

IWG-LNCV



IWG – LNCV Biological Workshop and Round Table on
Fostering the Biosecurity Norm:
An Educational Module for Life Sciences Students

Framing the Issue on Education on
Biological Weapons, Biosecurity and Dual-Use

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Why Foster a Biosecurity Norm?

Aims Being Addressed

- To prevent the deliberate and inadvertent spread of disease
- To prevent life science research from serving purposes nationally and internationally prohibited

The Centrality of Education

Why?

- Little prospect for effective regulations without well informed practitioners (and policy makers)
- Education as prerequisite for other interventions (e.g., codes)
- Destructive use of science not given much professional attention in recent decades
- Awareness raising is part of heightening sensitivity to dubious practices
- Reinforce wider ethical standards
- Education is doable within the limitations of existing multilateral processes

Education: Some Questions

The Who and What of Education

- *What should education entail by way of subject matter?*
 - disease characteristics; lab security; history of offensive programmes, dual use potential?
- *Who needs to be educated?*
 - pathogen investigators, bioscientists, life sciences, public?
- *What is the purpose of education?*
 - education as 'implanting' or 'eliciting' understanding?
- *Who is the educator?*
 - in other words, who is expert? Biosecurity experts raise your hands

The How of Education

- *How can audiences of practicing scientists be reached?*
- *How can their attention and active engagement be secured?*
- *How can education resources be made responsive to national contexts?*

What is Happening

Recent Emerging Education Calls & Ongoing Initiatives

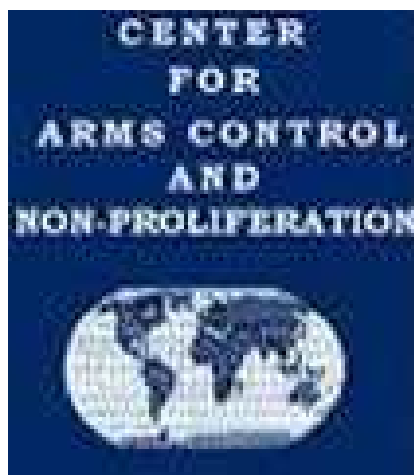
- Educational module in South Africa
- Japan National Medical Defence College past and further education initiatives
- Dutch 'Code of Conduct' stressing education and engagement
- Education priority from “Promoting Biosafety and Biosecurity within the Life Sciences: An International Workshop in East Africa”
- Recommendation 1 in Israeli *Biotechnological Research in an Age of Terrorism*
- Australian implementation of new physical security of bioagents legalisation – ‘road show’ component
- Swiss government announcement at BWC



US Educational On-line Modules

Learning Objectives

- Identify ethical problems that scientists and lab workers may encounter
- Provide information and resources to use in dealing with such problems
- Analyze how biosecurity and bioterrorism relate to the biological sciences
- Describe new policies impacting bioscience
- Address practical and complicated questions impacting biological scientists



Technical advances in modern molecular biology have increased the risk that research could be used against us by those with malicious intent. It is important that biologists increase their awareness of biosecurity issues and learn to assess their research in terms of modern security concerns to minimize that possibility.

The case studies presented here will help define the issues associated with "dual use" research and security in the research lab. They include

- Module 1.0 Introduction
- Module 2.0 Synthesizing Polio Virus
- Module 3.0 Aerosol Drug Delivery

“The Life Sciences, Biosecurity, & Dual-Use Research” Seminars

What We Have Done

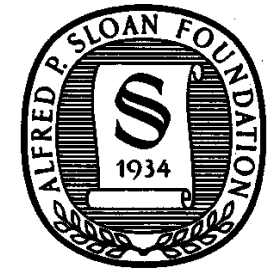


ESRC funded project - Rappert & Dando

- 26 seminars with university life science departments in the UK during 2005
- Over 600+ participants

Sloan funded project - Rappert & Dando

“The Life Sciences, Biosecurity,
& Dual-Use Research”



- 30 seminars in US, South Africa, the Netherlands, and Finland in 2006, 700+ participants, varied locations
- 44 seminars: Japan, Israel, Germany, India, Argentina, Uganda, Kenya, Ukraine, Australia 900+ participants

Who We Are

- Animesh Roul (Society for the Study of Peace and Conflict)
- Chandre Gould and Peter Edopu (Institute for Security Studies)
- David Friedman (Institute for National Security Studies - Israel)
- Katsuhisa Furukawa, Rui Kotani, and Yu Sasaki (Research Institute of Science and Technology for Society in the Japan Science and Technology Agency)
- Heide Hackman, Laura van Veenendaal, and Rudie Trienes (Royal Netherlands Academy of Arts and Sciences)
- Mari Linnapuomi (Finnish Ministry for Foreign Affairs)
- Kathryn Nixdorff (University of Darmstadt)

Who We Are

- Megan E. Davidson (Duke University/SERCEB)
- Sergie Kormisarenko (National Academy of Science of Ukraine)
- Silvia Cucovaz (Argentinean National Intelligence School)
- Paula Austin (Sandia National Laboratory)
- Marie Chevrier (UTD)
- Thomas Egwang (Med Biotech Laboratories and the Ugandan National Academy of Sciences)
- Nancy Connell (UMDNJ)
- Christian Enemark (Centre for International Security Studies at the University of Sydney)

Some Lessons

‘Go to the people’

Foster (senior level) peer to peer interaction

‘Universality’ of scientists’ responses

Possibility for fostering interest within (and between?)
practitioner and policy communities

Educational Products



- Production of educational material

1. On-line audiovisual resource (@ NYAS)

2. Role playing exercise (with Marie Chevrier)

<http://www.projects.ex.ac.uk/codesofconduct/BiosecuritySeminar/index.htm>

- *Biotechnology, Security, and the Search for Limits*



Now What?

Three Issues for the Future:

Implementation, Implementation,
Implementation

SERCEB Educational Module Review

- 2007 review of on-line module titled ‘The Dual-Use Dilemma in Biological Research’
- 40 interviews from PI to lab tech
- Not representative sample, but...
- ...significant concerns
 - 25% reported to be totally unfamiliar
 - 4/40 taken module prior to interview
 - 67% relevant, 27% not – disagreement within research teams

A Proposal for What Needs to be Done

1. Where existing high-level concern:

→ Support to bring national calls to fruition

2. Where attention but not national activity:

→ Develop emerging resources, promote examples from elsewhere

3. Where patchy attention:

→ 1+2 cited in policy/practitioner conversations

→ Partnerships between countries, examples of good practice

4. Where new issue:

→ Educate theme and meaning, starting engagement

What Next?

A Big Picture

MEETING OF EXPERTS OF THE STATES PARTIES TO THE BIOLOGICAL AND TOXIN WEAPONS CONVENTION 18 to 22 AUGUST 2008

**Statement by Dr. Brian Rappert, Department of Sociology &
Philosophy; University of Exeter, United Kingdom**

Agreement that:

- A fundamental principle in preventing the destructive use of the life sciences is that the benign intent of individuals is not a sufficient response to preventing misuse.
- All those graduating from higher education in fields associated with the life sciences should be familiar with the international prohibition against biological weapons.
- All those undertaking professional research careers should have received effective training or instruction related to preventing the misuse of their research.
- Each government represented here should commit itself to initiating a dialogue with their respective national science academies about how the present low level of awareness can swiftly be corrected.