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Biological threat reduction strategy

Strengthening global biological security



World Organisation
for Animal Health
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Biological threat reduction

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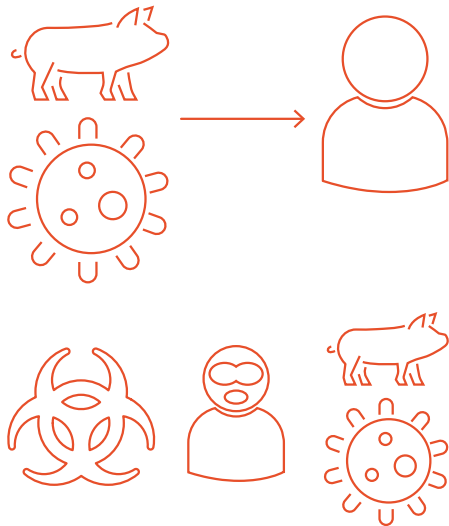
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Background



At least **75%** of emerging infectious diseases of humans (including Ebola, HIV, and influenza) have an animal origin

80% of agents with potential bioterrorist use are zoonotic pathogens



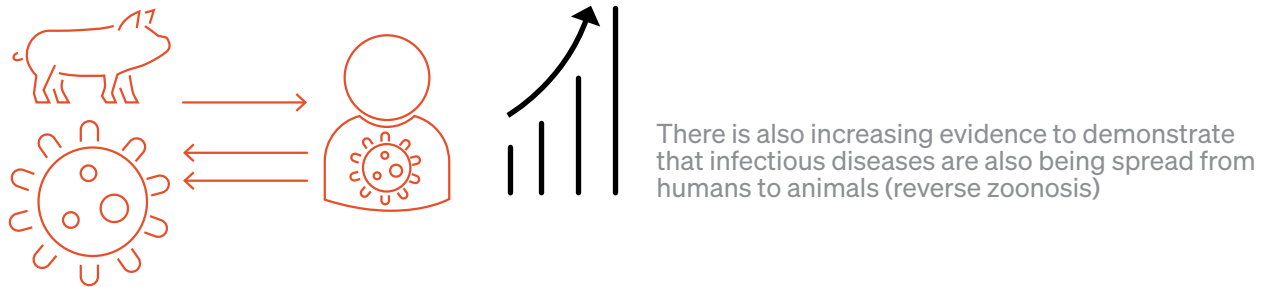
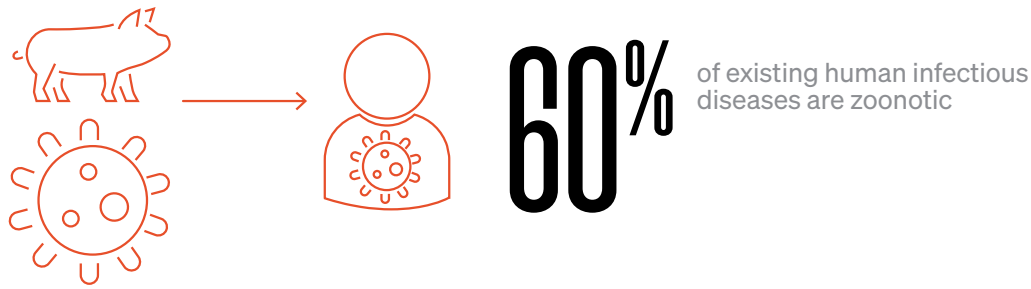
Human and animal health is closely linked

Disease emergence is complex. Infectious disease agents and toxins found in animal populations and animal products are a considerable and on-going threat to animal health, economies, biodiversity, food security (both crops and livestock), food safety, and public health.

With more animals and animal products travelling greater distances in shorter periods of time and food production becoming concentrated to fewer countries and production enterprises, the world is becoming increasingly vulnerable to potential adverse consequences of animal diseases.

Endemic animal diseases are a daily burden for health and agriculture in some of the world's poorest countries, hampering economic and social development and limiting food availability. The same diseases when introduced to developed countries, which have largely eliminated them, spread rapidly with severe consequences for livestock production, for business, and for the availability and price of food on domestic and international markets.

