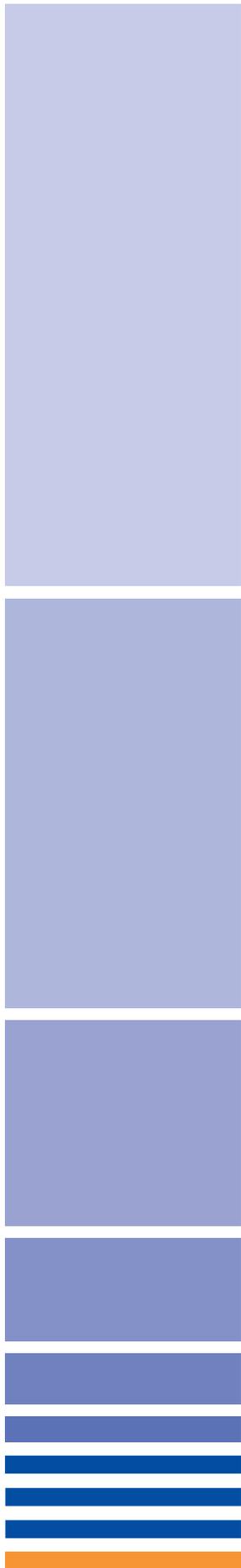


Setting priorities in communicable disease surveillance



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Objective and scope of these guidelines

Combating communicable diseases depends upon surveillance, preventive measures and where appropriate, outbreak investigation and the institution of control measures.

Developing and strengthening communicable disease surveillance and response at the national level requires a substantial and long-term commitment of human, financial and material resources. This investment begins ideally with a systematic review of the national priorities for surveillance.

Each country needs to periodically assess its overall surveillance system so that this continues to reflect national disease control priorities, improves efficiency and takes advantages of new methods and techniques to strengthen surveillance.

These guidelines aim to assist public health professionals at national level in the process of prioritization of communicable diseases/health events for public health surveillance. They represent a prototype for prioritization of communicable diseases, and describe the different steps in a prioritization exercise using a consensus methodology based on the Delphi method. They may need to be adapted depending on the organization of surveillance within a country, or for use in international collaborative settings where disease priorities may differ from those at national level.

Prioritization is part of the process to strengthen a national surveillance system for communicable diseases and can be used as an aid in making decisions for resource allocation. Once the priorities are set, the adequacy of the existing surveillance system to cover the most important diseases needs to be reviewed and, if necessary, revised. Alternative methods of surveillance need to be considered and areas for improvement need to be identified.

These guidelines focus on the prioritization of diseases for national surveillance but a similar process can be carried out to determine a list of communicable diseases for which a group of countries wants to undertake international, regional or cross-border surveillance. This will lead to a different list of diseases and different criteria, but the prioritization technique remains the same.

The document is organized as follows: The introduction focuses on why, when and how to do a prioritization exercise; the following section describes the different steps of the prioritization exercise; and the final section covers the post-workshop activities.

Introduction

Why prioritize?

The main objective of this prioritization exercise is to make the best use of limited human and financial resources for disease surveillance, taking into account changing needs. Priority setting is necessary to ensure that both planning and resource allocation are rational, explicit and transparent.

A national surveillance system (be it mandatory or voluntary) should cover the diseases of public health importance in that country. Surveillance systems are usually developed over time, with new diseases being added and few removed. This often results in a long list of diseases for surveillance, impairing the ability of the system to perform efficiently. In many surveillance systems data are collected which never result in public health action, whereas new threats are considered insufficiently or not at all.

Public health risks change over time therefore priorities should be reviewed periodically.

- Some diseases are no longer a national public health threat and yet they remain on the national list of mandatory reportable diseases (e.g. leprosy in Western Europe); others, such as severe acute respiratory syndrome (SARS) and bovine spongiform encephalopathy (BSE), are emerging diseases with a public health impact but are often not under surveillance.
- Diseases evolve as antigenic variants expand their host or geographical range (e.g. meningococcal disease due to *Neisseria meningitidis* serotype W135, influenza due to type H5N1, cholera due to *Vibrio cholerae* O139), or as antibiotic resistance develops. The role of surveillance in the fight against these diseases has increased.
- Advanced technology and improved knowledge impact on surveillance strategies and methods. Rapid diagnostic tests and information technology may allow earlier detection and better control and therefore reduce the cost of surveillance and control and augment the feasibility of surveillance.
- The introduction of new vaccines and control programmes alters the surveillance objective and leads to different surveillance methods. For example, countries engaged in measles elimination require immediate case-based reporting whereas countries with low measles vaccine coverage may need weekly aggregated data collection because of a high incidence of cases.
- As demographic characteristics of populations change due to lower birth rates and longer life expectancy, new risks may be expressed. Similarly, an increase in the number of immunocompromised people may lead to an upsurge in diseases which were previously under control.

