasing rewards for unhealthy behaviour;

- stimulus control: removing reminders or cues to engage in unhealthy behaviour and adding cues to engage in healthy behaviour; and

- social liberation: realizing that social norms are changing in support of healthy behavioural change.

'Decisional balance', the pros and cons of behaviour change, is simply the decision-making component of the transtheoretical model and the reasons for changing or not changing. Tallying pros (benefits of change) and cons (arguments against change) helps people come to a decision about whether to move from one stage of change to another.

'Self-efficacy' is related to people's belief that they can complete a task or adopt a behaviour effectively. With adequate incentives and skills, self-efficacy can be increased, from temptation to engage in unhealthy behaviour in challenging situations to confidence that one can engage in healthy behaviour in challenging situations.

In decisional balance, therefore, people decide that the advantages of performing a particular behaviour outweigh the disadvantages. Self-confidence or self-efficacy that they can actually perform the behaviour will then overcome the perceived temptations in their environment. This is when they enter the processes of change.

COMBI has adopted many of the principles of the transtheoretical model. The notion of HIC-DARM, of audience segmentation, and many of the tools used in the rapid situational market analysis are similar to the transtheoretical model, resulting in targeted interventions that are appropriate and realistic to the target populations and their individual, cultural, environmental and economic situations.

Diffusion of innovations: Classic diffusion theory separates a population into five categories on the basis of their rate of adoption: innovators, early adopters, early majority, late majority and laggards. 'Innovation' is considered to be an idea, practice or object that is perceived as new by an individual, organization or community. 'Diffusion' is considered to be the process by which an innovation is communicated through certain channels over time among members of a social system.[29] Diffusion of innovations theory can then be used to determine what happens when a behavioural 'solution' (innovation) is introduced to members of a social system over time, through certain channels.

Precaution adoption model: This model comprises seven steps for going from the stage of lack of awareness to adoption and maintenance of a behaviour. The model is based on the importance of people becoming aware and then engaged in an issue and action. Although it is similar in some ways to the transtheoretical model, it differs in that it proposes that individuals must go through each stage.

"In the first stage of the precaution adoption model, an individual may be completely unaware of a hazard. The person may subsequently become aware of the issue but remain unengaged by it (stage 2). Next, the person faces a decision about acting (stage 3); may decide not to act (stage 4), or may decide to act (stage 5). The stages of action (stage 6) and maintenance (stage 7) follow."[30]

The precaution adoption model can be particularly useful in dealing with new and emerging health risks and newly discovered prevention behaviour.[31]

29 Rogers EM (1995). Diffusions of innovations, 4th ed. New York, Free Press.

30 Rimer BK, Glanz K (2005). Theory at a glance: a guide for health promotion practice, 2nd Ed., Washington DC, National Cancer Institute, National Institutes of Health, United States Department of Health and Human Services.

31 Weinstein ND (1988). The precaution adoption process. Health Psychology, 7:355–386.

Media effects: Media effects theory looks not only at how the media can influence people's knowledge and attitudes but also at how people can affect the media. As consumers of the media are actively seeking information, their own interests can shape the content. Media effects theorists examine the factors that affect the likelihood that a person will be exposed to a message and the effects of increased (or decreased) exposure on the audience. Media exposure can affect people in several ways: immediate learning (people learn directly from the message), delayed learning (the impact of the message is processed only some time after it has been conveyed), generalized learning (in addition to the message itself, people are convinced about concepts related to the message), social diffusion (messages stimulate discussion among social groups, thereby affecting beliefs) and institutional diffusion (messages instigate a response from public institutions that reinforces the message's effect on the target audience) (Freimuth et al. cited by Rimer and Glanz).

Case Studies

Applying COMBI to the control of Ebola haemorrhagic fever in Yambio, southern Sudan

Introduction

It took quite a while to establish how an urban resident became infected with Ebola virus in southern Sudan in April 2004. The civil war and the relatively dense population had reduced the amount of game in the area around Yambio. Some time after the end of the outbreak, Armin Prinz,[32] a medical anthropologist, was able to ascertain that a 23-year-old radio technician had been hunting with a home-made shotgun along the border between the Democratic Republic of the Congo and Sudan and had killed two baboons. As was customary among the Azande, he probably consumed a raw or barely grilled piece of meat. Two weeks later he developed fever, and subsequently had a rash, vomited and passed bloody stools. He was taken to hospital but was eventually discharged home, where he later died. His father, who had washed his body, developed the same symptoms and died. His mother, sister and uncle also became ill. The mother and sister recovered, but the uncle died. Hospital workers who had taken care of this first patient, unaware that he had been highly infectious, also contracted the virus and in turn infected their own families.

Ebola is a highly infectious virus that is transmitted rapidly by direct contact with the blood, secretions, organs and other body fluids of infected people. Although the behaviour necessary to stop the spread of the virus may be simple, it has heavy social and cultural costs. The normal social practices that bind families and communities together, such as caring for the sick and burying the dead, became the most effective ways of transmitting the disease.

No specific treatment or vaccine is yet available, and the public health measures include strict isolation and barrier nursing of infected people and active surveillance, which involves seeking

people who may have had contact with an infected person and visiting them daily during the incubation period of the virus (21 days) to see if they develop symptoms and to isolate them and provide palliative care if they do. Social mobilization and communication interventions are necessary so that affected communities are well informed about both the nature of the disease and the outbreak containment measures and what they can do to protect themselves, their families and communities. They must be convinced to take appropriate action.

Outbreak response

Southern Sudan has experienced epidemics and outbreaks of many common and uncommon diseases. When rumours began circulating of a mysterious infection spreading in a southern Sudan community, within days of hospital staff becoming sick, the WHO Early Warning Alert and Response Network was set in motion to identify, confirm and respond to suspected outbreaks within 24–48 h. An investigation was conducted and response activities were launched.

The District Commissioner quickly set up a crisis management committee to oversee the response, with four technical subcommittees: for case management, surveillance, social mobilization, and logistics and security. Members of the management committee included heads of county departments of e.g. health and education, church and local government leaders and representatives of agencies (WHO, UNICEF, the United States Centers for Disease Control and Prevention and MSF).

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32 Prinz A. Contributions to visual anthropology: ethnomedical background of the Ebola epidemic 2004 in Yambio, South Sudan. Presented at The Society for Applied Anthropology, 66th Annual Meeting, March 28 – April 2, 2006, Vancouver

The social mobilization subcommittee coordinated the work of 21 teachers, pastors and volunteers who had had experience in community mobilization for poliomyelitis and measles campaigns. They had one vehicle with a public address system to reach local communities but were finding it difficult to answer questions from members of the communities and at times were met with hostility. Posters had been distributed to health centres, and letters and briefing papers had been sent to all church and government leaders, requesting their support. There were nevertheless real challenges to overcome, which underscored the dynamic unfolding of outbreaks that necessitates consistent listening and continuous adaptation of activities and messages in response to community concerns.

Rapid situational market analysis

Social mobilization activities had been instigated from the outset, and, in June 2004, external support to the local committee was provided through WHO's Global Outbreak and Response Network. The first step was to listen to what people thought, felt and understood about the Ebola outbreak and control activities and what they were doing and not doing (and most importantly why) to protect themselves during the crisis.

Rapid key informant interviews and focus group discussions were held with the social mobilizers, health staff and other members of response teams, such as surveillance officers and people in marketplaces and churches. At the same time, information was gathered about people's daily lives—what they did and who they came into contact with—to identify appropriate communication settings and channels and influential, trusted, credible sources of information who could best deliver messages and promote collective action. Observational research was carried out to determine how the social mobilizers performed their activities and how they could be supported.

