

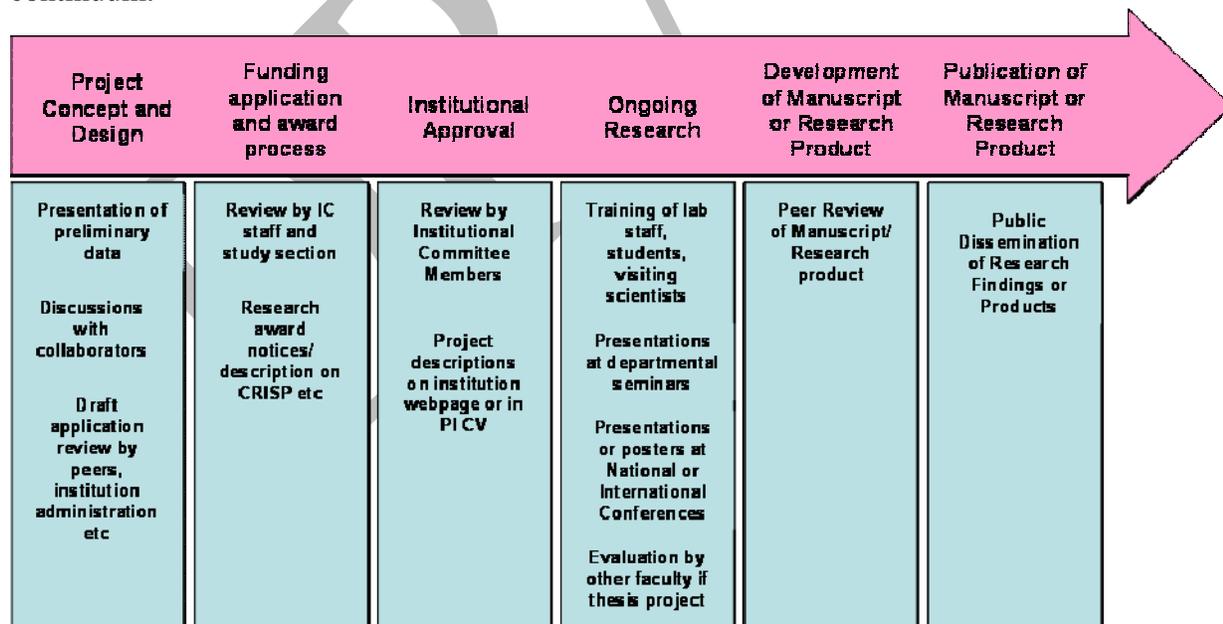
Introduction: Draft NSABB Tools for the Responsible Communication of Research with Dual Use Potential

One of the major charges to the National Science Advisory Board for Biosecurity (NSABB) is to recommend strategies to help ensure that research information with dual use potential is communicated responsibly, in a manner that addresses both biosecurity concerns and the need for open sharing of research results and technologies. Towards this end, the NSABB Communications Working Group has developed a set of tools to facilitate consistent decision making about the communication of research information with dual use potential. These tools currently consist of:

- ❖ A set of principles for the responsible communication research with dual use potential;
- ❖ Points to consider (i.e., a framework) for identifying and assessing the risks and benefits of communicating research information with dual use potential, including options for the communication of such research information; and
- ❖ Considerations for the development of a communication plan for research with dual use potential.

The Working Group anticipates that these communication tools will become an integral component of the dual use research oversight system that is being developed by the NSABB. It is important to note that it is not the intent of the Working Group that every potential communication of research—be it an abstract, poster, seminar, or manuscript—be assessed using the communication tools. Rather, the tools might be utilized for the subset of life sciences research or research information determined to have dual use potential.

Research with dual use potential can be communicated at many points along the research continuum:



The communication tools can be employed by a variety of users in a number of settings. These include researchers who are developing research proposals; investigators engaged in dual use research who are preparing abstracts, posters, seminars, and manuscripts about their work; and individuals involved in the pre-publication review of such information, such as research supervisors

and administrators, peers, and dual use research review entities. The tools might also be useful to the scientific publishing community and for science ethics courses.

