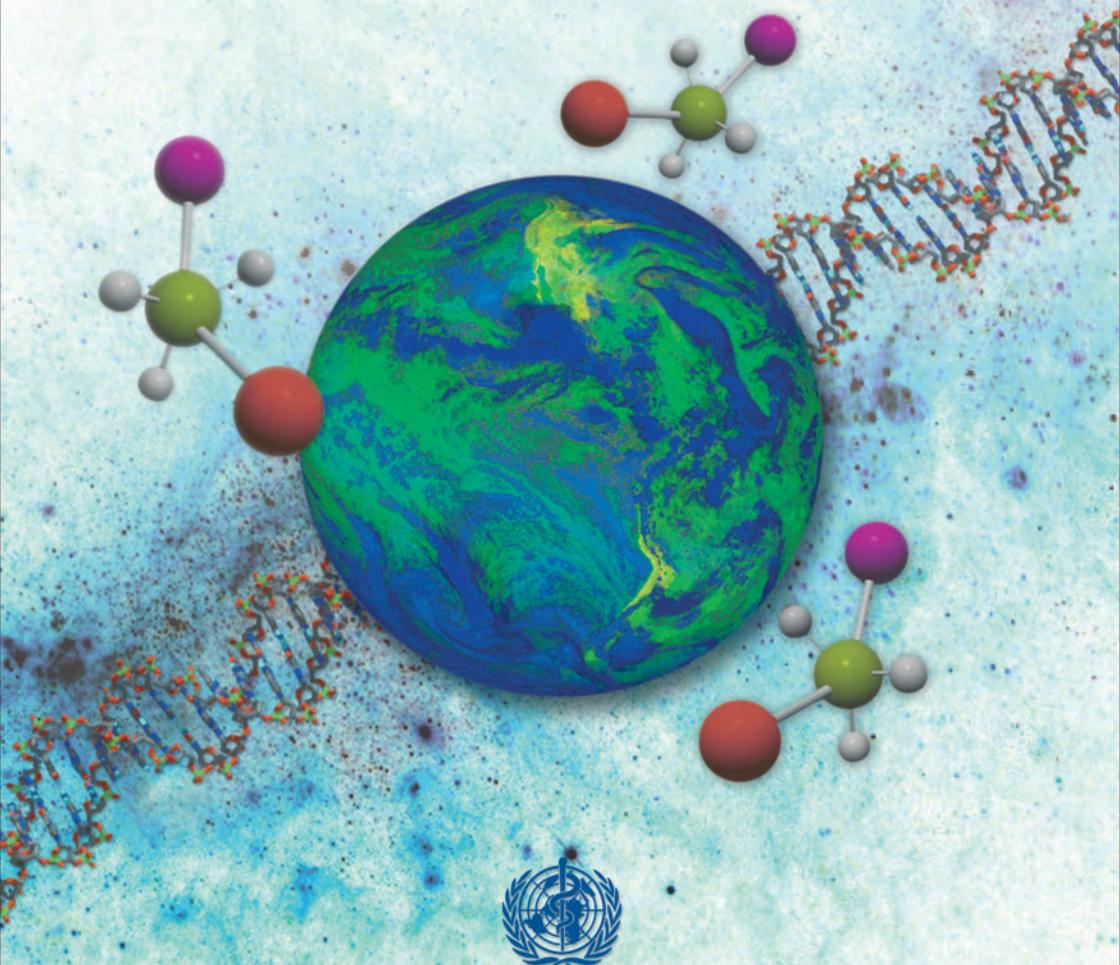


# Public health response to biological and chemical weapons

WHO guidance



World Health Organization

# Public health response to biological and chemical weapons

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WHO guidance

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## FOREWORD

The message contained in this publication is clear: countries need a public health system that can respond to the deliberate release of chemical and biological agents. Regrettable though this message may be, the use of poison gas in the war between Iraq and the Islamic Republic of Iran in the 1980s, the recent anthrax incidents in the United States, and the attack with sarin nerve agent, six years earlier, on the Tokyo underground, illustrate why it is necessary to prepare.

