



ICRC

Preventing Hostile Use of the Life Sciences

From ethics and law to best practice

11 November 2004

Do you work in the life sciences or related fields? Do you know that your work may be subject to both ancient taboos and modern international and national laws proscribing poisoning and the deliberate spread of infectious disease?

Advances in the life sciences hold great promise for humanity. There is also great risk if these same advances are put to hostile use. History shows that new scientific advances are often used to develop weapons.

Biological and chemical weapons have long been considered abhorrent and a number of international treaties are designed to prevent poisoning and deliberate spread of infectious disease. These treaties are: the 1925 Geneva Protocol (prohibiting the use of asphyxiating, poisonous or other gases and bacteriological methods of warfare); the 1972 Biological Weapons Convention and the 1993 Chemical Weapons Convention. In most countries, domestic laws reflect these treaties. However, responsibility to uphold the legal and ethical norms is not confined to governments. No actor in the life sciences can claim to be maximising the benefit of his or her work for humanity without also acting in support of the relevant laws and taking steps to minimise the risk of misuse of their work.

If measures to prevent the hostile use of advances in the life sciences are to work, a culture of responsibility is necessary among individual life scientists. This applies whether these scientists are working in industry, academia, health, defence or in related fields such as engineering and information technology. Such a culture of responsibility is also needed within the institutions that employ scientists and fund research in the life sciences.

The following "Principles of Practice" incorporate some key points of discussion about ethics relating to life sciences. They apply to all stakeholders in the life sciences. The objective is to build a bridge from pertinent ethics and laws which should prevent poisoning and deliberate spread of infectious disease to best practice within the life science community. These Principles of Practice, if widely accepted, would form part of a multidisciplinary

preventive framework. Their recognition should maximize the benefits of research in life sciences and its application for humanity, while minimizing the risk of hostile use of advances in this domain. The corresponding action points attempt to link the principles to practical measures.

The Principles of Practice have been developed through a consultative process with experts in science and policy matters. They are not intended to impose yet more regulation on legitimate science. They provide a suggested framework for discussions and decisions on, for example, research, research proposals, funding, publication, contracts of employment for scientists, health and safety procedures, professional practice, peer-review processes and educational programmes.

The International Committee of the Red Cross (ICRC) would be pleased to receive comments on these Principles of Practice which may be further developed in the future. Please send any comments to: [**bwh.gva@icrc.org**](mailto:bwh.gva@icrc.org).

More information about the ICRC's work on this issue can be found at [**www.scienceforhumanity.org**](http://www.scienceforhumanity.org).

General Principle

Life sciences have been, and must continue to be, of great benefit to humanity. However, the benefits to humanity of any particular development in the life sciences must always outweigh the risks of that development being used to facilitate poisoning and deliberate spread of infectious disease.

Principles and Action Points

To minimize the risks of poisoning and deliberate spread of infectious disease resulting from advances in the life sciences, those working in this field should recognise their individual and collective responsibilities, bear in mind certain key principles and take action as appropriate:

CONFLICT OF INTEREST

1. Preventing advances in the life sciences from being used for poisoning and deliberate spread of infectious disease must always take precedence over personal, commercial or security interests.

Action points:

- *Encourage education of scientists from undergraduate level onwards about pertinent ethical issues.*
- *Develop and promote professional ethics and adhere to agreed codes of conduct that may be voluntary, professional or enforced as appropriate.*

LEGAL RESPONSIBILITIES

2. Research and its application must always be compatible with respect for, and promotion of, national and international laws.

Action points:

- *Encourage education of scientists from undergraduate level onwards about relevant national and international laws.*
- *Work with government officials to prevent biological or chemical weapons from being developed, produced, transferred or used and call for governments to fully uphold, implement and strengthen existing and pertinent laws.*

DILIGENCE

3. Undertaking well-intentioned research does not justify neglect of possible hostile use of the outcome.

Action points:

- *Be diligent in safeguarding legitimate research, whether in academia, industry or defence from being used for any hostile purpose, including the development of chemical or biological weapons.*
- *Raise concerns with policy-makers and institutions about existing regulations which may not be adequate for safeguarding legitimate research.*

GOVERNANCE OF RESEARCH AND PUBLICATION

4. Knowledge gained from research must ultimately become universal for the progress of science; however, the potential for hostile use of some advances in life science and biotechnology may pose a fundamental dilemma about how and when knowledge is made accessible to others.

Action points:

- *Maintain an open dialogue about and, if possible, define what constitutes 'dangerous' research.*
- *Build a regime of governance of potentially dangerous research and its subsequent publication.*

A CULTURE OF TRANSPARENCY

5. Transparency and a culture of dialogue together constitute the most important element in minimising the risk that advances in life sciences will be turned to hostile use.

Action point:

- *Create and promote a working culture of dialogue and transparency between colleagues about the nature of research undertaken.*

INCREASING SPEED OF ADVANCES

6. The increasing power and variety of advances in life sciences must be matched by commensurate objective assessments of risk and closer vigilance.

Action point:

- *Be vigilant with respect to scientific advances that could facilitate poisoning and the deliberate spread of infectious disease.*
- *Discuss mechanisms that could ensure that the divide between advances in science and advances in its governance and applicable law is minimised.*

A "WEB OF PREVENTION"

7. Minimising the risk of poisoning and deliberate spread of infectious disease require a range of synergistic measures and so is, by necessity, a multidisciplinary endeavour.

Action points:

- *Encourage and participate in multidisciplinary dialogue and action about the prevention of poisoning and deliberate spread of infectious disease.*
- *Make the risks of poisoning and deliberate spread of infectious disease comprehensible to actors in related fields and explore ways to work in cooperation to reduce the risks.*
- *Work with the media with these principles of practice and action points in mind.*

VOICING CONCERN

8. Those working in life sciences who voice concern and take responsible action require and deserve political and professional support and protection.

Action points:

- *Encourage people who work in the life sciences to voice concern about issues relating to poisoning and the deliberate spread of infectious disease.*
- *Ensure that adequate mechanisms exist for voicing such concerns without fear of retribution.*

SPECIFIC CHARACTERISTICS OF BIOLOGICAL WEAPONS

9. Because of their particular characteristics, preventing the development, proliferation and use of biological weapons requires a very different approach to preventing the development, proliferation and use of chemical weapons.

Action point:

- *Develop and promote awareness of the specific risks of the development, proliferation and use of biological weapons and promote preventive strategies.*

"DUAL USE"

10. Some materials and technologies more than others lend themselves to poisoning and deliberate spread of infectious disease.

Action point:

- *Be vigilant with respect to and maintain a dialogue about the 'dual-use' phenomenon.*

DIFFUSION OF MATERIALS AND TECHNOLOGIES

11. Materials and technologies associated with the life sciences can diffuse rapidly.

Action point:

- *Ensure materials and technologies are transferred in a manner that minimises the risk of their use for poisoning and deliberate spread of infectious disease while maximising their potential benefit for humanity.*