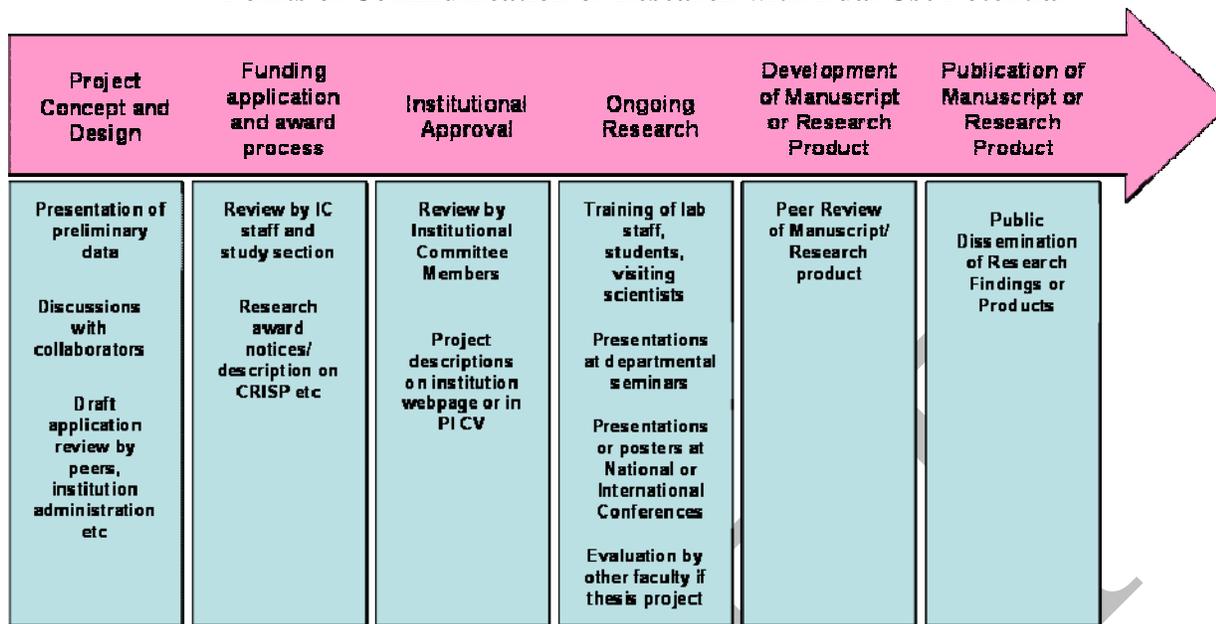
The variety of potential uses and users makes it likely that not all aspect of the tools will be applicable at all times. Users are thus encouraged to tailor and format the tools for their specific purpose(s). For example, students in an ethics course might be required to use the “Framework for Assessing the Risks and Benefits of Communicating Research Information with Dual Use Potential” to analyze actual manuscripts, and so would need to provide detailed answers to the questions posed. Alternatively, an institution might want a researcher developing a manuscript or poster about research with dual use potential to attest to having considered the risks and benefits of communicating that research, and so it might be helpful to format the assessment framework with checkboxes to indicate that the points had been considered and perhaps to add a signature line. Scientific journals might find the Points to Consider/Assessment Framework most useful as a hyperlink in whatever system the journal employs for instructing authors and for biosecurity review of accepted articles.

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Principles for the Responsible Communication of Research with Dual Use Potential

1. The open and unfettered sharing of information and technologies has been a hallmark of the life sciences and has fostered a steady stream of scientific advances that underpin public health and safety, a strong and safe food supply, and a healthy environment.
2. Progress in the life sciences relies heavily upon the communication of research findings, so that they can be both validated, and built upon.
3. To ensure the continued advancement of human, animal, plant, and environmental health, life sciences research should be communicated to the fullest extent possible. Consequently, any restriction of scientific communication should be the rare exception rather than the rule.
4. There is a need for reasonable balance in decisions about the communication of research with dual use potential. It is important to recognize the potential for deliberate and malevolent misuse of dual use research findings and to consider whether the disclosure of certain information might pose a reasonable threat to national security (i.e., public health, agriculture, plants, animals, the environment, or materiel). If the communication of dual use research does pose potential security risks, the logical next step is a risk-benefit analysis of communicating the information.
5. After weighing the risks and benefits of communicating dual use research, the decision regarding communication is not necessarily a binary (yes/no) one. Rather, a range of options for communication should be identified and considered. The options available will depend on the research setting (e.g., academia, federal, private). They could range from full and immediate communication, to delayed and/or modified communication, to restricted/no communication, and could be recommended singly or in appropriate combinations on a case-by-case basis, depending on the nature of the dual use finding and the potential risks associated with its communication.
6. Paradigms for the responsible communication of research with dual use potential should also take into consideration that the communication of dual use research can occur at multiple points throughout the research process, i.e. at points well upstream of the publication stage (see figure below). Thus it is important to apply principles and practices of responsible communication at these early stages as well.