In order to capture data on the most important diseases and conditions and not to overstress the surveillance system, priorities have to be set.

Determining priorities is a process of assessing the relative importance or value of alternative concerns. Difficult decisions may need to be taken about how resources can be most effectively deployed.

When to prioritize?

All countries should review their list of priority diseases for surveillance periodically to see if it reflects current needs. Prioritization only makes sense if it happens within the right context; political endorsement of the process and willingness to accept the results of the exercise are prerequisites.

Good opportunities to revise priority diseases are:

- as an initial step to strengthen national surveillance, either before or immediately after the assessment of the existing system and before the development of a plan of action to strengthen the system (figure 1);
- as part of the process of evaluation of surveillance functions;
- when there is a change in the national health policy or in the International Health Regulations;
- following an outbreak, to take advantage of lessons learned and public pressure and political will to change;
- whenever there is a new threat, or a new disease.

Figure 1: Cycle illustrating surveillance systems strengthening activities



How to prioritize?

Prioritizing diseases for surveillance is not an easy process. It involves complex value judgments, such as the relative importance of early detection of a highly infectious disease compared with monitoring endemic, common, but less severe diseases.

The methodology proposed is aimed towards a process that is transparent and acceptable to stakeholders and implementers of the surveillance system. It attempts to combine quantifiable epidemiological, clinical, and financial data with interpretive assessments based on consensus views of informed participants.

Ideally, prioritization should be based on scientific evidence, but frequently such evidence is unavailable and there is a particular deficiency in data on the effectiveness and outcomes of surveillance systems. In situations where there is insufficient, inadequate, or contradictory scientific information or it is non-existent, consensus methods, such as the Delphi method, are valid approaches. The Delphi method provides a structure and process to harness the insight of appropriate experts to enable decisions to be made. It avoids personal and political influence, allows individuals to change their opinion in the light of the group's response. Measuring the degree of agreement helps to move to a consensus.

This prioritization process using the Delphi method consists of:

- formulation of a list of diseases, and criteria to include/exclude diseases for surveillance, by a steering committee;
- discussion of the proposed criteria and disease list¹ by participants in the prioritization exercise;
- formulation of a questionnaire in which participants are asked to score the diseases against the criteria;
- expression of individual opinion of participants through scoring the diseases against the criteria;
- collation and summary (using statistical parameters) of the scoring, and assessment of agreement;
- feedback of the individual and group ranking to the participants;
- discussion of the results.

If an acceptable degree of consensus is obtained the process may cease, if not there is the possibility of re-ranking with the opportunity for individuals to change their scores in the light of the group's response.

These guidelines are based on the experience of priority setting in Cambodia, Canada, the European Union, France, Pakistan, the Republic of Moldova, Romania, Serbia and Montenegro, the former Yugoslav Republic of Macedonia, and the United Kingdom of Great Britain and Northern Ireland. Varied approaches to the Delphi method have been used; through workshops, through mail or e-mail, and combinations of e-mail/mail and workshop sessions. Table 1 provides more detailed information about the methods used in these exercises.

The advantages and disadvantages of the different approaches are listed in Table 2.

¹ This could also be done through a Delphi process, this helps to weight the criteria.

These guidelines propose a three-day plenary workshop for the prioritization exercise. In this way, scoring is done individually by all participants but at the same time and in the same setting. This allows clarification of the objectives, the criteria, the list of diseases and the process. The results are calculated immediately, which allows discussion and rescoring with the objective to reach a better consensus.

Table 1. Prioritization methods used in various national and international exercises

Country	Objectives	Method
Canada (1988 and 1997–1998)	To ensure national surveillance of major infectious diseases that threaten health of Canadians; to support the development and evaluation of programmes that are currently in place and those proposed; to ensure Canadian participation in global surveillance of specific threats; and to determine best use of human and financial resources in prevention and control of communicable diseases	<p>Subcommittee established 10 (12 in 1988) criteria to score a list of 60 diseases</p> <p>The sum of the points gave the estimate of the importance of national surveillance purpose.</p> <p>Cut-off was 18 points</p>
EU(1997)	To set priority areas for the development of collaborations between different EU Member States	<p>Modified Delphi method by heads of centres with responsibilities in surveillance at national level in EU Member States</p> <p>Agreed topics (26) scored against 9 agreed and ranked criteria</p> <p>Two rounds were undertaken, then in the third round diseases were categorized in high, medium, and low interest for collaboration</p> <p>Ranking was by number of high then medium answers; final ranking was approved in a plenary session</p>
France (1994–1995)	To prioritize the list of diseases for surveillance according to their importance and the possibility to prevent	<p>Five groups of c.10 experts worked on groups of diseases (84 diseases in total)</p> <p>Each expert filled in a fact sheet of disease characteristics according to: interest for surveillance, principal objectives for surveillance, adequacy of current surveillance</p> <p>Information was synthesized and discussed in group. Diseases were classified into 4 categories according to interest for surveillance and 6 categories according to adequacy of existing surveillance. Priority actions to set up, modify or maintain the surveillance system for these diseases were defined.</p>