Awareness of the outbreak was high because of the local authorities' response and the activities of the social mobilization team. Efforts to convince and persuade people to take the necessary precautions met, however, with a number of obstacles. First, the lack of communication infrastructure, such as radio, newspapers and telephones, made it extremely difficult to impart information. Secondly, people were not convinced that the causative agent was Ebola virus, because the outbreak was affecting fewer people than previous outbreaks. Thirdly, people feared the isolation ward, and they were hiding their sick from the surveillance teams because they did not want family members to die alone and not be allowed a proper burial. Finally, rumours were circulating that they could not see their dead relatives because blood samples and skin were being removed from them and sold. Some families, however, were imposing tremendous 'costs' on themselves by not leaving their homes between 17:00 and 07:00, because they mistakenly believed that this would prevent them from getting the disease.

Focusing on key behaviours

One of the first priorities was to identify not more than three forms of preventive behaviour that could protect people and their families. It was relatively easy to come up with a long list of practices to be avoided, but it was difficult to set priorities and present the behaviours as positive actions. The following key behaviours were agreed upon after consultations between technical and communication staff, and the social mobilization activities and messages were built aroud them.

- People should contact the Ebola control team within 24 h of the onset of symptoms. The rationale was that early detection and diagnosis and appropriate management would rapidly prevent further spread. Furthermore, sick people were encouraged to stay at home and to avoid attending community gatherings or meetings.

- Caregivers should protect themselves and avoid direct contact with the body fluids of sick individuals, and other household members, especially children, should be kept away from sick family members.

- The traditional practice of sleeping next to and touching dead bodies should be avoided during the crisis.

Community members were also encouraged to wash their hands regularly and ensure that all food items were thoroughly cooked before eating. They were discouraged from shaking hands, sharing utensils with the sick and picking up dead animals found in the forest.

An integrated, multi-faceted mobilization and communication strategy

WHO's COMBI framework was used as a planning tool to adapt and strengthen interventions and design new ones. Villages that might have Ebola cases were targeted, and other activities were designed for a wider audience. The social mobilizers were essential for the success of the strategy: they were already a highly committed team of pastors, teachers and community development workers, who travelled and spoke to people daily in their houses, on marketplaces and in restaurants and churches. The aim was to help them to engage better with local communities and to encourage people to reflect on how the recommended behaviour (individual and collective) could control the spread of Ebola and bring the outbreak to an end. They were told that, without their efforts, the crisis might be prolonged. The impact of the social mobilization team was enhanced when survivors of Ebola joined the team and narrated their experiences to community members.

Communication materials and messages were not the starting-point to the strategy but were selected and developed for specific purposes, on the basis of the rapid situational market analysis, and were combined with other activities. The intended effect was to secure community action rather than only 'educate' or 'raise awareness'.

The COMBI blend of communication interventions

Public advocacy: mobilizing decision-makers and administrative structures:

- Support from the county administration to chiefs and church leaders was intensified when the Commissioner asked them to focus on addressing distressing rumours.

- Church leaders were asked to remind people about the key behaviours during their regular sermons in the crisis period and to let people know that they would be informed by the health authorities as soon as the crisis was over and normal practices could be resumed.

- The social mobilizers designed a rota of visits to all churches and spoke at large gatherings, telling people about the outbreak, what was being done, the need

for vigilance and collective action and the necessity of early reporting and diagnosis. They also stressed that caregivers of sick people were at particular risk.

Community mobilization:

- Meetings were held with chiefs and local communities, including traditional healers, in areas with many potential cases. People were encouraged to ask questions, and the sessions were lively. Ebola survivors also spoke and answered questions.

- When possible, after the meetings, house-to-house mobilization was conducted. The mobilizers were given information material to hand out at all opportunities, which gave them confidence to approach people and provided a reason for engaging them.

- Marketplaces were targeted with public addresses, leaflets and conversations with the mobilizers.

- Teachers were given orientation on Ebola control and posters for their schools.

Personal selling: mobilizing local networks and advocates:

- The social mobilizers were trained in basic communication techniques, both verbal and non-verbal, answering difficult questions and use of the public address system. Previously, the microphone was kept inside the van, so that community members could not ask questions; subsequently, the microphone was taken outside. At one point, the credibility of the social mobilizers was questioned because they were shopping at the same time as conducting community dialogue; this practice was stopped, so that they concentrated on their work. The mobilizers were also trained by the health staff, to whom they could pose the questions that were not on the question-and-answer sheets they had been given but were being asked by communities. They were also taken to see the isolation ward (from the outside), to see for themselves the structure and the process so that they could allay the concerns of community members.

- They were given distinctive T-shirts so that people could recognize that they were part

of the control effort and were Ebola control team members. These enhanced their credibility in the eyes of communities and increased their self-confidence and pride in what they were doing.

- Leaflets were produced in the local language and distributed, addressing the basic questions and circulating rumours. The leaflet contained an artist's drawing of the isolation ward, so that people could see that the fence was low enough that families could see and talk to patients without touching them. It also had photographs and testimonies of people who had been treated in the isolation ward for Ebola and had survived, urging families to protect themselves and each other during the crisis.

- The local bishop provided pastoral counselling to families that had lost many members, building empathy and allowing families to express and share their grief rather than being met with inquisitive questions and providing blood samples.

Promotional material and advertising:

- Banners were placed in local marketplaces, health centres and churches to remind people to be vigilant during the crisis.

- Announcements were made by the social mobilizers in the evening, at a time when people had returned home from cultivating their land.

- All materials were in one colour so that people could associate them with the control programme. The colour chosen traditionally signifies hope and the coming of something good.

Lessons learnt

One of the major lessons learnt from the crisis in Sudan in 2004 was that effective listening is the foundation for effective social mobilization, communication and outbreak control strategies. Communication is not just giving messages but is a process with an outcome (outbreak control), which promotes dialogue among everyone involved in outbreak response, beginning with affected community members. Effective listening can strengthen relationships, build trust and enhance transparency. The real challenge, however, is in the response to the information and insights gained by listening and transforming them into appropriate actions. Once the outbreak ended, the local authorities had an official ceremony to acknowledge the efforts of everyone involved in the response; people who had died were remembered, and local personnel were given certificates and thanked for their commitment and dedication.

Applying anthropological concepts and approaches during an outbreak of Marburg haemorrhagic fever in Angola

Introduction

The aim of this case study is to describe the difficulties encountered in designing effective communication strategies during the outbreak of Marburg haemorrhagic fever in Angola in 2005. It also demonstrates the importance of understanding sociocultural and political issues in order to anticipate and prevent misunderstandings, clashes and tensions between health authorities and communities.

Although public health epidemiologists found some irregularities in the mapping of the Marburg outbreak in Angola, they concluded that the epidemic began in October 2004, when the first case (according to the symptoms of some patients) was registered in the paediatric unit of the provincial hospital in Uige. One year later (October 2005) and 6 months after Marburg haemorrhagic fever was confirmed by both the United States Centers for Disease Control and Prevention and the Institut Pasteur of Dakar (Senegal), the international community and local health authorities announced the end of the epidemic. Officially, the outbreak claimed 429 lives, more than 50% of whom were those of women and children under 5.

Understanding the outbreak: 'western' and 'southern' science

Each science provided its own explanation of the outbreak: the team of epidemiologists and the infection control team from WHO and MSF Spain localized the source of the virus in the Uige Provincial hospital, in the paediatric and surgical units, where the first cases were identified. In this hospital, 13 nurses died, in addition to the patients, which spread panic among the rest of the personnel, who abandoned the hospital. Word spread that an invisible danger was killing everyone without exception: babies, women, nurses, doctors, old and young people. People were being infected by contact with dead bodies during the funeral rites described below and in the hospital by iatrogenic infections.

For the intervention teams, the first urgency was disinfection of the entire hospital and establishment of protective measures for all personnel in order to reduce contact and prevent spread of the virus and more deaths.