Points of Communication of Research with Dual Use Potential



7. It is important to consider not only what is communicated, but also the way in which it is communicated. Investigators and sponsors of research with dual use potential should recognize that the communication of certain dual use information is likely to raise biosecurity concerns, not only within the general public, but also within the scientific community. Consideration should be given to the potential for public concern and misunderstanding and for sensationalism. Thought should be given to the need for the inclusion of contextual and explanatory information that might minimize such concerns and misunderstanding.
8. Public trust is essential to the vitality of the life sciences research enterprise. It has always been important for life scientists to participate in activities that enhance public understanding of their research. However, because of the potential for public misunderstanding of, and concerns about dual use research, it is especially important that life scientists conducting research with dual use potential engage in local outreach on a regular basis to raise awareness of the importance of the research and to reassure the public that the research is being conducted and communicated responsibly.

Points to Consider:
**A Framework for Assessing the Risks and Benefits of
Communicating Research with Dual Use Potential**

1) General Overview of the Research Information with Dual Use Potential

- a) What information is provided?
- b) To what extent is it novel?

2) Risk Analysis

- a) Are there potential risks to public health as a direct result of this research or from application or utilization of this information?
 - i) e.g., is novel scientific information provided that could be intentionally misused to threaten public health?
 - ii) e.g., does the information point out a vulnerability in public health preparedness?
- b) Could this information be intentionally misused to pose a threat to agriculture, plants, animals, the environment, or materiel?
 - i) e.g., does the information point out a vulnerability with respect to agriculture, plants, animals, the environment, or materiel?
- c) If a risk has been identified, in what time frame (e.g., immediate, near future, years from now) might this information be used to pose a threat to public health, agriculture, plants, animals, the environment, or materiel?
- d) If the information were to be broadly communicated “as is,” what is the potential for:
 - i) Public misunderstanding
 - (1) What might be the implications of such misunderstandings, e.g., psychological, social, health/dietary decisions, economic, commercial etc.?
 - ii) Sensationalism
 - (1) In what way might it result in widespread concern or even panic about public health or other safety/security issues?

If no risk has been identified, no further dual use communication considerations are necessary. If a risk has been identified, continue on.

3) Benefit Analysis

- a) Are there potential benefits to public health from application or utilization of this information?
- b) Are there potential benefits of the information for agriculture, plants, animals, the environment, or materiel?
 - i) e.g., what potential solution does it offer to an identified problem or vulnerability?
- c) Will this information be useful to the scientific community? If so, how?

- d) If a benefit has been identified, in what time frame (e.g., immediate, near future, years from now) might this information be used to benefit science, public health, agriculture, plants, animals, the environment, or materiel?

4) Risk vs. Benefit Assessment

- a) Based on the risks and benefits identified, and considering the time frame in which these might be realized:
 - i) Do the benefits of communicating the information outweigh the risks?
 - ii) Do the risks outweigh the benefits?

5) Formulation of Recommendation Regarding Communication

Decisions about how to responsibly communicate research with dual use potential should address content, timing, and possibly extent of distribution¹ of the information.

a) Content

- i) Communicate as is.
- ii) Communicate with addition of appropriate contextual information. For example, it may be important to address:
 - (1) The public health significance of the research findings
 - (2) How the new information or technology will be useful to the scientific community
 - (3) The biosafety measures in place as the research was carried out
 - (4) The dual use potential of the information
 - (5) The careful consideration that was given to the dual use concerns in the decision to publish
- iii) Recommend communicating a modified version of the product.
 - (1) For example, is it possible to “de-couple” the material that poses security concerns from some or all of the potentially useful scientific information, or should specific information be removed (e.g., technical details about an enabling technology)?

b) Timing

- i) Communicate immediately.
- ii) Recommend that communication be deferred until a clearly defined and agreed-upon endpoint is reached (e.g. a condition is met such that communication no longer poses the same degree of risk).

c) Distribution²

- i) No limit on distribution
- ii) Limit access to selected individuals on a “need to know” basis. It will be necessary to identify categories of individuals who should have access and under what circumstances.
- iii) Recommend that the product not be published or otherwise made accessible to the public.

