

# Governance Options for Dual-Use Research

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# Dual-Use



- The *potential* to commit harm with science and technology developed for beneficial purposes
- Has been with us ever since humans first sharpened sticks or forged metal
- Concerns about *dual-use research* are perhaps the most immediate in biology
  - Self-replication (scale and scope of potential effects)
  - Direct route from research to consequences
- But other disciplines face, or will face, similar issues

# Is the Dual-Use Nature of Biology a Problem?



Fortunately, we don't really know. *But ...*

- Biological science and technology are becoming increasingly powerful and accessible.
- There are people and groups who profess the desire to kill on a mass scale.
- How sure can we be that no such individuals will ever seek to fulfill that ambition with biology?

# But Why Worry About State-of-the-Art Research?



- Some research involves materials and organisms that can pose immediate dangers.
- Today's cutting-edge research is tomorrow's skilled craft and the day after's commodity.
- People use the tools with which they are familiar. And an increasing number of people are becoming familiar with biology.
- Those with technical expertise are not immune to the forces that lead others to do harm.

# Whose Responsibility Is It to Mitigate This Risk?



Possibilities include:

- Nobody's – the risk is overblown
  - *(See previous slides)*
  - *Governments and publics may not think so*
- The risk is real, but the risk of government overregulation of science is worse
  - *Perhaps governments are less well suited to act than others*
- The risk is real, but it's somebody else's problem

**FACETS OF DELIBERATE USE  
OF BIOLOGY FOR HARM AND  
RELEVANT COMMUNITIES**



Act of Terrorism  
*Law Enforcement /  
Counterterrorism*

Disaster  
*Emergency Mgmt.  
Community*

Disease Outbreak  
*Public Health /  
Medical Communities*

Act of War  
*National Security  
Community*

Business Issue  
*Biotech, Pharmaceutical,  
and Other Industry*

Scientific Investigation  
*Scientific Community*



# Governance Options for Dual-Use Research



- *Governance* does not necessarily mean *government or regulation*
- “Hard” (regulatory) approaches are poorly suited to deal with dual-use research risks, which are
  - Science-intensive
  - Rapidly evolving
  - Subjective
  - Inherently international

# Governance Options for the Research Community



- The scientific community has “softer” tools that may be more appropriate, such as
  - Norms and codes of conduct
  - Peer review
  - Oversight (of initiation and communication of research)
  - Education
  - Raising awareness
- Therefore, involvement by scientific institutions, publications, societies, and leadership is critical
- If overregulation is a danger, so is the risk of losing public trust