Recognizing this need, the Fifty-fifth World Health Assembly in May 2002 adopted resolution WHA55.16 calling on Member States to “treat any deliberate use, including local, of biological and chemical agents and radionuclear attack to cause harm also as a global public health threat, and to respond to such a threat in other countries by sharing expertise, supplies and resources in order rapidly to contain the event and mitigate its effects.” This is but the first step. The need has been identified. What is now required are national and international procedures to meet it, suitably resourced.

This manual describes these procedures. Written 30 years after WHO published its first report on the subject, the new volume could not be more timely. Lessons learned about the consequences following deliberate use of chemical and biological agents in a range of wars and in other crimes, serve as the foundation for its recommendations.

One consistent theme is evident throughout. It is the importance of using existing systems to protect public health and to augment these where appropriate. For example, better disease surveillance locally, nationally, and internationally will provide a surer way of detecting and responding to unusual disease outbreaks than a system geared only to detect deliberate release of candidate biological warfare agents. Similar principles apply for the provision of health care; management of health emergencies, delivery of clean water or protecting food supplies.

For those charged with protecting the health of the public and who now have also to be concerned about the deliberate use of chemical and biological warfare agents, this manual will prove invaluable. As the former Executive Director of WHO Communicable Diseases, I am glad to have been associated with this publication and welcome and support what it has to say.

A handwritten signature in black ink, reading "David L. Heymann". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

**Dr David L. Heymann**

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## EXECUTIVE SUMMARY

The development, production and use of biological and chemical weapons are prohibited by international treaties to which most WHO Member States have subscribed, namely the 1925 Geneva Protocol, the 1972 Biological and Toxin Weapons Convention, and the 1993 Chemical Weapons Convention. Not all have done so, however, and valid concerns remain that some may yet use such weapons. Moreover, non-state entities may try to obtain them for terrorist or other criminal purposes.

In fact, biological and chemical weapons have only rarely been used. Their development, production and use entail numerous difficulties and pose serious hazards to those who would seek to use them. This applies particularly to biological weapons. Even so, the magnitude of the possible effects on civilian populations of their use or threatened use obliges governments both to seek to prevent such use and to prepare response plans, which can and should be developed as an integral part of existing national-emergency and public-health plans.

New technology can contribute substantially to such plans, as is evident, for example, from the increasing availability of robust and relatively simple methods of rapid and specific laboratory diagnosis by DNA-based and other molecular methods. Such methods are widely used in the surveillance, prevention and treatment of natural disease.

The extent to which specialist personnel, equipment and medical stockpiles may be needed for protective preparation is a matter for national judgement in the light of the prevailing circumstances, including national assessments of the likelihood of attacks using biological or chemical weapons and consideration of existing demands on health and emergency services generally.

The danger should not be disregarded that overoptimistic evaluation of protective preparation may distract attention from the continuing importance of prevention, e.g. by the full implementation of the 1972 and 1993 Conventions.

The two Conventions include provision for assistance in the event of attack or threat of attack. The Organisation for the Prohibition of Chemical Weapons (OPCW), which is the international authority for the 1993 Convention, is making practical arrangements for providing such assistance if chemical weapons are used or threatened. As yet, however, there is no similar organization for biological weapons, but WHO, among others, can provide some assistance to its Member States.

Each of these matters is discussed in detail in the main body of the present report, which makes the following practical recommendations.

- 1) Public health authorities, in close cooperation with other government bodies, should draw up contingency plans for dealing with a deliberate release of biological or chemical agents intended to harm civilian populations. These plans should be consistent or integral with existing plans for outbreaks of disease, natural disasters, large-scale industrial or transportation accidents, and terrorist incidents. In accordance with World Health Assembly resolution WHA55.16 adopted in May 2002, technical support is available to Member States from WHO in developing or strengthening preparedness for, and response to, the deliberate use of biological and chemical agents to cause harm.
- 2) Preparedness for deliberate releases of biological or chemical agents should be based on standard risk-analysis principles, starting with risk and threat assessment in order to determine the relative priority that should be accorded to such releases in comparison with other dangers to public health in the country concerned. Considerations for deliberate releases should be incorporated into existing public health infrastructures, rather than developing separate infrastructures.
- 3) Preparedness for deliberate releases of biological or chemical agents can be markedly increased in most countries by strengthening the

public health infrastructure, and particularly public health surveillance and response, and measures should be taken to this end.