The local explanation, which was terrifying the population and which complicated the establishment outbreak control, was based on a rumour that the director of the Uige hospital had 'bought' the virus to infect the hospital from a powerful traditional leader in the Democratic Republic of the Congo in order to help his brother, who was the MPLA deputy in the National Assembly, to be recognized by the President of the Republic and nominated for a ministerial post in the next Angolan Government. The people believed that the faster he collected victims' lives with the virus, the greater and shinier would be his brother's aura in the MPLA group in the National Assembly. The man was clearly a scapegoat and had to move urgently to Luanda, terrified by the possibility of being murdered.

The power of traditional healers

The hospital was considered to be the source of the infection and contamination. In the ensuing panic, many families 'stole' patients and the bodies of the dead from the hospital and hid them at home or in the surrounding bush. As all the medical staff had abandoned the hospital, the panic-stricken community members mostly turned to traditional healers. As traditional healers became the main source of hope, many began to sell expensive 'vaccines' and prophylaxis to prevent contamination and cure infections, at prices of US$ 150–300. A rumour that two infected nurses had survived increased people's belief in the effectiveness and efficiency of these medicines. A team of traditional healers asked the Governor to establish a traditional healing unit in the hospital, both to cure the infection and to fight against supernatural forces.

The intervention team also faced rivalry among traditional healers and had to select those who

could effectively help in fighting the outbreak. The anthropologist team organized door-to-door visits to the main respected traditional healers, in order to classify them and identify those with good intentions. Four groups of traditional healers were described:

- those who did not know Marburg haemorrhagic fever and used divination to seek the causes of fate;

- those who confused the clinical manifestations of Marburg haemorrhagic fever with those of one or more indigenous syndromes, thereby legitimizing their diagnosis;

- those who healed or prevented illness by a revelation of Christian or indigenous inspiration; and

- those who benefited cynically from the misfortune of others to gain the maximum amounts of money and power.

Rapid assessment of normal funeral rites

The aim of this rapid assessment was to compare normal funeral rites with those practised during the outbreak and to propose humanization solutions to prevent and avoid further trauma to the people. During funerals, parents or friends of the same sex wash the body, dress it and make it up and expose it on a bed or a mattress until the burial ceremony the following day. The whole community dances and cries around the body, singing words that remind them of the favourite activities of the dead person. The deceased is kissed, touched and caressed in farewell. All the women sit around the body and hold a wake, crying. A huge crowd accompanies the coffin to the cemetery, praying and singing, with a woman from the maternal side of the family or the eldest sister sitting on the coffin all the way.

The belongings and cherished possessions of the dead, with drapes and new sheets, are put in or on the tomb to accompany them on their 'last journey'. Depending on the religion, prayers or words are said to threaten murderers. The dead might be asked to point at murderers in dreams, and a deadline can be fixed for when the murderers will meet their victims in the tomb. After the funeral, everyone returns to the house of the dead to wash off the 'deadly stain' in a basin of water at the door or entrance of the residence. If these rituals are forbidden, as during a Marburg haemorrhagic fever epidemic, families are prevented from mourning properly, deepening their suffering.

Conflict with communities

The main cause of the conflict was that communities felt that they were not being listened to or involved in management of the epidemic. At the end of March and beginning of April, MSF Spain and the military corps, in the process of disinfecting the hospital, cleaned the morgue of bodies that had not been claimed and buried many of them urgently, without coffins, in the Uige central cemetery. The identification on the graves did not correspond to the names on the official birth certificates of the deceased.[33] Additionally, a serious mistake was made, in that all the graves were marked with a cross, even though not all the dead were Christians.

Communities felt that activities were being conducted in secret, with no information about what the intervention teams were doing or why. For instance, many patients were taken from their homes to the isolation unit in the hospital, and, when they died, their families were not informed about the cause of death; no certificate was given to the families, and the bodies were buried by the burial team according to biosecurity norms, in the absence of any member of the dead person's family. The bodies of people who died at home were taken away by technical teams dressed in white biosecurity clothing, put rapidly into body bags and taken to the cemetery. In the local symbolism of central African and Bantu culture in general, white is associated with ghosts; therefore, for the communities, patients and dead people were seen as being taken away by ghosts.

Communities were not allowed to complete the death rite by saying their farewells to family members, and neither funerals nor mortuary rites were allowed. Communities also accused

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33 Forty tombs were affected by this mistake. The confusion was due to the fact that, in Angola, many people use names that are different from those on their official documents. Relatives who took a patient to hospital or the patients themselves might have given a current name, which the MSF burial team used to identify the tomb. The bodies in the morgue were identified on a sheet of paper on which the names were virtually illegible owing to excretions from the bodies.

local political and administrative authorities of not involving them and for their 'silence' about what was happening, understood as complicity with the 'murderers'. Communities felt 'unprotected by those who had responsibility to protect them'.

The establishment of military command increased the communities' frustration. They were forbidden to ask questions and had to obey the authorities and military orders as they had done during the civil war. An MSF psychologist was available to assist the families, but her approach was considered irrelevant because of cultural misunderstandings about the expression of empathy. Many rumours then spread among the communities: MSF Spain was taking dead people's organs to sell before burning them. MSF Spain had seen children with the virus during their vaccination campaign months before. MSF and the medical staff were killing people, abandoning patients in the isolation unit, where they died of starvation and loneliness. The medical staff and MSF were developing the virus in the isolation unit and contaminating the population. MSF and the medical staff had no empathy and did not share local misfortune. The epidemic was the last strategy used to exterminate the people of Uige. Another terrifying rumour was that the spirits of two female nurses who had died had been seen in the street and in taxis, because mortuary rites and funerals had not been conducted for them and they were coming to get their revenge.

On 7 April, at 15:30, an MSF Epicentre employee, his driver and his translator were attacked in Kima Congo, one the most affected districts. They were insulted and threatened, and local people threw stones at their car. A WHO team was attacked on the same day in another district.

Strategies to build trust between communities and intervention teams

On 9 April, the provincial political and administrative authorities met with communities, accompanied by teams from WHO and MSF, in the four most severely affected districts. During these visits, the Governor and the medical authorities listened to the communities, showed empathy, explained the role of the intervention teams and explained what the Marburg virus is and the importance of changing mourning habits. They asked for the cooperation of traditional authori-

ties and confirmed the need to work together in order to bring the outbreak under control. The WHO coordinator, in the name of the international team, addressed condolences, apologized for the mistakes that had been made and stressed the need to fight the epidemic together. Although the mission was not wholly successful on that day, because of protests, it calmed the affected communities and gave them answers to many of their questions

The first WHO communication specialist arrived on 10 April from Mozambique and set up a communication and social mobilization strategy, in close collaboration with the team of anthropologists. Churches, the media, associations, high schools, medical staff, traditional authorities, administrative authorities, traditional healers and nongovernmental organizations were trained and involved in the process. New messages and strategies were prepared and distributed daily, depending on the context and the circulating rumours.

One of the first recommendations of the team of anthropologists was to address condolences to affected families and to participate with families in mourning in order to show empathy about their misfortune. They also made recommendations for creating better understanding between the intervention teams and the community. Response workers were asked to drive with the windows of their cars open and to smile and greet local people systematically. They were asked to try as often as possible to establish direct dialogue with people who expressed hostility and to avoid driving around communities with staff dressed in protective clothing, as they were often considered to be 'devils' and triggered fear and violence.

Addressing gender issues and creating gender sensitivity

In the Marburg haemorrhagic fever outbreak in Angola, most of the victims were women and children under 5 years of age. This illustrates the importance of gender, kinship and the concept of 'household production of health' explained in Section 4 and can be attributed to the fact that women are traditionally responsible for taking care of children, the sick and the elderly in a community, in both urban and rural areas. As most traditional birth attendants, obstetricians and paediatricians are women (in both traditional

and modern systems), they are more acutely exposed to infection than men during outbreaks of haemorrhagic fever. Women generally also more frequently visit medical centres for consultations on pregnancy, antenatal care, deliveries and postnatal care.

