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Scientific working group on life science research and global health security

Report of the First Meeting

Geneva, Switzerland
16–18 October 2006

EPIDEMIC AND PANDEMIC
ALERT AND RESPONSE

World Health Organization

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Contents

Foreword

This meeting report is part of the "Life science research and development and global health security" project. The project is aimed at raising awareness among WHO Member States about the potential implications of life science research and development (R&D) for global health security. It underlines the importance of carrying out life science R&D for improving the health of all people, as well as the potential risks linked with life science R&D. As part of this project, a scientific working group met in Geneva, 16–18 October 2006. This report is a summary of this group's deliberations.

The overall objectives of the October meeting were to review — from a public health perspective — the risks and opportunities of life science research for global health security and to provide input on the project's activities and plans, including regional activities. Regional activities are aimed at raising awareness of these issues and at gathering feedback on the scientific working group's recommendations. Feedback on this report will also be gathered by way of a questionnaire that will be posted on the Internet during the first half of 2007. The present recommendations made by the participants may be revised in order to reflect the feedback received.

Recognizing that these issues are complex and challenging for public health, the scientific working group stressed the need for a global response that is sustained and comprehensive. The report also emphasizes the pivotal role of WHO as a facilitator in engaging all interested parties in this process. Education, training and awareness raising, together with capacity building (in ethics, clinical practice, laboratory work and research), preparedness, risk assessment methodologies and research oversight guidelines are the priorities identified by the scientific working group and for which action is now needed.

The project, which is contributing to the implementation of the World Health Assembly resolution WHA55.16 of 18 May 2002, is the follow-up of an exploratory phase that was concluded in 2005 with the publication of a working paper (*1*). The project is being implemented by the department of Epidemic and Pandemic Alert and Response (EPR) in close collaboration with three other departments: Research Policy and Cooperation (RPC); Research and Training Tropical Diseases (TDR/PRD); and Ethics, Trade, Human Rights and Health Law (ETH).

I. Introduction

The public health implications of both the positive and potentially negative consequences of life science research are profound. The tremendous advances in biology, biotechnology, genomics, proteomics, synthetic biology and bioinformatics in recent years are almost certain to lead to improved health and well-being through, for example, new diagnostics, treatments and vaccines to fight infectious diseases. Unfortunately, the possibility that a laboratory accident may lead to a major outbreak or that such advances may be deliberately misused to do harm on an unprecedented scale cannot be ignored. In other words, the knowledge and technologies that result from life science research used for legitimate research and technology development may also be appropriated for illegitimate intentions and applications. This is sometimes referred to as the "dual-use" dilemma.

Finding and maintaining the right mix of policies that will enable the benefits of life science research to be maximized while minimizing the risks requires efforts on the part of both the life science and the security communities. Among life scientists there are concerns that the focus on deliberate outbreaks is hindering further developments in the life sciences. In some cases, security measures have led to policies that have affected scientists carrying out legitimate and much needed research on certain biological agents (e.g. security clearance, travel restrictions, difficulty obtaining research grants or long delays in exchanging biological materials and equipment). At the same time, within the security community there are concerns that many scientists are unaware of the potential for accidental or intentional harm from their research and of their roles and responsibilities in helping to mitigate those risks. In recent years, research with potentially dangerous consequences has occurred in laboratories in a number of countries. This research has generated controversy not only in government circles but also within the public at large.

The scientific working group convened by WHO (hereinafter "the Group") met to discuss the implications of life science research for global health security (see annex 1 for the agenda of the meeting and annex 2 for the list of participants). The Group took life science research as relating to all life forms — human beings and animals as well as plants — and as embracing numerous fields of study, including biology and parts of chemistry. Likewise, global health security was taken to mean minimizing the "risks and dangers to health arising from global interactions among peoples and states. The global health security concept also sends the message that a nation's health security is intertwined with the rest of the world through the processes of globalization." (*2*).

The Group started from the premise that finding and maintaining the right mix of policies is a complex and dynamic process that calls for a multifaceted solution, international coordination and sustained engagement. Equally important is to view the problem from a public health perspective, albeit with appropriate recognition of the importance of national and human security. There are several reasons that call for a public health perspective. First, public health is concerned with protecting and promoting the health of communities and therefore must give due consideration to both the benefits and the possible risks of life science research for public health. Second, it recognizes the possibility of harm to public health if rules and regulations to prevent the potential misuse of life science research are so stringent that they stall advances in the life sciences or so weak that such research may foster dangerous results. Third, communication, cooperation and openness, which are central to a public health perspective, are needed to uphold public trust in the research endeavour and to provide evidence-based advice to policy-makers.

Fourth, the strong sense of social responsibility that underlies public health research can be readily extended to include the responsibility to minimize, through responsible conduct of research, the risks of deliberate outbreaks or inadvertent consequences. And fifth, such a perspective takes into account the vastly different health needs and experiences of WHO Member States, as well as the mandate of WHO.

II. Recommendations

As Professor Peter Folb, who chaired the meeting, summarized in his closing remarks, the Group identified five priority areas for which action is now needed:

1. Education and training for life science students and researchers, and ultimately even for high school students, journalists and the public;
2. Preparedness for a possible major outbreak of disease resulting from the intentional or inadvertent misuse of biological agents by preparing for natural disease events;
3. Development of risk assessment methodologies;
4. Engagement of all stakeholders in the life science community, and development with and through them of guidelines for oversight; and,
5. Thoroughgoing capacity building at country level, including ethics, clinical practice, laboratories and research.

Reflecting a shared sense of urgency, the group recommended that WHO should establish a standing scientific advisory group[1] charged with advising the Director-General and supported within the Secretariat by the relevant departments. The scientific advisory group would meet on a regular basis to develop principles and guidelines for assessing the risks of life science research and to evaluate policies. It would also seek expert advice and commission research, as and when required. Sub-groups would be set up for each of the five priority areas, which are briefly elaborated on in the following section.

Why WHO should lead the way

Participants agreed that WHO should collaborate with the Food and Agricultural Organization