Emerging infectious diseases, including those which are evolving to evade currently available control options (vaccines and antimicrobials), appear to be posing an increasing risk to health. The mechanisms for disease emergence are complex and often poorly understood, but it is likely that the trend for new diseases to emerge will only continue as global movements of people and animals increases and as human behaviours change the environment around us.



A risk of pathogens accidental or deliberate release

All potential pathways must be considered. In addition to the threats posed by naturally occurring disease outbreaks, there is a real risk that a disease may be introduced into susceptible human or animal populations following a deliberate or accidental release of an infectious agent or toxin. These 'unnatural' biological threats¹ carry special risks because pathogens may be engineered or released in such a way as to make them more harmful. Although the probability of a deliberate or accidental release may be relatively low, the impact may be catastrophic from a national to a global level.

Animal pathogens may be used as bioweapons, in biocrimes or in bioterror because they have a high impact, are cheap, easy to acquire and propagate, and can be readily smuggled through border checks undetected. The biotechnology revolution means that options for engineering animal pathogens are increasing all the time (and becoming more widely available), whilst the cost of doing so is decreasing. Most pathogens that have been used to develop bioweapons have been animal pathogens; all of these are diseases officially listed by the World Organisation for Animal Health (WOAH) (<https://www.woah.org/en/what-we-do/animal-health-and-welfare/animal-diseases/>).

¹ In this document biological threat or 'bio-threat' refers to the accidental or deliberate release of a pathogen or toxin into a susceptible population.

Animals play an important role as biosensors for accidental or deliberate releases of infectious agents and toxins, and for emerging diseases. The same disease surveillance and intelligence systems that are in place to detect day-to-day occurrences of natural outbreaks in animals, within countries and at national borders, will also detect deliberate and accidental releases.

Strong and coordinated health systems are needed

The response to disease is the same whether it is directed against natural infection, or deliberate or accidental release. In the case of zoonotic diseases, coordination of the animal health and public health response is essential, and control is often best focused on eliminating or controlling the pathogen at the animal source. Expert investigations carried out by health authorities are needed to establish the cause of a disease outbreak and Veterinary Laboratories are often the first to discover the source. When there is suspicion of malicious release, collaboration with law enforcement agencies becomes an important part of the response.

Recent events (including Ebola outbreaks in West Africa) have shown that in the absence of strong well governed health systems infectious disease can rapidly spread and get out of control with devastating consequences and heightened risk for the whole world. It is

much smarter and more economically viable to provide sustainable funding for animal and public health services than to deal with a large outbreak which has gotten out of hand because a national detection and response is insufficient.

Unfortunately, pockets of civil instability will continue to emerge in different parts of the world. This may exacerbate

the risk of infectious disease threats because civil instability often leads to health systems falling apart, or disgruntled groups may be tempted to add bioweapons to their armory. Infectious disease may also lead to instability because it may damage micro and macro economies or it may lead to reduction in food supply, both of which can motivate people to take unprecedented and unpredictable actions.

The most effective and sustainable way to protect against threats from deliberate and accidental releases of animal pathogens is:

- to strengthen existing systems for surveillance, early on-farm detection and rapid response,
- and for biosafety and biosecurity, to foster scientific networks that work towards altruistic goals.

This approach has multiple collateral benefits for animal health, agriculture, public health, poverty alleviation, food security, animal welfare, and economies.

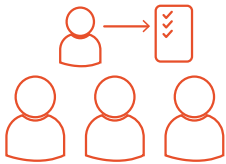


WOAH's vision

A world that is safe and secure from the accidental or deliberate release of animal pathogens, including zoonoses

In meeting its mandate to improve animal health, veterinary public health, and animal welfare worldwide, WOAH takes the threat posed by accidental and deliberate release of animal pathogens very seriously. WOAH's strategy for bio-threat reduction, which is summarised in this paper, focuses on strengthening, enhancing, and developing cross-links between existing health systems.

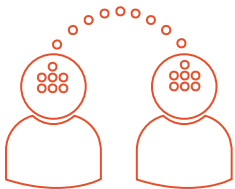
WOAH's strategy for bio-threat reduction addresses 5 key areas



1

Maintaining scientific expertise and setting standards, and guidelines

To maintain a global network of leading experts and to set relevant science-based standards and guidelines, to support bio-threat reduction policies including early detection of, and response to biological disasters.



