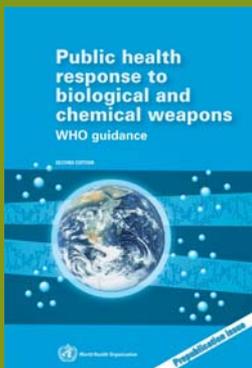


Preparedness for **the deliberate use** of biological agents

A rational approach to the unthinkable



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Overview of public health functions

“In most cases, the public health system will be the first to detect cases and raise the alarm. It will be at the front line throughout the response.”

A public health perspective

Routine surveillance systems for epidemic-prone and emerging infectious diseases enhance the capacity to detect and investigate deliberately caused outbreaks, as the initial epidemiological and laboratory techniques are similar to those used for natural outbreaks. Adequate background data on the natural behaviour of infectious diseases facilitate recognition of an unusual event and help determine whether suspicions of a deliberate cause should be investigated.

Preparedness for the deliberate use of a biological agent requires collaboration of the intelligence community, law enforcement agencies, public health professionals, and the biomedical sciences. As these disciplines do not routinely work together, the meaning of some terms, notably surveillance and verification, has different interpretations. Surveillance, as used in public health, pertains to routine systems for monitoring diseases with a high burden, tracking outbreaks of epidemic-prone diseases, and detecting new diseases. Verification pertains to the procedures followed when investigating an outbreak and identifying the causative agent.

Priorities

The first priority of WHO remains the prompt detection and containment of naturally occurring outbreaks. Strict preservation of political neutrality is essential to this goal, as it encourages frank reporting and earns the trust of affected countries.

For deliberately caused outbreaks, WHO is solely concerned with the public health aspects of preparedness and response. Threat analysis, which considers the likelihood of a deliberate attack, aims to identify the agent that may be used and assess the level of risk. Such analysis is the responsibility of intelligence and law enforcement agencies, and is not a public health function.

Public health plays a leading role in all other areas of preparedness planning for a deliberately caused outbreak. In most situations, the public health system will be the first to detect cases and raise the alarm. It will be at the front line throughout the response.

Pre-emption of terrorist use of biological agents presupposes, first and foremost, accurate and up-to-date intelligence about terrorist groups and their activities. As the agents may be manufactured using dual-use equipment, and as the equipment for manufacture need not be large or particularly distinctive, technical means of acquiring intelligence, such as reconnaissance satellites, are of little use. The difficulties of predicting or pre-empting a bioterrorist attack underscore the need for careful preparedness planning. They also lead some analysts to regard strong public health infrastructures as the only reasonable defence.

“The difficulties of predicting or pre-empting a bioterrorist attack underscore the need for careful preparedness planning.”

As countries contemplate their response to the threat of a deliberately caused outbreak, vigorous positioning of public health functions is essential to guard against the diversion of resources and expertise badly needed for established public health programmes. A balanced preparedness plan includes public health in the national security framework.

Infectious diseases: a security threat in their own right

The emergence of new infectious diseases, and the re-emergence of others, combined with the increased speed and volume of international travel, have alerted countries to the ease with which infectious diseases can cross national borders. The emergence of AIDS, and its rapid progression to endemicity in particular, convinced the world that a previously unknown pathogen can cause social and economic upheaval on a scale that threatens to destabilize whole regions.

In developing countries, the destabilizing effect of endemic diseases, including AIDS, TB and malaria, is amplified by emerging and epidemic-prone diseases. Outbreaks and epidemics disrupt routine control programmes and health services, often for extended periods, due to the extraordinary resources and logistics required for their containment. The interruption of trade, travel and tourism that can follow news of an outbreak places a further burden on already fragile economies.

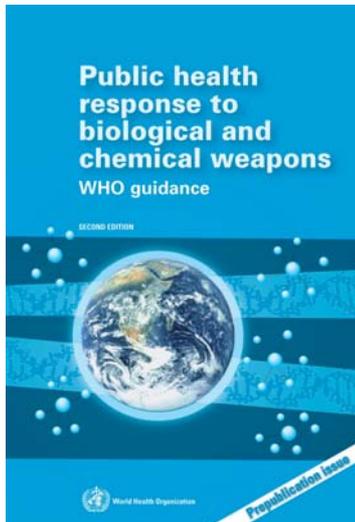
In industrialized countries, infectious diseases can represent a security issue for several reasons: if domestic populations need protection from diseases originating abroad, if deteriorating health trends abroad lead to instability and violence, or if biological agents are deliberately used to cause harm.

Growing recognition of the power of emerging and epidemic-prone infectious diseases to disrupt and destabilize has led to inclusion of their control in foreign policy agendas that seek to build a more secure world.

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Biological agents of concern



Formal WHO advice prepared in consultation with over 90 experts.