Women continue to assume their normal responsibilities during outbreaks and, by caring for others, are exposed to a greater risk for infection. For instance, the wife of a male nurse at Songo Hospital in Uige was 6 months' pregnant and the mother of a 3-year-old. In spite of the advice of the MSF Belgium doctor, she refused to use gloves or any other protection when taking care of her husband, arguing that it was her responsibility to be close to him and take direct care of him. She was afraid of the reaction of her husband's family. Ten days after her husband died, she was admitted to the obstetrics service of Uige Provincial hospital, where she suffered a miscarriage. She, her husband and the 3-year-old child were all found to have Marburg haemorrhagic fever.

All intervention teams must take gender issues into account from the beginning of an outbreak, and direct interventions should be designed for this vulnerable group. Gender issues should be the concern of the social mobilization team and also those who are in a position to make decisions about the management of an epidemic.

Conclusion

Despite a number of setbacks and initial errors, a number of organizations put their efforts together to design effective strategies, which yielded good results 3 weeks after intervention teams were established in Uige. The strategies included the social mobilization and communication team of WHO Mozambique, a UNICEF team, a team of anthropologists, communications experts from the Democratic Republic of the Congo, Angola Red Cross volunteers, Uige school of nursing volunteers, traditional healers, churches, the media, traditional authorities, MSF and medical staff.

Applying anthropological concepts to the control of avian influenza in Cambodia[34]

Introduction

Cambodia was one of the first countries of South-East Asia to be affected by a devastating strain of HPAI of the H5N1 subtype (H5N1 HPAI). Since January 2004, Cambodia has regularly reported outbreaks of H5N1 HPAI in poultry, including in 2011. Fifteen human cases due to the H5N1 virus have been reported in Cambodia, 13 of which were fatal. As in other South-East Asian countries, most human cases have been linked to direct contact with diseased or dead poultry in rural areas, and half of the fatal cases were among children, showing their particular vulnerability to the disease. Avian influenza outbreaks and associated disease control measures have also contributed to widespread mortality among domestic poultry, with devastating economic consequences for Cambodia's backyard farmers, who make up the majority of the country's rural population.

After 2004, a series of intensive, nationwide media campaigns were conducted to raise awareness about avian influenza and give the public messages about prevention of the disease, initially focusing on animal-to-human transmission. Communication campaigns promoted messages for immediate reporting of sick and dead poultry to authorities; washing hands frequently with soap and water, especially after handling poultry; keeping children away from sick and dead poultry; and safe methods for the handling, preparation and consumption of poultry. Behavioural messages regarding the prevention of poultry-to-poultry transmission of HPAI were disseminated in subsequent communication campaigns, including messages calling for the separation of poultry species, quarantine of new and sick poultry, keeping poultry in enclosures and proper cleaning and disposal of poultry faeces.

In 2007, several sociological surveys were conducted, which showed that, despite generally high levels of awareness about HPAI and its prevention, many people had not changed their behaviour. In other words, there was a gap between awareness about the behaviour promoted for avian influenza and actual behavioural change. Within the HIC-DARM framework for behaviour adoption (see Tool 11), most people were still at the information stage: most had heard of and become informed about the disease and the promoted behaviour, and many people in communities affected by previous outbreaks were convinced that the behaviour was worthwhile. Nonetheless, very few people reported translating this information into practice: the DARM stages of behaviour adoption.

As in most health campaigns, communication and education play a vital role in overall social mobilization strategies for controlling avian influenza in poultry and preventing its transmission to humans. The initial behavioural objectives must be based on the best available scientific information about the dynamics of the pathogen, especially for identifying factors that contribute to patterns of disease transmission or risk for infection. Nevertheless, no matter how sound a recommendation is technically, it is effectively irrelevant if it fails to bring about the desired change in the behaviour or the environment of the target population. This case study began in a situation in which an initial communication strategy was already in place and in which anthropological concepts were applied to COMBI planning steps 2–4, from reviewing the situational market analysis to refinement of the behavioural objectives and designing an overall social mobilization strategy in order to bridge the gap between high levels of awareness and the

continuing prevalence of high-risk behaviour in target populations. For brevity, this case study is limited to the application of a few anthropological concepts to the problem of social mobilization.

Situational market analysis, tools and methods

The checklist for situational market analysis is a good tool for rapidly defining groups on which to focus, deciding who to talk to and where to go. From the results of previous surveys, it was possible to distinguish four distinct samples for the situational market analysis.

The first sample was similar to the larger samples used in quantitative surveys. Field sites were selected in districts included in the previous studies, and the same inclusion criteria were used: high human and poultry densities, smallholdings of household poultry and significant cross-border poultry movement. As in the survey samples, this group was expected to be well aware of the basic, high-priority messages about H5N1 HPAI. The group did not include villages or districts that had experienced avian influenza outbreaks.

The second set of participants was recruited from villages and districts that had first-hand experience of outbreaks of avian influenza. Focus group discussions were conducted in four villages that had experienced HPAI outbreaks in poultry and in two villages in which there had been human cases. The focus group discussions and observations were designed to improve the communication materials for the next suspected or confirmed outbreak of avian influenza in Cambodia.

The third set of participants was recruited from districts and villages with high proportions of households that rely on duck production for income. The results of previous surveys suggested that this group might be significantly different from most backyard farmers, who use poultry as an asset rather than as a source of income. The situational market analysis focused on duck production practices, as HPAI often circulates in flocks of ducks without causing recognizable symptoms or conspicuous clusters of deaths.

The fourth set of participants was recruited from communities in a province that was not included in the large-scale sociological surveys. The participants were backyard farmers, migrant labourers and local authorities in five villages in three districts in the remote Rattanakiri Province. The sample included communities of ethnolinguistic minority populations, which had social and economic characteristics that set them apart from the backyard farmers targeted in previous surveys and had had less exposure to messages about H5N1 HPAI.

An extensive set of participatory tools is available for rural appraisals. In Cambodia, the study team relied on semistructured participatory tools like focus group discussions, key-informant interviews and structured and unstructured observations. The focus group discussions incorporated tools like free listing and top-of-the-mind and day-in-the-life-of analyses in order to learn about household and community priorities, practices, beliefs about disease causation, illness behaviour and hierarchies of resort for human and animal care. Twenty focus group discussions were conducted in 13 districts in seven provinces, and numerous observations and key-informant interviews were conducted with community leaders, traditional healers, community animal health workers and poultry buyers, distributors and vendors. The focus group discussions were conducted in normal settings for community gatherings, generally in the shade of a tree, in a public space like a pagoda or schoolhouse or in the shade under a community leader's house. The objective of organizing focus group discussions is to create an environment in which people feel relaxed and free to express their views, while maintaining enough structure to keep the conversation on the topic and record the event for later analysis. For this study, the focus groups were divided by gender, for several reasons. First, it is well established that a 'household' does not necessarily constitute a single economic unit with common objectives and resources, and different members of a household can have different or even contradictory interests with regard to agricultural production, poultr, and livestock. Secondly, in some places, women are less likely to express their views in the presence of men. Lastly, men and women in rural Cambodia have different responsibilities and therefore availability at various times of the day, depending on the season.

The qualitative findings were consistent with those of the quantitative survey: high levels of awareness of behavioural messages combined with the persistence of risky practices and troubling beliefs about the transmission of HPAI. When asked what people can do to protect themselves from avian influenza, most groups could compile a list of messages: 'Do not touch dead poultry.' 'Cover your mouth and wear gloves when preparing poultry.' 'Wash your hands after handling poultry.' 'Cook food thoroughly.' There was less awareness of messages about preventing poultry-to-poultry transmission. Nonetheless, when asked what people can do to prevent their poultry from getting avian influenza, many groups could collectively recite a list of messages, such as: 'Keep healthy poultry away from sick poultry.' 'Bury dead poultry.' 'Clean the yard of faeces.'