2

Good governance, capacity-building and implementation of the One Health concept

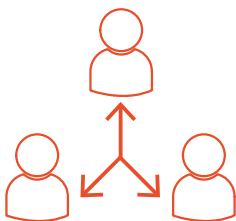
To ensure that WOAH Member Countries have the capacity, expertise, resources and governance to comply with and implement intergovernmental standards and guidelines that will reduce the risk of malicious use of animal pathogens or their accidental release.



3

Global disease intelligence and updates on the latest methods for disease prevention and control

Maintain global disease transparency and accurate up-to-date information, verification or validation of rumours from diverse sources and confirmed outbreaks of animal diseases, emerging diseases, and significant epidemiological events, including zoonoses. Disseminate officially confirmed disease information and the latest methods used for controlling outbreaks to the international community.



4

International cooperation and solidarity between countries

To engage with international partners (such as WHO and FAO) and stakeholders, particularly key national policy makers (WOAH Delegates, WOAH National Focal Points, and WOAH Reference Centre Experts), and provide technical expertise and build capacity when needed - through the organisation of, or active participation in meetings, discussions, country missions, collaboration and planning activities - to ensure that international efforts to reduce threats from accidental or malicious release of pathogens are well coordinated and well implemented everywhere.



5

Advocacy, and communication

To ensure that bio-threat reduction policies remain on the political and technical agenda, that they are sustainable and integrated into the existing animal health policy framework, and that they are communicated to relevant stakeholders.

WOAH's Sixth Strategic Plan (2016-2020)

This strategy is consistent with and supported by WOA's Sixth Strategic Plan (2016-2020) (adopted in May 2015 by the General Assembly of WOA Delegates) and cuts across all its objectives, such as international communication of global animal disease and zoonosis situation; development and implementation of science-based standards and guidelines on prevention, control and eradication of animal diseases, including zoonoses, and safety of international trade of animals and animal products as well as laboratory excellence; ensuring the scientific excellence of information and advice; capacity-building for national Veterinary Services, including their surveillance and response capacities; and strengthening the organisation's influence on policy design, applied research and governance of disease prevention and control.

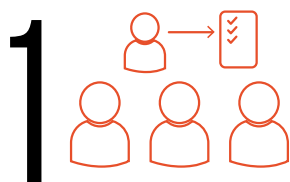
Transparency of the global disease situation

Enhancement of tools capable of mapping the global, regional and national animal disease situation, including zoonoses, is needed to maintain transparency of the global disease situation. WOA Member Countries are legally bound to report occurrences of WOA listed diseases and emerging diseases in animals to WOA Headquarters. Timely sharing of this disease information enables rapid and effective international response, preventing further spread. All WOA Member Countries (180 countries as of May 2015) report disease events directly online through the World Animal Health Information System (WAHIS), once validated the information is rapidly disseminated through the WOA WAHID (World Animal Health Information Database) interface. WAHIS and WAHID are key to strengthening surveillance and monitoring of animal diseases, zoonoses, and emerging diseases at the international level. They must continuously develop and evolve to meet demands and technological advances.

To access the WAHIS presentation's movie, use the flashcode:

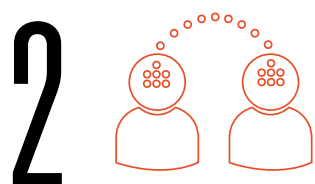


WOAH's Strategy for bio-threat reduction addresses 5 key areas



Maintaining scientific expertise and setting standards, and guidelines

- a) Develop and maintain global networks - WOA ad hoc working groups, National Focal Points and Reference Centres - of technical expertise encompassing in particular biosafety and biosecurity, bioethics, and biotechnology. Information from these networks also provides early warning of potential dual use technologies.
- b) Maintain up-to-date intergovernmental standards and guidelines on disease surveillance and notification (to achieve early detection and rapid response), and disease prevention and control methods by WOA Member Countries as well as on animal production, food safety, quality of veterinary services and veterinary education establishments.
- c) Cooperate with public health partners (WHO) to develop congruent risk-based guidance on laboratory biosafety and biosecurity and sample shipment, also accounting for risks posed to animal health and the environment.
- d) Maintain up-to-date intergovernmental standards and guidelines on biosafety and biosecurity in veterinary laboratories and animal facilities, and on sample shipment. Strengthen compliance through capacity building e.g. using twinning projects.
- e) Ensure standards and guidelines are accessible to all WOA Member Countries, and that they do not adversely affect the ability to transport diagnostic samples to laboratories quickly and to detect pathogens rapidly.