Country	Objectives	Method
France (zoonotic diseases)(2000–2001)	To determine the priority zoonoses (non-alimentary) and activities for surveillance and control, and to determine ways to improve knowledge, prevention and control of these non-alimentary zoonoses	Disease experts classified 37 diseases according to a set of criteria into 3 categories; 11 were classified as priority, 9 important, and 17 non-priority For the priority and important diseases, actions were proposed for surveillance, operational research and feedback and potential implementation partners were identified
United Kingdom(1997, 1999)	To identify communicable diseases of high public health priority in order to guide rational and transparent service planning and resource allocation	Key professionals (518/1130 approached) involved in communicable disease surveillance scored 61 diseases against 5 criteria through a mailing process
Cambodia, Pakistan (2005), Republic of Moldova (2001), Serbia and Montenegro, former Yugoslav Republic of Macedonia (2003)	To prioritize communicable diseases for surveillance in order to guide rational and transparent planning to strengthen surveillance and response systems	The countries used the modified Delphi process described in these guidelines
Romania (2003–2004)	To prioritize communicable diseases for surveillance in order to guide rational and transparent planning to strengthen surveillance and response systems	A modified Delphi process; two rounds of questionnaires scored by individuals of 90 diseases against 8 criteria through a mailing process Between the two rounds, results were presented and discussed in a 2-day workshop

Table 2. Advantages and disadvantages of different approaches to prioritization

Approach	Advantages	Disadvantages
Workshop	Time gain	Danger of dominance, influence of some participants
	No or few drop out	
	Not dependant on communication means in a country	Limited number of participants to enable the discussion
	Possibility to clarify the objectives, criteria, list of diseases	Travel cost
	Possibility to discuss the results in group	Reluctance to redo the scoring process a second time within the limited timeframe of a 3-day workshop
Mail, e-mail	More time to analyse	Less participation, higher drop-out
	Less possibility for dominance, influence of some participants	Possibility of bias (you reach those who have easy access to mail, e-mail)
	Not so dependant on geographical location	Takes time to sent out questionnaires and receive replies
	More participants can be involved	Less opportunity to clarify or develop common understanding

Steps in prioritization

The prioritization exercise should start with the appointment of a steering committee, which will do most of the preparation. Prioritization takes place in a workshop setting and is followed by a report and feedback to the health authorities. The key steps are summarized in Table 3 and described in more detail below.

Table 3. Key steps in the prioritization exercise

1. Appointment of steering committee	
2. Preparation of the prioritization exercise	<p>2.1 Agreeing the approach for the prioritization exercise</p> <p>2.2 Planning the implementation</p> <p>2.3 Preparing the score sheet</p> <p style="padding-left: 150px;">2.3.1 Defining the initial health events list to prioritize</p> <p style="padding-left: 150px;">2.3.2 Defining the criteria against which diseases will be prioritized</p> <p style="padding-left: 150px;">2.3.3 Preparing score sheet</p> <p>2.4 Preparing the disease fact sheet</p> <p>2.5 Inviting the participants</p>
3. Prioritization workshop	<p>3.1 Introduction to the workshop</p> <p>3.2 Discussion and clarification of the criteria and the disease list</p> <p>3.3 First round of scoring</p> <p>3.4 Ranking and summary of the results</p> <p>3.5 Feedback and discussion</p> <p>3.6 Second (and subsequent rounds) of scoring</p> <p>3.7 Presentation of results</p>
4. Post-workshop activities	<p>4.1 Report writing</p> <p>4.2 Report on prioritization to health authorities</p>

1. Appointment of a steering committee

The prioritization exercise needs a steering committee to guide the process. Members of the committee and tasks to be carried out should be clearly stated. The size of the committee should be limited (ideally 8–12 members) and a chairperson should coordinate.

Suggested steering committee members:

- ministry of health executive director
- head of the surveillance department/unit of the ministry of health
- heads of ministry of health or other ministry departments contributing to surveillance, e.g. veterinary service, public health laboratory, food safety, research
- WHO representative and/or other international partners in surveillance
- other relevant partners.

The tasks of the steering committee are to:

- agree on the objective and the approach
- plan the implementation of the exercise (budget, timing, participants, venue, leader/facilitator)
- prepare the score sheets (undertake the risk assessment, define initial list of health events, define criteria against which the diseases will be prioritized)
- develop disease fact sheets
- invite the participants
- guide the exercise
- write the report
- present the findings to the health authorities.