In group discussions on what people actually do, however, participants generally described the continuation of several risky practices. For example, data gathered from focus group discussions suggested that the practice of preparing and consuming sick or dead poultry was still widespread and certainly more prevalent than the levels reported in the larger-scale statistical studies. This illustrates the usefulness of open-ended questions and follow-up probes. Many participants first insisted that they never ate dead poultry, but, as the conversation unfolded and people relaxed, someone would eventually say that of course many people ate sick or dead poultry. Many of the participants who first denied the practice eventually modified their answer, such as: "I never eat dead chicken, unless it is a big one and hasn't been dead for too long." and "I never eat dead poultry; if it is sick and I can tell it is going to die, then I will kill and eat it first." In every group discussion, participants acknowledged that it had been perfectly normal to eat sick or dead poultry before avian influenza.

Other findings were consistent with the survey results, such as low levels of use of personal protection measures when handling poultry and low levels of reporting. This case study focuses on the use of anthropological concepts and COMBI tools to understand why these practices persisted despite huge expenditure on trying to get people to change their ways.

Applying anthropological concepts

As explained in Section 4, the distinctively anthropological element of the situational market analysis consists in questions that are the basis for the design of study instruments. In order to understand the background knowledge and the values on which practices are based, the first questions focus on what people already do to protect their flocks from illness.

- Most participants reported use of a range of traditional remedies to treat sick poultry.
- Some reported seeking (often dubious) advice and products from a local veterinary pharmacy.
- Some reported seeking the help of a local community animal health worker, district veterinarian or village chief.
- Many reported separating new poultry for a few days to keep them from wandering off before setting them free to mingle with and scavenge among household animals.
- Many reported housing their poultry under the house at night to protect them from other animals and theft.
- Many said that they bought only local poultry because they regarded avian influenza as something coming from 'far away': from larger markets and other countries.
- A few participants said that they avoided commercial feed and even vaccinations because they believed they could transmit avian influenza.
- Virtually all participants reported a common practice of gathering some or all of their remaining healthy poultry for sale on the market once poultry sickness appeared to be spreading in nearby flocks.

Obviously, some of these practices are undesirable from the point of view of biosecurity and human health. Some, however, could be useful resources if social mobilization strategies could modify and build on them by understanding their rationale or cultural logic.

The perceived 'naturalness' of poultry sickness and death was an important obstacle to designing communication materials that were effective in bringing about behavioural change. This 'natu-

ralness' leads to several behaviours of concern: lack of reporting, lack of hygiene when handling poultry, consumption of sick and dead poultry and other practices that contribute to poultry-to-poultry and poultry-to-human transmission. Group discussions indicated that social mobilization strategies should be modified to take into account the meanings of and relations between categories of local poultry disease by examining local explanatory models of the causes of illness.

Explanatory models and illness behaviour

Rural Cambodian farmers have two parallel, simultaneous models for explaining and managing poultry sickness. When asked why poultry die, every group cited seasonal environmental changes resulting in heating of the ground and the arrival of rains. This model is rooted in a broader hot–cold model (common in many parts of the world) that extends to understanding of human health; many of the traditional means used to treat sick poultry are based on correcting hot–cold imbalances. The list of traditional remedies reported by participants is too long to describe in detail, but they generally included soaking a locally available substance (e.g. lemongrass, the bark of *kapok, kmuol* or *vorlpich* trees or the leaves of *tuntreanket*) in water and then feeding the steeped liquid to poultry. As the hot–cold model also extends to human health, it was not uncommon for people to report using human medications to treat their poultry. For example, one farmer reported that he bought medicines like paracetamol to make his poultry cool. As it was given to humans once a day, it was given to chickens two or three times a day.

It was generally acknowledged that traditional remedies are often ineffective, but many participants said that they expected no better help from the local community animal health worker or district veterinarian. Poultry still usually died, and the cost to the farmer was often considerably higher than for household remedies; therefore, as for human health problems, most households first sought treatment in the home. From experience and the perceived naturalness of seasonal poultry death, there was a general sense of helplessness in protecting household flocks from *dan kor kach*. During the time at the end of each group discussion when participants were invited to ask their own questions, one of the first questions was usually whether there was a medicine to treat sick poultry and keep them from dying.

This naturalistic seasonal explanation of poultry death had implications for efforts to control avian influenza in poultry and to prevent transmission to humans. One participant said that he would eat poultry if it died during the start of the rainy season, as his chickens always died of *dan kor kach* at that time of year. He said that he had never seen avian influenza. One participant said that chickens usually died between March and April, when it was very hot, and that therefore the cause could not be avian influenza. Even when people were aware of avian influenza, they felt safe eating poultry when there were large die-offs, usually between March and July. Importantly, many groups reported other times of natural die-offs. The period October–December was mentioned commonly, but almost every month came up at least once.

A parallel, simultaneous explanatory model for *dan kor kach* is based on notions of contagion and contamination. Over generations, the farmers have seen how *dan kor kach* can quickly spread throughout their poultry and between neighbouring flocks. This explains why many rural farmers move quickly to protect their assets or investments by selling healthy poultry when they start to see familiar patterns of *dan kor kach* in their own or neighbours' flocks.

The difference between these two models and associated illness behaviours has implications for social mobilization strategies. The naturalistic model is a treatment model of response. People turn to traditional household remedies or seek professional cures for their poultry in order to keep them from dying. If the poultry live, the treatment 'worked'; if the poultry die, the treatment did not work. In this explanatory model, people generally feel helpless, as there is little to do but hope that the remedies work. The contagion model is a prevention model of response. For instance, farmers sell healthy poultry when sickness appears to be spreading among flocks, or buyers check the vents of poultry before purchasing them and taking them to market. Although the behaviour in these examples is not ideal, the prevention model of response is the model that international organizations encourage for controlling avian influenza.

On the basis of these findings, social mobilization strategies were modified to address directly the problem that seasonal poultry illness is regarded as natural and harmless to human health. Furthermore, it was recommended that communication efforts be strengthened for maximum effect during high-risk periods, drawing on existing explanatory models and encouraging a shift from the seasonal model (which encourages people to seek and expect treatment) to the contagion or contamination model (which encourages people to think in terms of prevention). If backyard farmers could be convinced that the same behavioural changes they were being asked to make in order to prevent avian influenza would also help them protect their assets and investments from the more tangible ravages of *dan kor kach*, participants said that many farmers would go to significant lengths to do so.

Risk perception versus fear

In the focus groups, few participants considered that they could get sick from healthy poultry or poultry bought locally and prepared at home. Frequent expressions of generalized fears and anxieties about bird flu were totally disconnected from whether and to what degree people perceived themselves or their communities to be at risk. While the level of fear about avian influenza was generally high, most people viewed it as something that affects poultry 'far away', 'only in the big market' or in other countries, like Thailand and Viet Nam. People did not perceive that poultry purchased or raised and fed in their own community was at risk for avian influenza. The following quote from a female participant illustrates this common theme:

"We listen to the television and radio, we believe in avian influenza and we are afraid. But we did not want to throw the [dead] chickens away when they are big. We buried the small ones. I cooked the large dead chickens, and I did not take precautions because we never buy chickens from the markets. The chickens are hatched right here in this village. [...] I only feed my chickens with rice from my household so the chickens will not have avian influenza."

Most participants reported being 'afraid' of avian influenza; nonetheless, they did not see themselves or their households as being at risk for the disease. Common reasons cited included the fact that they bought poultry only from neighbours and nearby villages; they fed their poultry leftover or broken rice and not commercial feed; they did not buy from large markets; and they did not buy commercial poultry or poultry from other countries.