Pre-publication edition available at:
http://www.who.int/emc/deliberate_epi.html

"All of the biological agents of concern can cause natural disease in humans, though with markedly different frequency."

Formal WHO advice

In 1997, WHO responded to the need for considerable updating of its 1970 guide, *Health Aspects of Chemical and Biological Weapons*, and initiated an expert consultation, eventually involving over 90 experts. The updated guide was made available, in draft form, in September 2001 under a new title, *Public Health Response to Biological and Chemical Weapons*. Formal publication is scheduled for late 2002. The publication is WHO's official guidance based on the views of these experts.

For biological agents, the publication covers 11 bacteria, fungi and viruses listed by states parties to the Biological Weapons Convention in declarations of past offensive research and development programmes, or considered of special concern for possible use in terrorism. All of these agents can cause natural disease in humans, though with markedly different frequency.

Two diseases of concern, glanders and tularaemia, are only rarely transmitted from animals to human. No case of smallpox has been confirmed since a laboratory-associated outbreak in 1978. Some of the 11 agents cause isolated cases and sporadic outbreaks in the developing world: anthrax (Africa, the Middle East and central and southern Asia), melioidosis (South-East Asia), plague (Africa, Asia, and South America), typhus fever (endemic foci in parts of Mexico, central and South America, central and east Africa, and Asia), and Venezuelan equine encephalomyelitis (endemic in central and northern South America). The others, namely brucellosis, Q fever, and coccidioidomycosis, can occur worldwide.

The role of routine surveillance

The human occurrence of any of these diseases, whether naturally or deliberately caused, will in most cases first be detected by the public health system. Suspicions that the event is unusual will be roused by background data on the natural behaviour of the disease, including its geographical and seasonal occurrence and the characteristic epidemiological, demographic, and clinical features of the outbreak. Routine surveillance provides this background "intelligence".

Given the geographical distribution of the diseases of concern, adequate surveillance requires a global system. Strengthening of surveillance capacity in the developing world is particularly important. Many new diseases emerge in developing countries. The experience acquired in their detection and investigation has direct relevance to the prompt recognition and management of deliberately caused disease. While any component of the surveillance system could possibly detect a suspicious outbreak, the local or national component is more likely to recognize an unusual event.

The performance of routine systems in detecting and containing naturally occurring outbreaks provides an indication of how well they would perform when coping with a deliberately caused outbreak. Mechanisms for the routine exchange of information between the public health and veterinary sectors are important as many diseases of concern are zoonoses.

“Experiences acquired with emerging diseases have direct relevance to the prompt recognition and management of deliberately caused outbreaks.”

Diseases of concern and their natural occurrence	
Bacterial	
Anthrax	The human form is most frequent in Africa, the Middle East and in central and southern Asia
Brucellosis	Worldwide
Glanders	Rare or absent in most parts of the world
Melioidosis	Prevalent in South-East Asia
Tularaemia	Only rarely transmitted from animals to humans
Plague	Recent outbreaks in Africa, Asia and South America and sporadic cases in several countries
Q fever	Worldwide
Typhus fever	Endemic foci in parts of Mexico, central and South America, central and east Africa and various parts of Asia
Fungal	
Coccidioidomycosis	Worldwide in arid and semi-arid regions
Viral	
Venezuelan equine encephalomyelitis	Endemic in central and northern South America
Smallpox	No case confirmed since laboratory-associated outbreak in 1978

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Preparedness plans



Low probability, high consequences

The risk that biological agents will be used deliberately to cause harm has historically been low. While the probability may be low, the consequences are potentially so great as to make it prudent for governments at least to consider how to address this danger as an integral part of the national response to other challenges to public health and well-being.

Given the emotive force of even an alleged threat of a biological release, preparedness plans can reassure the public and reduce panic should genuine threats or hoaxes occur. Historical precedent further suggests that the risk of a deliberate release is considerably reduced by the existence of an effective ability to respond to and manage an incident.

Principles of planning

Preparedness plans should follow the established principles of risk assessment and management and should draw on existing plans for dealing with disasters or emergencies, including natural outbreaks of disease, natural disasters, and terrorist incidents. Planning principles will also overlap with plans for responding to large-scale industrial or transportation accidents in which health care facilities will be required to deal with a surge of casualties and emergency admissions.

“Every outbreak should be treated as a natural outbreak until demonstrated otherwise. This

Every outbreak should be treated as a natural outbreak until demonstrated otherwise. Such an approach frees the health system to concentrate on the first priority: the reduction of morbidity and mortality and prevention of further spread. For all outbreaks, whatever the cause, the window of opportunity for effective intervention closes quickly.

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https://www.yunbaogao.cn/report/index/report?reportId=5_30351