2. Preparation of the prioritization exercise

2.1 Agreeing the approach for the prioritization exercise

Resources and feasibility will determine:

- the number of participants
- the approach (workshop; mail or e-mail; combination of the two).

2.2 Planning the implementation

- **Time:** The preparation of the exercise should start several months before the actual prioritization. The risk assessment and compilation of the disease fact sheets takes some time.
- **Budget:** When opting for a workshop, the budget should cover travel and per diem for the participants, facilitators, support for data entry, workshop room, consumables required for the scoring and ranking process, and finally the writing of the report. If the mailing approach is preferred, the budget should cover preparation of the e-mail forms, data entry and analysis, mailing costs, and the writing of the report.
- **Location:** A meeting room of sufficient size to accommodate all participants should be identified.
- **Participants in the prioritization exercise:** To ensure acceptance and action on the basis of the results, key decision-makers in surveillance and response must be represented. Key players involved in reporting, analysis, investigation, management, prevention and control of communicable diseases should be identified. The process will be based on their expert knowledge and opinion.

They should include professionals from the private and public sectors, central and peripheral levels of the health service, and from different disciplines covering all aspects of infectious disease, such as:

- general practitioners (family doctors)
- disease-specific specialists
- statisticians
- public health professionals at all levels and from different surveillance and control programmes
- laboratory specialists
- representatives of other departments contributing to infectious disease surveillance and control e.g. animal health, food safety, health research.

For a workshop the group should consist of 30–80 members in order to get a broad consensus while allowing sufficient interactions between participants.

[Note: When mail or e-mail is used a larger number of participants can be included. For example, in Romania and the United Kingdom of Great Britain and Northern Ireland, questionnaires were sent to 520 participants and 1 130 participants, respectively.]

Leader/facilitators: If the prioritization exercise includes a plenary session, one or two facilitators are needed to give an introduction, facilitate the discussions on criteria and disease list, present the results for the group, facilitate discussion of the results and guide further rounds of scoring.

To facilitate data entry, three or four people familiar with data entry should be appointed.

An example of a schedule for a prioritization workshop is given in Annex 1.

2.3 Preparing the score sheet

Annex 2 gives an example of a score sheet for a prioritization exercise. This score sheet consists of a list of potential priority diseases/health events and a set of criteria against

which the diseases will be scored, together with instructions on the scoring. The first step in preparing the score sheet is to define an initial list of health events and the criteria against which they will be scored.

2.3.1 Defining initial health events list to prioritize

To ensure that the prioritization exercise does not only consider the diseases currently under surveillance, it is necessary to include emerging and re-emerging diseases which might pose a threat to public health in the country. Changes in climate and disease vectors, drug resistance, new agents, and risk of importation of diseases, population displacement or movement are factors that should be taken into account. This can be done through:

- review of literature
- review of existing surveillance data, recent surveys, etc
- advice of disease experts
- review of previous outbreaks in the country, neighbouring countries and internationally.

The steering committee can start with the existing list of health events under surveillance and identify additional diseases or health events of importance to be added.

As a result, the list should reflect:

- diseases under specific control programmes (national and international)
- diseases for which international requirements exist (e.g. International Health Regulations, network requirements, intercountry agreements)
- regional priorities
- diseases which could be spread intentionally, such as smallpox.

The list should also consider health events related to health-care practices, for example:

- monitoring of adverse events following immunization
- antimicrobial resistance
- hospital-acquired infections.

Note: It is better to list specific diseases rather than syndromes or groups of diseases, even if current surveillance takes a syndromic approach, for example, cholera instead of watery diarrhoea; shigellosis, instead of bloody diarrhoea; meningococcal meningitis, instead of meningitis.

The list should be circulated to all workshop participants ahead of time to allow them to add diseases.

2.3.2 Defining criteria against which diseases will be prioritized

The criteria for prioritization and the scoring instructions are also developed at this time. These are the tools which allow the participants to rank the diseases during the prioritization exercise. There should be 5–8 criteria, presented in such a way to allow scores from 1 (not important) to 5 (most important). The criteria may be discussed and amended during the workshop itself. The criteria proposed below are not exclusive and can be adapted in the country.

Proposed criteria for ranking priorities for communicable disease surveillance are given below.

Present burden of disease

Indicators to be considered: incidence, prevalence and mortality

Incidence, prevalence and mortality for the diseases on the list can be ranked using a predefined 5-step scale, e.g. < 1, 1–9, 10–99, 100–999, ≥1000 per 100 000 population.

Where no data are available on incidence or prevalence, diseases need to be scored for these criteria through comparison with other diseases, i.e. does disease X occur more or less than disease Y (for which incidence is known) in the country?