In communities that had not experienced an outbreak, there was a general sense that avian influenza happened far away and was unlikely to affect the local community. Not surprisingly, communities that had experienced human cases or poultry outbreaks and culling were far more likely than communities that had not experienced outbreaks in either humans or poultry to be aware of the priority messages and also to report widespread local adoption of the recommended measures, especially 'Don't touch or eat dead poultry' and 'Bury dead poultry.' The difference between the groups that reported changing behaviour and those that said little had changed was not associated with the level of awareness or fear. Virtually every participant in every group said they were 'afraid' of avian influenza. In the final analysis, the difference between the two groups was in risk perception: the degree to which they genuinely considered that their flocks and families were at risk for avian influenza.

Social mobilization: linking messages to local sensitivity and values

Persuading people to change how they usually act is difficult, perhaps especially so when the intervention concerns basic issues of livelihood or contravenes common sense passed down from generation to generation. Evidence, experience and common sense dictate that social mobilization strategies designed in collaboration with the target audience will be more effective than those imposed without consultation or opportunities for meaningful dialogue. The problem confronting communication efforts about HPAI in Cambodia was that high levels of awareness of priority messages had not brought about the desired changes in behaviour. A common theme in focus group discussions was "I have heard about avian influenza, but I have never seen it. When we see someone die from eating dead

poultry, maybe that will be the day people stop doing it." Several participants cited a proverb to the effect that "hearing is just hearing; seeing is believing", and this was repeated in many group discussions. Both explanatory models for poultry disease—season and contagion—were based on this underlying theme. Many people also said that they were more inclined to believe something they were told by someone they trusted, who had seen things first-hand, than from authorities on the radio. As the theme "If we see it, then maybe things will change" was common to many group discussions, recommendations were made to modify social mobilization strategies to include this message.

Conclusion

One of the main reasons cited for the lack of association between awareness of avian influenza and changes in behaviour was disconnection between messages and local values and priorities. Many people pointed out that messages about avian influenza were presented as a set of imperatives, without explanations of why the behaviour would be beneficial for the farmer. Fortunately, most of the proposed behavioural changes for preventing avian influenza in humans and poultry are understandable when their rationale is well explained. One challenge was that most Cambodian farmers have experienced poultry sickness and death; however, the study results indicated that, even if people are used to having poultry die, they may still go to considerable lengths to protect their family assets and investments. People already adjust their actions when family members or poultry become sick. Participatory research showed that people were often aware of key messages, in that they understood and could recite them, but they were not aware of why they should do things differently. This indicated that the social mobilization strategies should better connect behavioural messages with local values and priorities. Recommendations were therefore made to associate behavioural messages explicitly to a local value, such as family well-being and prosperity. In many focus group discussions, people said they would make the suggested changes if it would protect their poultry or help their family prosper. There are many ways to incorporate these values into media, including posters for poorly literate populations, as virtually every group recognizes visual representations of well-being and prosperity. The challenge was therefore to design social mobilization strategies and communication materials that effectively connected behavioural objectives to the sensibilities, values and priorities that resonate with and motivate the activities of the audience.

Measles outbreak in Fiji: the importance of monitoring[35]

Introduction

In early February 2006, three infants in Fiji were admitted to a divisional hospital with a rash and were suspected of having measles and pneumonia. Fiji, the most populous country in the South Pacific, had been considered measles-free or, more precisely, to have interrupted transmission of indigenous measles, since late 1998. In the last confirmed outbreak, between September 1997 and April 1998, there had been 955 confirmed cases. Measles vaccine coverage had been steadily increasing, from 20% in 1982 to 80% in 1998, but was still far from WHO's recommended level of over 95%. Fiji had attempted to improve the vaccination rate by adding a scheduled second dose in the form of measles–rubella vaccine in 2003 as a school entry requirement. A 2005 survey revealed nationwide vaccination coverage of 80% with one dose of measles–rubella, although areas with lower doses were found.

On 28 February 2006, a diagnosis of measles was confirmed in all three infants, and, between 17 February and 9 June, 132 cases were reported, 90% of which were in the Western Division and the remainder in the Central and Eastern divisions of the country. It was found that 44% of the cases could be traced back to a single subdivision, where routine coverage with one dose of measles–rubella vaccine had been only 49% in 2004 and 68% in 2005. Once these cases were confirmed, surveillance was stepped up, and, by 2 March, a concerted campaign was launched in the Western Division to vaccinate school pupils. By 9 March, a national measles vaccination campaign had been introduced for all children aged 6 months to 6 years, and, after a period of market research, the COMBI plan was launched on 12 March. The national campaign was officially launched on 20 March.

35 From Centers for Disease Control (2006). Measles outbreak and response—Fiji, February–May 2006. Morbidity and Mortality Weekly Report, 55;963–966. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5535a3.htm; WHO (2006). Measles Bulletin, 9 June 2006. http://www.wpro.who.int/NR/rdonlyres/6C617F1C-527F-4489-9EFB-39C22CD8B72E/0/MeasBulletinIssue9.pdf; Parks W (2010). COMBI: measles outbreak in Fiji including the use of monitoring. Presentation at WHO COMBI training, Geneva.

The COMBI plan was based on a rapid research phase including observations of communities and clinics and exit interviews (interviews with people after they have left the clinics). It was decided that the essential behavioural focus of the campaign would be to encourage people to go to a clinic, where more technical explanations and communication could be given. With that goal in mind, the slogan 'Come to the flag' was created, with distinctive blue branding of logos, materials and a flag that identified the clinics at which the vaccine could be administered. The campaign followed COMBI's five-pointed star approach of mixed communications channels, tools and products.

The COMBI blend of communication interventions

It was considered important to deliver regular information and keep the public up to date as the epidemic developed. The campaign depended on public trust in the clinics and in the effectiveness of the recommended behaviour, without distraction by rumours or political interference. With an upcoming election, this had to be managed carefully, so regular meetings, phone calls and letters were used to ensure that all levels of Government and support services were informed and aware of the campaign and their role in it.

Keeping the media informed and engaged helped to inform the population about the campaign, its progress and accurate details of the behavioural objectives. Four press conferences were held, news releases were written

regularly, and interviews were held with senior officials and staff. Over 60,000 fact sheets were distributed in English, Hindi and Fijian to teachers, schools, religious organizations, district officers, the heads of provincial councils *(roku tui*), village chiefs and advisory councils. Face-to-face meetings were held with important community members and groups, with regular phone calls, faxes and visits. This was particularly useful for announcing visits from the vaccination teams.

The success of the intervention depended on ensuring that both mobile and fixed vaccination clinics were easy to find and associated with the campaign. Health workers were informed through the distribution of 2,000 fact sheets, and 400 blue flags were distributed and displayed at all vaccination clinics. Clinicians were given vests that gave them a cohesive identity with the campaign and added professionalism and trust. All communications consistently reinforced and promoted the 'where and when' aspects of point-of-service promotion, i.e. where the vaccine was available, when and how.

Mobilizing opinion leaders and people of influence as ambassadors and points of contact for the programme sent the messages of why the campaign was important, who it was for and what people could do about it to the right people. Information shared in the community mobilization phase helped people deliver accurate, consistent information. The campaign depended on conversations between health workers and families, schoolchildren and families, religious leaders and families, village headmen and families and discussions between families stimulated by coordinated information on television, radio and newspapers, as well as seeing flags and other visual cues at the clinics.

The mass media campaign was organized in three flights of intensive print and television and radio broadcasts, covering three themes. The first, 'Beware', ran between 18 and 30 March and was designed to send the message about the urgency and seriousness of the epidemic, highlighting warning signs and encouraging visits and communication with local health clinics. 'Come to the flag' was the second phase, designed to motivate families with children to go to health clinics with a blue flag for free vaccination. This phase luckily coincided with Hong

Kong 7's rugby tournament, a sporting event that had the nation's attention. Advertising space was paid for during the matches in order to reach as many Fijian families as possible through television and radio broadcasts. A quarter-page advertisement in the two major newspapers ran 5 days a week throughout April, with television and radio spots promoting the 'Come to the flag' message.