^{1,2} The relevance and/or feasibility of considering limits on the distribution of dual use research will depend on the specific situation (e.g., timing of the communication in terms of the maturity of the research, the nature of the information and the risks associated with its communication, and the relevant audience for the information). For example, while limiting distribution is not a consideration for most scientific journals, it might be a reasonable consideration early on in a research project that yielded information of special significance to public health or homeland security experts and for which countermeasures might need to be initiated prior to broader communication of the information

Considerations in the Development of a Communication Plan

Because of the potential for misuse of dual use research results, one can and should anticipate sensitivities on the part of the public (including members of the scientific community) about the sharing of such information. In addition, the public is increasingly sensitized to issues pertaining to research involving dangerous pathogens and the risk of accidental or intentional release of such agents. A lack of public understanding and appreciation for the reason for conducting and communicating dual use research, sensationalism of dual use research findings, and concerns about public safety and national security all serve to undermine public trust in the life sciences research enterprise. It is therefore the responsibility of the scientific community to ensure that dual use research results and technologies are communicated responsibly.

Depending upon the nature of the dual use research result/technology being communicated, and the potential impact of communicating the information, it may be prudent to consider steps to maximize public understanding of, and appreciation for, the research effort and the decision to communicate the information. This can be achieved through the development of a plan for the responsible communication of dual use research information. For example, it may be important to speak to the following issues, both in the content of the work product and in the activities associated with dissemination of the work product:

- The public health significance of the research findings
- How the new information or technology will be useful to the scientific community
- The biosafety measures in place as the research was carried out
- The dual use aspects of the information and that careful consideration was given to the biosecurity concerns in the decision to publish

In addition to including this type of information in the content of the work product itself, the following are some additional means for conveying the types of contextual information listed above. These can be employed either singly or in any combination as deemed appropriate:

- **Editorials**

- Scientific journal editorial - in the journal that publishes the dual use research manuscript. This type of editorial could be written by an individual who is not directly involved with the work, perhaps is not even in the same field, but who is nevertheless held in high regard by the scientific community. The editorial might speak to the public health significance of the research findings, how the new information or technology will be useful to the scientific community, the biosafety measures in place as the research was carried out, and might acknowledge the dual use aspects of the information and that careful consideration was given to the biosecurity concerns in the decision to publish.
- Popular press editorial issued at the same time as the manuscript. This type of editorial would be geared toward the general public and should be written in non-technical language to the greatest extent possible. Nevertheless, it should address the same issues as described above, i.e., the nature and importance of the scientific discovery/technology, the significance to public health, the safety precautions in place as the work was conducted, the dual use aspects of the information, and the

consideration that was given to the biosecurity concerns in the decision to publish. Ideally the author would be an individual who is known to and trusted by the general public.

- **Press Release** – This tool is commonly used by government and private sector institutions to highlight significant scientific advances for the media. It also provides an opportunity to provide contextual information (regarding issues that may be of concern to the public) and scientific perspectives on the findings (via quotes from other scientists). If the project involves investigators from multiple institutions, it will be important to coordinate the preparation and release of the announcement. A press release might include a description of the findings, their scientific and public health significance, the biosafety measures in place as the work was conducted, the dual use aspects of the information, and the consideration that was given to the biosecurity concerns in the decision to publish.
- **Press Conference** – This tool is usually reserved for highlighting the most significant and/or sensitive advances, and provides an opportunity for direct interaction with the media. The investigator(s) and institutional representatives are usually present, but also consider having other experts on hand who could address questions about the potential for misuse of the dual use information, biosafety, etc. A press release is usually provided to the media at a press conference (see above), but additional relevant materials can also be made available, such as backgrounders and fact sheets.
- **Questions and Answers (Qs & As)** - Developed for responding to queries from the press, public, or others. Qs & As might address:
 - The nature of the dual use advance
 - Reasons for conducting the work
 - If the public is/was at risk from the work
 - The potential for misuse of the research findings
 - Safety procedures utilized during experimentation
 - The review process prior to publication
- **Talking Points** - Developed and employed for responding to questions from the press, the general public, or others. Talking points might include:
 - An explanation of the biosafety and biocontainment conditions that were employed to safeguard laboratory workers and the public (if applicable).
 - Acknowledgment that, along with significant public health benefits of sharing the information widely, there are also some potential risks to publicly disseminating the information.
 - Assurances that the national security implications of making such information publicly available were thoroughly considered.
 - A description of how the information contained within the research findings is critical for developing public health countermeasures.