Good governance, capacity-building and implementation of the One Health concept

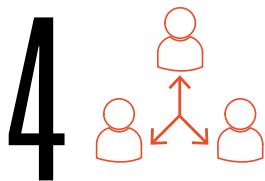
- a) Encourage global coordination of capacity building efforts to focus on strengthening health systems and disease control methods based on WOA Intergovernmental Standards and WHO International Health Regulations.
- b) Build capacity for surveillance and control of animal diseases that are potential bio-threats.
- c) Maintain the WOA Laboratory Twinning Programme to improve compliance with WOA Intergovernmental Standards, including for biosecurity and biosafety, to create a culture of responsible science and good laboratory practice, and to develop scientific expertise in developing countries.

- d) Extend the global network of WOAHP Reference Centres through Twinning to create a more even global distribution of scientific excellence, whilst building international scientific networks, ensuring quality control, and strengthening disease surveillance networks.
- e) Support the implementation of the WOAHP PVS Pathway and WHO-IHR. Continue joint One Health PVS-IHR National Bridging Workshops and further develop the WOAHP PVS Gap Analysis tool and the PVS Veterinary Laboratory Pathway to identify gaps in Veterinary Services that may compromise their ability to prevent or respond to bio-threats. Advocate for national and international investments to close these gaps.
- f) Provide training through national and regional workshops, conferences, and twinnings to increase awareness of the importance of animal diseases as bio-threats, to improve effective implementation of bio-threat reduction activities, and to build and maintain sustainable scientific networks.
- g) Further develop twinning between veterinary education establishments in order to promote relevant concepts on bio-threat awareness and reduction within the teaching curriculum and in the framework of the WOAHP Day One Competencies of the Veterinary Graduate and to create a culture of responsible and ethical science to students.
- h) Work with key stakeholders to ensure the rapid and safe transport of diagnostic material to Reference Centres and other diagnostic facilities to support early diagnosis and characterisation of infectious agents.
- i) Further develop twinnings between Veterinary Statutory Bodies in order to promote quality of selection of practitioners and professional ethic.
- j) Translate relevant supporting information into different languages including Chinese, Russian and Arabic.



Global disease intelligence and updates on the latest methods for disease prevention and control

- a) Maintain transparency of the global animal disease situation by ensuring that WOAHP Member Countries comply with their legal obligation to report WOAHP listed diseases as well as new and emerging diseases to WOAHP as stated in chapters 1.1.1. and 1.1.2. of the Terrestrial and Aquatic Codes.
- b) Improve global and regional electronic monitoring systems to collate, analyses, and map global, regional, and national animal disease data. Maintain and develop WAHID and WAHIS and their interface and interoperability with other relevant partners.
- c) Continue to enhance the sensitivity of international disease reporting by tracking rumours have access to high quality expertise needed for rapid and accurate pathogen confirmation and characterisation. Note: as of May 2015 more than 300 WOAHP Reference Centres already exist worldwide.
- d) Maintain a global network of WOAHP Reference Centres so that all WOAHP Member Countries have access to high quality expertise needed for rapid and accurate pathogen confirmation and characterisation. Note: as of May 2015 more than 300 WOAHP Reference Centres already exist worldwide.
- e) Support disease-specific networks such as OFFLU (WOAHP-FAO global network of expertise on animal influenzas), the Foot and Mouth Disease network etc, which provide a valuable source of informal and comprehensive technical information to provide early warning of emerging or re-emerging threats.
- f) Develop synergy with FAO and WHO on the collection and analysis of disease data.