A problem was idenitifed, however, in a survey of 171 people with children, who were asked four questions about the campaign and whether they were taking their children for vaccination. There was good news: 98% of the sample reported being aware of the campaign after only 2 weeks, and, of those who had heard or seen the campaign, 83% had taken their child to be vaccinated. Of the remaining 28 people who had not, 26 were Indo-Fijians. So, the 'Come to the flag' campaign was known but was not understood in the same way by all Fijians. The survey showed that Indo-Fijians had minor concerns, such as vaccination taking too much time, but the major concern was why healthy children should be vaccinated. The third flight message and the campaign therefore had to be modified. Only about 6 days before the third flight was to be launched (19–30 April), 'Come to the flag even if healthy' became the new slogan, and some of the materials were adjusted to ensure that Indo-Fijians were better reached.

Conclusion

As the campaign intensified, the number of children vaccinated by outbreak response teams increased dramatically. In only 5 weeks, most subdivisions had vaccination coverage rates of about 95%, and national coverage reached 97.5% of the roughly 100,000 children who required vaccination. This was a remarkable achievement by all the people who were part of the immunization campaign, especially the local health staff. COMBI contributed not only to getting children to clinics but also, by careful monitoring, identifying a group that was not being reached by the campaign and then adjusting the campaign accordingly.

Essential facts on major outbreak-prone diseases

Table 15. Currently known transmission routes of epidemic-prone diseases

Mode of transmission	Disease
Contact	
Direct environmental, e.g. faeces	Highly pathogenic avian influenza
Direct or indirect, bloodborne	Crimean Congo haemorrhagic fever Ebola haemorrhagic fever Hendra virus infection Marburg haemorrhagic fever Nipah virus disease Rift Valley fever West Nile virus infection
Airborne	Influenza Measles Meningococcal meningitis Nipah virus disease
Food and water	Cholera Nipah virus disease Rift Valley fever
Vector-borne Mosquito	Chikungunya fever Dengue haemorrhagic fever Rift Valley fever Yellow fever
Flea	Plague
Tick	Crimean Congo haemorrhagic fever
Perinatal	Crimean Congo haemorrhagic fever Ebola haemorrhagic fever Marburg haemorrhagic fever Nipah virus disease Rift Vallley fever West Nile virus infection
Blood transfusion	West Nile virus infection
Organ transplant	West Nile virus infection

Table 16. Transmission routes and groups potentially at high risk

Mode of transmission	Type of transmission	Potential transmission routes	High-risk groups and individuals
Contact (direct or indirect: blood-borne)	Human–human	Direct or indirect contact with blood, secretions, organs, other body fluids or skin lesions of infected people or recently contaminated objects Burial ceremonies in which people have direct contact with the body Infected semen up to 7 weeks after clinical recovery Unsafe injections	General community, caregivers of infected people, hospital staff, laboratory workers
	Domestic animal–human	Direct or indirect contact with blood, secretions or other body fluids of infected animals During slaughter or butchering, assisting at animal births, conducting veterinary procedures or disposal of carcasses or fetuses Ingesting unpasteurized or uncooked milk of infected animals	People who slaughter and handle animals, such as herders, farmers, slaughterhouse workers, veterinarians and household members People who drink and eat uncooked products from infected animals, e.g. milk, blood, meat
	Wildlife–human	During slaughter or butchering, assisting at animal births, conducting veterinary procedures or disposal of carcasses or fetuses Entry into caves or mines inhabited by bat colonies	Hunters, wildlife staff, miners, soldiers, tourists visiting caves or mines, health-care workers
Airborne (inhalation of contaminated air)	Human–human	Close contact with infected respiratory tract excretions and droplets	People in close, regular contact with infected people People who touch contaminated objects, for instance after an infected person has sneezed, coughed or transferred saliva
Food and water (ingestion of contaminated food or water)	Animals infecting human food or drinking-water	Eating food contaiminated by bats	General community in endemic areas

Mode of transmission	Type of transmission	Potential transmission routes	High-risk groups and individuals
	Human–human	Direct contact with the mouth of an infected person Food and utensils contaminated by infected people who did not wash their hands after defaecating	Caregivers of infected people, health-care workers
Vector-borne	Mosquitoes	Bites from infected mosquitoes	People living in endemic areas
	Ticks	Bites from infected ticks	According to season, people lving in endemic areas, people who work with livestick in endemic areas, health-care workers
	Fleas	Bites from infected fleas	General community during an outbreak
Perinatal	Human–human	Transplacental transmission	Infants in utero or during labour
Blood transfusions	Direct or indirect	Blood transfusion	People who have blood transfusions
Organ transplants	Direct	Organ transplant	People who have organ transplants

Essential facts on major outbreak-prone diseases

Highly pathogenic avian influenza

What is highly pathogenic avian influenza? HPAI, or bird flu, is a viral infection of the respiratory tract. It is highly infectious for wild birds and poultry. Most = viruses do not infect humans; however, some, such as H5N1, have caused serious infections in people.

Transmission: Wild birds carry the virus without showing signs of the disease, but they can spread it to domestic birds through close contact (saliva, nasal secretions, blood and faeces). Infected domestic birds can spread the infection from farm to farm or to households through close contact with other birds. Most human cases of H5N1 infection have been associated with direct or indirect contact with infected live or dead poultry. Controlling the disease in animals is the first step to decreasing risks to humans.

Signs and symptoms: The initial symptoms include a high fever, usually with a temperature higher than 38 °C, and other influenza-like symptoms. Diarrhoea, vomiting, abdominal pain, chest pain and bleeding from the nose and gums have also been reported as early symptoms in some patients. One feature seen in many patients is the development of lower respiratory tract symproms early in the illness. Present evidence indicates that difficulty in breathing develops about 5 days after the first symptoms. Respiratory distress, a hoarse voice and a crackling sound on inhalation are commonly seen. Sputum production is variable and sometimes bloody.[36]

Cholera

What is cholera? Cholera is a serious diarrhoeal disease, which is rapidly lethal if not treated. It is caused by germs in the faeces and vomit of persons infected with cholera bacteria.

Transmission: Cholera is spread through eating or drinking food or drinks contaminated with the germ that causes the disease. This can be prevented by ensuring that all human faeces, including children's, are properly disposed of in latrines.

Signs and symptoms: People present with severe watery stools with or without vomiting. If untreated, they become weak and soon die from dehydration and loss of body salts.

Dengue and dengue haemorrhagic fever

What is dengue? Dengue is a mosquito-borne infection that causes a severe influenza-like illness and sometimes a potentially lethal complication called dengue haemorrhagic fever.

Transmission: Dengue viruses are transmitted to humans through the bites of infective female *Aedes* mosquitoes. Infected humans are the main carriers and multipliers of the virus, serving as a source for uninfected mosquitoes. The virus circulates in the blood of infected humans for 2–7 days, at approximately the same time as they have a fever;

Signs and symptoms: Dengue fever affects infants, young children and adults, but it seldom causes death. The clinical features of dengue fever vary according to the age of the patient. Infants and young children may have a fever with rash.

Dengue haemorrhagic fever is a potentially deadly complication that is characterized by high fever, often with enlargement of the liver and, in severe cases, circulatory failure. The illness may begin with a sudden rise in temperature, accompanied by facial flushing and other influenza-like symptoms. The fever usually continues for 2–7 days and can be as high as 41 °C, sometimes with convulsions and other complications.

Ebola haemorrhagic fever

What is Ebola haemorrhagic fever? Ebola is a highly contagious acute viral infection.