- 4) Managing the consequences of a deliberate release of biological or chemical agents may demand more resources than are available, and international assistance would then be essential. Sources of such assistance are available and should be identified.
- 5) Attention is drawn to the international assistance and support available to all countries that are Member States of specialized organizations such as OPCW (e.g. in cases of the use or threat of use of chemical weapons, and for preparedness planning), and to States Parties to the 1972 Biological and Toxin Weapons Convention (e.g. in cases of violation of the treaty). Countries should actively participate in these multilateral regimes.
- 6) With the entry into force of the 1972 and 1993 Conventions and the increasing number of states that have joined them, great strides have been made towards “outlawing the development and use in all circumstances of chemical and biological agents as weapons of war”, as called for in the 1970 edition of the present report. However, as the world advances still further into the new age of biotechnology, Member States are reminded that every major new technology of the past has come to be intensively exploited, not only for peaceful purposes, but also for hostile ones. Prevention of the hostile exploitation of biotechnology therefore rises above the security interests of individual states and poses a challenge to humanity generally. All Member States should therefore implement the two Conventions fully and transparently; propagate in education and professional training the ethical principles that underlie the Conventions; and support measures that would build on their implementation.

The statement by the World Health Assembly in resolution WHA20.54 of 25 May 1967 that “scientific achievements, and particularly in the field of biology and medicine – that most humane science – should be used only for mankind’s benefit, but never to do it any harm” remains as valid today as it was then.

## ABBREVIATIONS AND ACRONYMS

ABC	American Broadcasting Company
AMI	American Media Incorporated
BSE	bovine spongiform encephalopathy
BWC	Biological and Toxin Weapons Convention
CAS	Chemical Abstracts Service
CBS	Columbia Broadcasting System
CDC	Centers for Disease Control and Prevention (United States)
CNS	central nervous system
CPAP	continuous positive airway pressure
CWC	Chemical Weapons Convention
DMPS	dimercaptosuccinic acid
DMSA	dimercapto-1-propanesulfonic acid
ELISA	enzyme-linked immunoabsorbent assay
FAO	Food and Agriculture Organization of the United Nations
FBI	Federal Bureau of Investigation (United States)
GC	gas capillary column chromatography
GC–MS	gas chromatography–mass spectrometry
GMP	good manufacturing practices
GP	Geneva Protocol
HACCP	Hazard Analysis and Critical Control Point
HEPA	high-efficiency particulate arresting
HPLC	high-performance liquid chromatography
ICGEB	International Centre for Genetic Engineering and Biotechnology
IHR	International Health Regulations
ILO	International Labour Organization
IPCS	International Programme on Chemical Safety
IPE	individual protective equipment

MCDU	Military and Civil Defence Unit (OCHA)
NBC	National Broadcasting Company
NMDA	<i>N</i> -methyl-D-aspartate
OCHA	Office for the Coordination of Humanitarian Affairs (United Nations)
OIE	World Organisation for Animal Health
OPCW	Organisation for the Prohibition of Chemical Weapons
OPIDN	organophosphate-induced delayed neuropathy
OSOCC	On Site Operations Coordination Centre (OCHA)
PAVA	pelargonic acid vanillylamide
PCR	polymerase chain reaction
PEEP	positive-end expiratory pressure
PFIB	Perfluoroisobutene
PVC	polyvinyl chloride
RADS	reactive airways dysfunction syndrome
SEB	staphylococcal enterotoxin B
SIPRI	Stockholm International Peace Research Institute
TEPP	tetraethyl pyrophosphate
TICs	toxic industrial chemicals
UNDAC	United Nations Disaster Assessment and Coordination (OCHA)
UNEP	United Nations Environment Programme
UNSCOM	United Nations Special Commission
USAMRIID	United States Army Research Institute for Infectious Diseases
USPS	United States Postal Service
WFP	World Food Programme (United Nations)
WHO	World Health Organization

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**PUBLIC HEALTH RESPONSE TO BIOLOGICAL AND CHEMICAL WEAPONS : WHO GUIDANCE (2004)**

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