Case fatality rate

The case fatality rate (CFR) can be scored using a predefined 5-step scale as shown in Table 4.

Table 4. Scoring case fatality rate

CFR (%)	Score	Example
< 1	1 (i.e. least important)	Pediculosis
1–4	2	
5–9	3	
10–19	4	
≥ 20	5 (i.e. most important)	Rabies

It is advisable to use the CFR in the country. Cholera may have a higher CFR in countries where sanitary and health infrastructures are poor.

Epidemic potential

This criterion addresses the extent to which the disease poses a potential for epidemics. This question implies understanding the mode of transmission (airborne, vector-borne, person-to-person). An example of scoring of epidemic potential is shown in Table 5.

Table 5. Scoring epidemic potential

Epidemic potential	Score	Example
Never	1	Neonatal tetanus
Rare	2	
Localized	3	
National spread	4	
International spread	5	Pandemic influenza, SARS

Potential threat/emergence/changing pattern

One of the reasons why a disease is put under surveillance is to detect early whether there is a change in pattern and thus to enable rapid intervention. This criterion deals with the risk in relation to the country in which the exercise is being undertaken for the diseases on the list. The risk may be absent, small, medium, high or almost certain.

The following questions can be considered for this criterion:

- is this an emerging or re-emerging disease?
- is there a risk for antimicrobial resistance?
- has there been a changing pattern in the disease in the last five to ten years; did the disease become more severe; did it affect other groups; did the incidence rise?
- are there changes in demographics, environment, or vector distribution which could induce changes in the epidemiology of the disease?
- are there suspected or predicted gaps in vaccine coverage, changes in animal husbandry and food/water provision?
- has the disease developed in neighbouring countries?

Examples: BSE is a potential threat for countries that have imported meat or animals from affected countries; malaria and West Nile fever might be high risk for a country where the vector exists but where the diseases are not endemic; SARS and other new diseases may emerge with potential for international spread.

Health gain opportunity through public health activities

This criterion addresses the opportunities to affect the present and future burden of ill health through prevention or control of a disease. Such opportunities range from little or no available public health measures, through educational programmes or behaviour modification, to prevention by vaccination. Efficacy, technical and economic feasibility, and acceptability of the measures may be considered.

Scores can be expressed as the percentage of the disease burden which is known to be preventable through effective prevention and control measures. A predefined 5-step scale can be used, such as < 1%, 1–9%, 10–24%, 25–49%, ≥ 50% preventable. For example, polio and measles will score high (5), whereas dengue might score low (1).

This information might not be available for some diseases but through comparison with other diseases, participants should be able to give their judgment for an appropriate score.

Social and economic impact

Indicators to be considered include years of potential life lost, physical disability, costs to the organization and individuals, costs resulting from trade and travel restrictions. As examples, pandemic influenza and SARS would score high.

International regulations or programmes for surveillance and control

Indicators to be considered include the existence of a regional or international elimination or eradication programme, and whether diseases are covered by the International Health Regulations.

Public perception

The factors which influence people's perception of risk include immediate versus delayed effects of the infection; dreaded versus familiar disease; mechanism of disease not known or understood; when the risk of disease cannot be controlled by the individual; children at risk; victims known to the individual; lack of belief in authority of the information sources; media attention.

Indicators to be considered include number of articles published in newspapers concerning the disease, or hits on the Internet relating to the disease in the country.

2.3.3 Preparing the score sheet

The score sheet is provisional. Participants will have the opportunity to change the list of diseases and the criteria. Numbering the score sheet makes it possible to return individual results to the participants before discussion of ranking.

2.4 Preparing the disease fact sheets

The steering committee should collect and synthesise information available in the country and internationally for each of the diseases. It is very important that the participants receive and read these disease fact sheets before the prioritization process.

See annex 3 for information sources and annex 4 for an example of a disease fact sheet.

2.5 Inviting the participants

The committee should invite participants and prepare for them a document with information about the prioritization objectives and process, explaining what will be asked from them and the time it will take. The committee should ensure that the participants understand the commitment that they need to make to the process and that they are clear about what they are being asked to do. The document should also include:

- preliminary list of health events
- preliminary list of criteria
- background information on diseases (disease fact sheets).

Participants are invited to comment and enrich the list of diseases, and comment on the criteria.

3. Prioritization workshop

This section describes the steps undertaken during the workshop.

3.1 Introduction to the workshop

A facilitator should present the objectives and organization of the workshop. It should be made clear to the participants what will happen with the results of the exercise.

3.2 Discussion and clarification of the criteria and the disease list

Criteria: It is essential to have a common understanding of the criteria to be used to score the list of diseases. After the presentation of the criteria, opportunity to clarify and adjust the criteria must be given.