International cooperation and solidarity between countries

- a) Communicate on WOAHA bio-threat reduction strategies, activities, and disease control methods to WOAHA Member Countries, WOAHA National Focal Points, and WOAHA Regional Offices, through capacity-building seminars and dissemination of scientific and technical information, instructions, communication material, meeting reports, presentations and regional and international meetings.
- b) Advocate for the non-proliferation of biological weapons including support for the Biologic and Toxin Weapons Convention (BWC), United Nations Office of Disarmament Affairs (UNODA) and United Nations Security Council Resolution 1540.
- c) Develop a joint WHO-WOAHA biological threat reduction strategy to address zoonotic threats.
- d) Engage and work closely with international bio-threat reduction initiatives such as the Global Partnership (GP) and Global Health Security Agenda (GHSA).
- e) Maintain a close working relationship with focal points in other relevant international partner organisations and networks, including key stakeholders such as WHO, FAO, BWC, International Atomic Energy Agency (IAEA), UN-ODA, UN Security Council Resolution 1540 Committee, International Criminal Police Organisation (INTERPOL), World Customs Organisation (WCO), GP, Counter-Terrorism Implementation Task Force (CTITF), Organisation for the Prohibition of Chemical Weapons (OPCW), Group of 7 (G7) and Group of 20 (G20).
- f) Formalise cooperation with key partners in biothreat reduction through Memoranda of Understanding and other cooperative and operational agreements.
- g) Maintain and provide expertise to international agencies involved in investigating suspicion of malicious release of animal pathogens e.g. the UN Secretary General's Mechanism.
- h) Maintain WOAHA support to the FAO-WOAHA Crisis Management Centre – Animal Health (CMC-AH) as a joint tool to deploy rapid response technical missions to countries in the face of animal health crises.
- i) Provide support to veterinary laboratories e.g. using twinning arrangements and WOAHA PVS tool for laboratories.
- j) Take forward, together with FAO, post rinderpest eradication activities which aim to ensure complete destruction and appropriate sequestration of all remaining stocks of rinderpest virus containing material.
- k) Hold disease simulation exercises at the international level to engage key players in the security and health sector and to identify gaps and improve cooperation.
- l) Encourage public private partnerships to create compliance between private sector and public sector standards.
- m) Support developing countries through capacity building and relevant specific programmes.



Advocacy, and communication

- a) Highlight that WOAHA listed diseases and emerging diseases in domestic and wild animals are important global bio-threats, and that universally strong and well governed Veterinary Services, in cooperation with public health and security partners, are needed to reduce these threats.
- b) Ensure that biological threat reduction policies are aligned and complementary to the overarching policies aimed at improving animal, ecosystem, and human health.
- c) Ensure that bio-threat reduction is addressed through the annual work programme of the WOAHA Director General and the WOAHA Specialist Commissions, at regional and global-level meetings and in strategic planning.
- d) Advocate that investments in mechanisms to prevent, detect, and control natural outbreaks of animal diseases, emerging diseases, and zoonoses are effective in reducing bio-threats, that they provide multiple collateral benefits, and that such investments provide more sustainable benefits than by investing specifically in bio-threat reduction alone.
- e) Ensure that WOAHA Standards and recommendations are recognised as the leading global standards and guidance for the animal health sector (zoonoses included) to reduce international threats from animal pathogens, including from natural, accidental, and deliberate release.
- f) Ensure that the international community recognises that compliance with WOAHA Intergovernmental Standards on quality of Veterinary Services and WHO's International Health Regulations are the basis for global health security.
- g) Ensure that subjects related to bio-threat reduction are integrated into Veterinary Services evaluation frameworks, education programmes, capacity-building for policy makers, and communication strategies.
- h) Advocate that fostering of altruistic scientific networks at the national, regional, and global level is a means of sustaining expertise, and preventing scientists from contributing to bioweapons development by encouraging a culture of responsible and transparent science.
- i) Reduce biological risks linked to veterinary laboratories and animal facilities with efficient biosecurity and biosafety practices.



WOAH Global Conference on Biological Threat Reduction, Paris, 2015

In June 2015, WOA (in collaboration with the WHO) convened high level representatives (including WOA Delegates) from the security and health sectors of more than 80 countries and from international organisations to share experiences and solutions for tackling all biological threats emerging from nature, laboratory accidents and malicious intent. The health and security sectors agreed to speak with one voice on the urgent need to strengthen health systems against biological threats. The meeting supported WOA's Biological Threat Reduction Strategy and adopted a number of specific recommendations which can be found on https://www.woah.org/eng/BIOTHREAT2015/recommendations/BTR_Conference_Final_report_7_8_2015.pdf

Biological threat reduction strategy

Strengthening global biological security

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