Transmission: Transmission is mainly from human to human, resulting from close contact with the blood, secretions, organs or other body fluids of infected people. Burial ceremonies in which mourners have direct contact with the body of a deceased person can play a significant role in the transmission of Ebola. Transmission via infected semen can occur up to 7 weeks after clinical recovery. Health-care workers have frequently been infected while treating patients, through close contact without the use of correct

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36   The Writing Committee of the World Health Organization (WHO) Consultation on Human Influenza A/H5 (2005). Avian influenza A(H5N1) infection in humans. New England Journal of Medicine, 353:1374–1385.

infection control precautions and adequate barrier nursing procedures.

Human infection can also result from close contact with the blood, secretions, organs or other body fluids of animals. In Africa, humans have become infected with Ebola virus after handling infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found dead or sick in the rainforest. Recently, human infections resulting from direct contact with infected pigs or their contaminated tissues have been reported in the Philippines.

Signs and symptoms: Ebola is often characterized by a sudden onset of fever, intense weakness, muscle pain, headache and a sore throat. These are followed by vomiting, diarrhoea, rash, impaired kidney and liver function and in some cases both internal and external bleeding. The incubation period varies from 2 to 21 days.

Influenza (seasonal)

What is influenza? influenza is an acute illness caused by a virus. It causes annual epidemics that peak during winter in temperate regions.

Transmission: Seasonal influenza spreads readily from person to person by inhalation of infected droplets expelled from an infected person by coughing or sneezing. The virus can also be spread by contaminated hands or surfaces.

Signs and symptoms: Seasonal influenza is characterized by a sudden onset of high fever, cough (usually dry), headache, muscle and joint pain, severe malaise, sore throat and runny nose. Most people recover from the fever and other symptoms within 1 week without requiring medical attention; however, influenza can cause severe illness or death in people at high risk. The time from infection to illness, known as the incubation period, is about 2 days.

Measles

What is measles? Measles is an acute viral illness caused by the measles virus. It remains a leading cause of death among young children.

Transmission: Measles is one of the most contagious diseases known. Almost all nonimmune children contract measles if exposed to the virus, which is spread by airborne droplets circulating as a result of coughing and sneezing, close personal contact or direct contact with nasal or throat secretions of infected people. Consequently, measles tends to occur as epidemics, which may cause many deaths, especially among young malnourished children. The virus remains active and contagious in the air and on infected surfaces for up to 2 h. It can be transmitted by an infected individual from 4 days before to 4 days after the onset of the rash. When one person has the disease, a high proportion of their susceptible close contacts will also become infected.

Signs and symptoms: The first sign of infection is usually a high fever, which begins 10–12 days after exposure and lasts 1–7 days. During the initial stage, the patient may develop runny nose, cough, red and watery eyes and small white spots inside the cheeks. After an average of 14 days (range 7–18 days), a rash develops, usually on the face and upper neck. Over about 3 days, the rash proceeds downwards, eventually reaching the hands and feet. The rash lasts for 5–6 days and then fades.

Meningococcal meningitis

What is meningococcal meningitis? Meningitis is a serious disease affecting the fluid surrounding the brain and spinal cord. The disease can result from physical injury, reaction to certain drugs or infection by certain viruses, fungi or parasites; however, meningitis caused by meningococcal bacteria is the most serious form of the disease and is responsible for outbreaks. Meningitis can affect anyone but particularly young people under 30 years of age.

Transmission: The bacteria are transmitted from person to person in droplets of respiratory or throat secretions. Close prolonged contact (e.g. kissing, sneezing and coughing on someone, living in close quarters or dormitories, sharing eating or drinking utensils) facilitates the spread of the disease. The average incubation period is 4 days (range, 2–10 days).

Signs and symptoms: The commonest symptoms are a stiff neck, high fever, sensitivity to light, confusion, headaches and vomiting. Even when the disease is diagnosed early and adequate therapy instituted, 5–10% of patients die, typically within 24–48 h of the onset of symptoms. In children, the signs are swelling of the soft part of the head, loss of appetite and vomiting. In addition, the child may become inactive, morose and have convulsions.

Nipah virus disease

What is Nipah virus disease? Nipah virus is an emerging zoonotic virus, which can be transmitted to humans from animals or directly from human to human; in Bangladesh, half of the reported cases between 2001 and 2008 were due to human–human transmission. Nipah virus can cause severe disease in domestic animals such as pigs. No treatment or vaccine is available for either people or animals. Fruit bats of the Pteropodidae family are the natural host of Nipah virus.

Transmission: Most human infections have resulted from direct contact with sick pigs or their contaminated tissues. Transmission is thought to occur via respiratory droplets or contact with throat or nasal secretions or the tissues of a sick animal. Consumption of fruits or fruit products (e.g. raw date palm juice) contaminated with urine or saliva from infected fruit bats is also a likely source of infection. Nipah virus can be spread directly from human to human through close contact with secretions and excretions.

Signs and symptoms: Infected people initially develop influenza-like symptoms of fever, headaches, muscle pain, vomiting and sore throat, which can be followed by dizziness, drowsiness, altered consciousness and neurological signs of acute encephalitis. Some people also experience atypical pneumonia and severe respiratory problems, including acute respiratory distress. Encephalitis and seizures occur in severe cases, progressing to coma within 24–48 h.

Rift Valley fever

What is Rift Valley fever? Rift Valley fever is a viral zoonosis that affects primarily animals but can also affect humans. Infection can cause severe disease in both animals and humans. The disease also results in significant economic losses due to death and abortion among infected livestock.

Transmission: The majority of human infections result from direct or indirect contact with the blood or organs of infected animals. The virus can be transmitted to humans who handle animal tissue during slaughtering or butchering, assisting with animal births, conducting veterinary procedures or disposing of carcasses or fetuses. Certain occupational groups such as herders, farmers, slaughterhouse workers and veterinarians are therefore at higher risk for infection. The virus infects humans through inoculation, for example via a wound from an infected knife or through contact with broken skin, or by inhalation of aerosols produced by infected animals during slaughter. The aerosol mode of transmission has also led to infection of laboratory workers.

Signs and symptoms: In the mild form of Rift Valley fever, infected people either experience no detectable symptoms or develop a feverish syndrome with sudden onset of influenza-like fever, muscle pain, joint pain and headache. Some patients develop neck stiffness, sensitivity to light, loss of appetite and vomiting; in these patients, the disease, in its early stages, may be mistaken for meningitis.

While most human cases are relatively mild, a small percentage of patients develop a much more severe form of the disease. This usually appears as one or more of three distinct syndromes: ocular disease (0.5–2% of patients), meningoencephalitis (less than 1%) or haemorrhagic fever (less than 1%).

Yellow fever

What is yellow fever? Yellow fever is a disease caused by the yellow fever virus, which affects people of all ages. The 'yellow' in the name is due to the jaundice that affects some patients.

Transmission: Humans and monkeys are the main animals infected. The virus is carried from one animal to another (horizontal transmission) by a biting mosquito (the vector), and the mosquito can also pass the virus via infected eggs to its offspring (vertical transmission). The eggs are resistant to drying and lie dormant during dry conditions, hatching when the rainy season begins. Therefore, the mosquito is the true reservoir of the virus, ensuring transmission from one year to the next.

Signs and symptoms: Fever, muscle pain (with prominent backache), headache, shivers, loss of appetite, nausea and vomiting may be followed by bleeding gums, bloody urine and jaundice. Yellow fever is difficult to recognize, especially during the early stages. It is readily confused with malaria, typhoid, rickettsial diseases, haemorrhagic viral fevers (e.g. Lassa), arboviral infections (e.g. dengue), leptospirosis, viral hepatitis and poisoning (e.g. carbon tetrachloride). A laboratory analysis is required to confirm a suspect case.

Section 5

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