In some countries in which this prioritization process has been used, participants were asked to score the criteria from least important (value 1) to most important (value 5). The sum of the scores of all participants for each criterion was used to weight the criteria.

Disease list: The facilitator should explain how the initial list of diseases was constituted and the participants need to be given the opportunity to add or remove diseases.

Output of the discussion: a final list of health events and criteria for scoring.

3.3 First round of scoring

Once the criteria have been agreed, each participant is asked to anonymously score each condition/disease against the criteria. The disease fact sheets prepared by the steering committee are there to guide them in their judgment.

A pilot testing with two or three diseases helps to ensure that the participants share the same understanding of the criteria.

Output: numbered scoring forms completed by each participant

3.4 Ranking and summary of the results

Disease scores are calculated for each participant as the unweighted sum of the raw scores of the eight criteria for each disease. These total scores for each disease by each participant are then summed and ranked. The responses are analysed and shared with the participants. Using appropriate software can greatly ease the process of ranking diseases; such software (Prioritization tool) is available free-of-charge from WHO.

Statistical examination of the data can reveal the average score for each disease using the median score², as well as the level of consensus using the inter-quartile range³ of the distribution of scores for each disease.

For those diseases where there is a big disagreement in scores, it can be helpful to display the median score and inter-quartile range of the distribution by criterion. This helps to clarify where the disagreement arises and can be useful in the discussion.

Individual total scores and ranking of diseases should be returned to the participants before the discussion, so each participant can see his/her response in juxtaposition to the grouped response.

Output: A ranked list of diseases, including the median and the inter-quartile range of the scores. A graph can greatly help in visualizing the result (see annexes 5 and 6 for examples).

² The median score is the middle value of the scores arranged in increasing order

³ The inter-quartile range is delimited by the values excluding the 25% smallest and highest values of the scores arranged in increasing order

3.5 Feedback and discussion

The ranked list and graph are presented to the participants and further discussed. Special attention is given to diseases with a large inter-quartile range signifying the absence of a strong consensus amongst participants. To begin the discussion, participants who have ranked diseases significantly outside the inter-quartile range may be invited to comment and explain their reasoning. Time should be allowed for discussion by all participants to clarify viewpoints. Following the discussion, participants are invited to revise their scores for these diseases, in order to reach a better consensus.

3.6 Second (and following rounds) of scoring

The process can be repeated if there is still no agreement.

3.7 Presentation of final results

The final results should be presented to the group for endorsement.

4. Post-workshop activities

4.1 Writing the report

A written report of the process and the results is essential. It should be prepared by the steering committee with input from the facilitators and participants.

4.2 Reporting on prioritization to health authorities

The final report of the workshop is submitted to health authorities. It should include: the rationale for prioritization; the methodology used; the ranked list of diseases together with a graph showing the level of consensus amongst participants; and the main points of discussion during the workshop.

Next steps after the prioritization

The prioritization is only one step in the process of strengthening surveillance and control of communicable diseases. Prioritization is an aid for decision-makers when allocating resources. Ranking of diseases aids decision-making by identifying health events of higher precedence.

In the process to strengthen surveillance and response activities the focus should be on the top priority diseases (approximately 20). There is no real cut-off point since the number of diseases under surveillance needs to be adapted to the need in, and resources of, the country. This does not imply that surveillance activities for the other diseases have to cease. However, for low-scoring diseases, it might be necessary to consider discontinuing surveillance efforts, reviewing the surveillance objectives, or looking for alternative ways to get information (e.g. diminish the frequency of reporting, limit the surveillance activities to a group at risk, use alternative readily-available sources, or periodic surveys). For each disease to be put under surveillance, the objective and the method of the surveillance needs to be clear.

For priority diseases which are not yet under surveillance, a system for surveillance should be designed. This should include setting the objective of surveillance, the data required, the data sources, the data collection method, the frequency of reporting, the analysis needed, the thresholds for reporting and action, the laboratory confirmation requirements, the definition of an adequate response, and the training needs. Where possible this new disease should be included into the existing surveillance system. (See annex 1 for standards and strategies for surveillance and control).

For priority diseases already under surveillance, the adequacy of the existing system to fulfil surveillance and response needs should be reviewed. Laboratory capacity for confirmation, whether it is within or outside the country, should be discussed for each of the priority diseases. Training needs, and guidelines and standards that require improvement or updating, should be identified. Feasible, cost-effective ways to improve the capacity for surveillance and control should be proposed.

Where possible a common approach to surveillance and response of the priority diseases should be applied in order to optimize use of human and financial resources and to streamline and coordinate all surveillance activities.

Guidance to assess this capacity for surveillance and control is proposed in the documents "*Protocol for assessment of national capacity for detection, monitoring of and response to communicable diseases*" and the "*Planning guide for communicable disease surveillance and response systems*", available from WHO.

