

Career Development Panel Overview – Careers in Science Ethics

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April's Career Development panel highlighted jobs in Science Ethics. In general, science ethics falls into two main areas: research and publishing ethics. Research ethics involves issues surrounding proper animal use, participation of human subjects, and biosecurity. These items are often formally regulated, whether by actual federal or international laws or institutional policies. Publishing ethics, on the other hand, is more of a grey area. Publishers have a duty to make sure that the correct review board (i.e. IACUC) has reviewed and approved the study in question, that international studies meet the minimum standards such as those outlined in the Declaration of Helsinki, and evaluate any biosafety concerns associated with publishing data (e.g. removing "dangerous" details that could be used to inflict harm).

The first panelist, Dr. Erika Davies, is the Publishing Ethics Manager in the Journals Department at the American Society for Microbiology (ASM). In this newly created position, Erika interacts with authors, Editors-in-Chief, ASM staff, and institutional research integrity officers on ethical issues in scientific publishing. Dr. Davies completed a postdoctoral fellowship at NIH and has worked in government and non-profit organizations. She found her current position by applying to an online posting. She suggests that job ads are the best way to learn about these positions, and that more positions are starting to be created as institutions recognize the need for specialized ethics work. Informational interviews with the relevant department director at a journal can be very helpful. Science ethics is a major issue at many organizations now, so it may even be possible to approach someone and just ask if they need someone to manage the ethics issues that their organization faces. In general, a Publishing Ethics Manager maintains the integrity of the scientific record by researching and responding to problems as they arise, communicating between editors and authors, and documenting cases. Dr. Davies also works on several side projects related to developing author instructions, journal policies, standard operating procedures (SOPs), and assembling resources.

The second speaker was Dr. Melissa Colbert from the Office of Intramural Research (OIR). While running her own lab at Cincinnati Children's Hospital, her mentor asked her to serve on the biosafety committee of which she became chair. From there she moved to the University of Cincinnati, where she became the Director of Research Compliance and Regulatory Affairs and was also given the role of Research Integrity Officer. She finally moved to the NIH as the Senior Scientific Advisor to the NIH Ethics Office in 2008 and in 2010 transferred to OIR as an Assistant Director to the NIH Deputy Director of Intramural Research. Within OIR, Melissa is charged with reviewing all allegations of research misconduct and training in research ethics. In addition, she has been involved with FDA compliance and policy development. She mentioned that there are also some very exciting opportunities and experiences in science ethics, because it is such a hot topic field and is always evolving. For instance, Dr. Colbert recently met French dignitaries to discuss research integrity and what the US/NIH is doing that could be adopted overseas. Also, there have been a lot of congressional inquiries of late regarding human fetal tissue research and other policies.

Dr. Sara Hull, our final panelist, is a bioethicist here at the NIH. She obtained a Ph.D. in Law, Ethics and Health at Johns Hopkins which gave an empirical and epigenetics view of bioethics. While in this program, Dr. Hull took a job as an IRB administrator. She also worked for President Clinton's Advisory Committee on Human Radiation Experiments. Both of these committees provided great experience which she utilized to obtain her future positions. Her current position is a hybrid of 60% service-related duties and 40% faculty/academic work. She set up and now chairs the IRB for NHGRI and also serves in the Department of Bioethics in the Clinical Center where she conducts research on intersection between science ethics and new technological developments. She

regularly publishes on current issues in bioethics, especially on how patients should give informed consent regarding when and how their samples are obtained and utilized. Her day-to-day schedule varies a lot. The IRB meets once per month to review new proposed research and monitor ongoing projects. For a given meeting, she must assemble the right expertise, organize and manage the meeting, and then follow up on IRB decisions with individual research groups. Dr. Hull also provides consultations to investigators to address bioethical challenges/gray areas, help them write the protocol, and navigate them through the IRB process.

What to expect and important skills to develop:

- Most of this work involves sitting at a computer, answering emails, and participating in teleconferences or face-to-face meetings.
- Develop writing, communication, and project management skills. The ability to communicate to different types of people (scientists, government officials, business people, laypeople) is crucial.
- Learn about current issues in science ethics.
- Be flexible. You also need to be able to make decisions when there is no clear-cut answer and the arguments for each side are imprecise.
- Learn to Listen. What people saying, or more importantly what they are not saying (body language) can be helpful in determining the truth or completeness of the story.
- Be open to criticism, because you will be seen as the bad guy for enforcing rules.

Many different types of people (MDs, PhDs, nurses, philosophers, psychologist, methodologists) can work in science ethics, but some sort of formal training (a master's degree related to ethics) or demonstrated ability in the field by serving on committees is required. Relevant experience may include:

- Grant writing and review
- Exposure to or experience with clinical trials
- Participating on committees (IRB or anything else related to biosafety)
- Attending clinical grand rounds to see how doctors present consent to patients
- Involvement in the institutional review board (IRB) process, writing animal protocols, and clinical procedures
- The NIH library's class on research writing ethics (<http://nihlibrary.beta.libcal.com/event/2541145>)
- Familiarity with current issues in science ethics, such as data sharing and reproducibility (by reading editorials or other publications on these topics)
- Familiarity with the Committee on Publication Ethics (COPE) website (<http://publicationethics.org/>) and policies, the International Committee of Medical Journal Editors (ICMJE) recommendations (<http://www.icmje.org/>), and forensic tools from the Office of Research Integrity (ORI) at NIH (<http://ori.hhs.gov/>).
- Exposure to or experience with regulatory affairs

Key takeaways:

1. Go get experience! Serve on committees and familiarize yourself with policies relevant to the field.
2. Science ethics is a diverse and evolving field. Each panelist had a very different set of responsibilities and all indicated that this is a growing field – because rules never go away!