Prioritization of diseases is an important step to rationalize and optimize the national surveillance system. The ultimate aim is to make the best use of limited resources for disease surveillance to protect and improve the health of the whole population. This prioritization exercise should be carried out at regular intervals to ensure that the highest priority health events are under surveillance.

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Annexes

Annex 1. Example of schedule for prioritization workshop

	Day 1	Day 2		Day 3
Morning	<p>Welcome and introduction</p> <p>Presentation: communicable disease surveillance</p> <p>Presentation: rationale for prioritization</p> <p>Presentation: content and schedule of the workshop</p>	Scoring list of diseases/health events against the criteria		<p>Presentation of results</p> <p>Discussion of results</p> <p>Modification of scoring</p>
Afternoon	<p>Presentation: risk assessment and list of health events</p> <p>Discussion</p> <p>Presentation: scoring criteria</p> <p>Group discussion</p> <p>Plenary session: finalization of the scoring criteria</p>	<p>With the participants:</p> <p>Presentation: steps following prioritization</p> <p>Discussion</p>	<p>Facilitators:</p> <p>Data entry</p> <p>Data analysis</p> <p>Production of scoring list</p>	<p>Presentation of second round of scoring</p> <p>Conclusion</p>

Annex 2. Example of score sheet for participants

Date								
Number								
Diseases	Criteria							
	Burden of disease	CFR/severity	Epidemic potential	Potential threat/changing pattern	Health gain opportunity	Social and economic impact	International regulations or programmes	Public perception
Anthrax								
Brucellosis								
Cholera								
Dengue								
Diphtheria								
Ebola								
Japanese encephalitis								
Lymphatic filariasis								
<i>Haemophilus influenzae</i> type B								
Hepatitis A								
Hepatitis B								
Hepatitis C								

CFR, case fatality rate

Annex 3. Information sources

When undertaking a consensus exercise it is important to gather as much high quality information as possible in order to make the judgments about priorities. Useful information may be found from a number of sources, which are listed below. Before using these, local, national and regional epidemiological data should be gathered.

Surveillance Data

WHO sources

<http://www.who.int/home-page/>

WHO Home page with access to Regional Offices, Surveillance data from WER

<http://www.who.int/topics/en/>

Infectious disease information resources

<http://www.who.int/csr/en/>

Communicable Disease Surveillance and Response (CSR) page – access to Guidelines and Surveillance data

<http://www.who.int/vaccines-surveillance/index.htm>

Surveillance of Vaccine Preventable Disease

<http://www.afro.who.int>

<http://www.paho.org>

<http://www.euro.who.int>

<http://w3.whosea.org>

<http://www.emro.who.int>

<http://www.wpro.who.int>

Other international sources

<http://www.carec.org/>

The Caribbean Epidemiology Centre, (CAREC) is administered on behalf of 21 Member Countries by the Pan American Health Organization (PAHO), CAREC provides laboratory reference and epidemiology services to 21 Member Countries.

<http://www.unaids.org/en/default.asp>

AIDS epidemic update

WHO <http://www.ibdn.net/>

International Burden of Disease Network

<http://www.eurosurveillance.org/index-02.asp>

Eurosurveillance is a European Union project dedicated to the surveillance, prevention and control of infectious and communicable disease. Eurosurveillance produces two bulletins, available from this page. These bulletins publish surveillance data from national institutions and European networks, results of investigations of international outbreaks (or national if they are of European significance) and comparisons of, and

developments in, European policies for the surveillance and control of communicable diseases.

Other national sources

<http://www.hpa.org.uk/infections/default.htm>

The web site of the Health Protection Agency in the United Kingdom of Great Britain and Northern Ireland

<http://www.cdc.gov/ncidod/osr/index.htm>

This site offers information about disease surveillance systems operating within or collaborating with the National Center for Infectious Diseases (NCID) in the United States of America. The site also maintains links to disease reports, data, and publications that these systems publish. On the site, the links to the left of the page will take you to each area.

<http://www.cdc.gov/mmwr/mmwr.html>

The Morbidity and Mortality Weekly Report (MMWR) Series is prepared by the Centers for Disease Control and Prevention (CDC), USA. The data in the weekly MMWR are provisional, based on weekly reports to CDC by state health departments.

<http://wonder.cdc.gov/>

CDC WONDER provides a single point of access to a variety of CDC reports, guidelines, and numeric public health data.

<http://www.hc-sc.gc.ca/hpb/lcdc/publicat/ccdr/00vol26/dr2607eb.html>

Canadian Communicable Disease Report

http://www.health.go.ug/health_stat.htm

Ugandan Infectious Disease Surveillance – an example of online resources from the developing world

<http://www.census.gov/ipc/www/hivcf.html>

Data compiled by the International Programs Center, Population Division, US Census Bureau on HIV/AIDS. These country profiles examine the patterns and trends of the epidemic using the best of the imperfect data available.

<http://www.census.gov/ipc/www/>

The International Programs Center (IPC), part of the Population Division of the US Bureau of the Census, conducts demographic and socioeconomic studies. IPC has assisted in the collection, processing, analysis, dissemination, and use of statistics with counterpart governments throughout the world.

<http://www.invs.sante.fr/departements/dmi/index.htm>

French National Surveillance Centre

<http://www.spc.int/phs/PPHSN/Services/PacNet/intro.htm>

Pacific Public Health Surveillance Network

<http://www.asean-disease-surveillance.net/ASNLinks-ASEAN-MOH.asp>

Web site providing links to the ministries of health of some Asian Countries.

Guidelines

<http://www.idsociety.org/PG/toc.htm>

Access to US IDSA Guidelines

<http://www.guideline.gov/>

National Guideline Clearing House™, a public resource for evidence-based clinical practice guidelines.

http://www.cdc.gov/ncidod/guidelines/guidelines_topic.htm

This page lists links to professional guidelines related to infectious disease topics. This list is sorted by guideline type. Some guidelines are listed under multiple categories because they address multiple topics.

<http://www.immunofacts.com/>

Links to data on vaccine preventable diseases

<http://www.nelcd.co.uk>

This new site is part of the United Kingdom National Electronic Library for Health and will provide access to the key evidence in infectious disease prevention, investigation and treatment. CDC, the Health Protection Agency and many national surveillance sites have also links to guidelines.

Annex 4. Example of fact sheet

Disease	Criteria							
	Burden of disease	CFR/severity	Epidemic potential	Potential threat/ changing pattern	Health gain opportunity	Social and economic impact	International regulations or programmes	Public perception
Anthrax	Unknown incidence	Cutaneous form rarely life-threatening with appropriate treatment; high CFR for inhaled and gastrointestinal forms	Spores may persist in the environment for many years and cause periodic localized outbreaks; no risk of person-to-person spread	Potential bioterrorism threat	Early detection and appropriate treatment reduces severity; clinical education for detection and treatment feasible; assessment of exposures and environmental control prevents further spread	Unknown; presumed high economic impact of zoonotic outbreak; presume very high impact if bioterrorism-related	None	Believe knowledge level low in Cambodia; dreaded disease in many other countries; associated with bioterrorism threat; high media interest
Brucellosis	Unknown incidence in humans; assumed enzoonotic infection in Asia as in many parts of the world; animal reservoirs cattle, swine, goats and sheep; occupational risk for workers with infected animals; also consumption of unpasteurized milk and dairy products	Systemic bacterial infection associated with fever with involvement of joints and various organs; CFR ~2% without treatment due to endocarditis	Cause of sporadic cases and outbreaks		Successfully controlled in countries using pasteurization of milk products, occupational information, education and communication strategies, and infected animal identification and control	Difficult to assess without data		Unknown. Presumed minimal understanding

Annex 5. Example of table of scoring results

Rank	Diseases	Median score	Interquartile range
1	HIV	38,0	4,0
2	SARS	33,0	5,8
3	Dengue fever	33,0	6,8
4	Tuberculosis	32,5	7,5
5	Cholera	32,0	6,5
6	Malaria	31,5	8,0
7	Polio	30,0	7,8
8	Hepatitis B	29,5	6,8
9	Measles	29,0	7,5
10	Rabies	29,0	9,5
11	NN tetanus	28,5	7,8
12	Diphtheria	27,0	5,8
13	Hepatitis C	27,0	6,8
14	J. encephalitis	27,0	8,5
15	Pertussis	27,0	11,0
16	Typhoid	25,5	4,0
17	Shigella	25,0	4,5
18	Meningococcal meningitis	25,0	7,0
19	Leprosy	24,0	6,0
20	Syphilis	23,0	8,3
21	Viral meningitis	23,0	8,5
22	Plague	22,0	6,8
23	Anthrax	22,0	7,0
24	Hepatitis A	22,0	9,0
25	<i>Salmonella</i>	21,5	7,0
26	Filariasis	21,5	10,3
27	Rubella	21,0	8,0
28	Schistosomiasis	21,0	8,5
29	Helminthiasis	20,5	8,8
30	Cluster of cases	20,5	10,0
31	<i>Haemophilus inf.</i>	19,5	13,8
32	Yellow fever	18,0	8,0
33	Influenza	18,0	8,3
34	Leptospira	18,0	9,8
35	VHF Ebola	16,0	14,0
36	Brucellosis	15,5	9,8
37	Typhus	15,0	9,8

Annex 6. Graph of median score and the inter-quartile distribution of scores

