

## Bioethics in Science and Medicine: An Interview with Professor David Magnus

Cindy Liu  
*Stanford University*



David Magnus, Ph.D. is the Thomas A. Raffin Professor of Medicine and Biomedical Ethics, and Professor of Pediatrics at Stanford University, where he directs the Stanford Center for Biomedical Ethics. Dr. Magnus is the former President of the Association of Bioethics Program Directors, representing the leadership of over 70 academic bioethics programs across North America. Dr. Magnus received his Ph.D. in Philosophy from Stanford University, and currently co-chairs Stanford Health Care Ethics

Committee, which provides consultation to doctors, patients and families on a wide range of ethical issues that arise in clinical care. Dr. Magnus serves as Editor-in-Chief of the *American Journal of Bioethics*, the highest impact journal in the field and he is widely published on a range of topics, including health care reform, research ethics, end-of-life care, and genetic technology. His published work has appeared in *Science*, *The New England Journal of Medicine*, *Annals of Internal Medicine*, *Nature Biotechnology*, and *Pediatrics*, among other places. Along with his scholarly work, he has written a number of editorial pieces in prominent newspapers and has been quoted in *Time* magazine, *Newsweek*, *Wall Street Journal*, and *New York Times*. He has also appeared on many television shows including *Good Morning America*, *CBS This Morning*, *Sixty Minutes*, *FOX News Sunday*, and *ABC World News*.

*Biography adapted from and photo from David Magnus's profiles at <https://profiles.stanford.edu/david-magnus> and <https://publicpolicy.stanford.edu/people/david-magnus>*

CL: You serve as the director the Stanford Center for Biomedical Ethics. What kind of work does the center do, and how does the center collaborate with researchers here as well as the administration?

DM: The first part of our mission is research. As a center, we do a lot of research. A lot of it is grant funded, so an important part of what we have to do is to get NIH funding, and occasionally NSF funding, to support research in bioethics. In terms of the areas of research that people here work on, we spend a lot of time dealing with issues related to genetics, genomics, precision medicine, and bio-banking. We spend a lot of time on research ethics. Generally we've done a lot related to what we call "research on medical practice," but it's sometimes called comparative effectiveness research. So, we spend a lot of time on research ethics looking at different ways of understanding both genetics and other kinds of research for a whole range of issues, including things like: What results should be returned when you have incidental findings or secondary findings in genomics research? What counts as reasonably foreseeable risks in comparative effectiveness research, and how should we think of those as different from your typical research to evaluate new treatments? How should we regulate and have oversight for these? What are some ways that we can improve recruitment of under-represented groups, especially racial and ethnic minorities, into Genomics Research? There are just a whole lot of different projects related to that—work on microbiome research, ethical issues in new genetic technologies. When noninvasive prenatal testing first came online, we spent a lot of time developing articles and approaches and guidelines. We published some guidance for clinicians, the people who developed the science, and for consumers. We do research on a lot of new technologies: CRISPR, crowdsourcing citizen science, and wearables. We write a lot about the ethics of all these new projects. Those are all the research ethics side of things.

We also do research—although it's harder to get funding for this—on the clinical side of things. We spend time on ethics in organ transplantation, including procurement issues and how listing decisions are made for transplants. This is mostly my research, but there are other people who work on some of these issues too. There are also issues around communication in end-of-life. To give you a couple of examples: we did a study of the difference between interpreted and non-interpreted conversations in the pediatric ICU to look at the quality of communication. We also did a study of the quality of the interpretations themselves and how often there are alterations. This can give recommendations to teams about how few words they need to say in an utterance before you may have errors or alterations in the communication or the interpretation. We've got other studies where we look at other aspects of communication: why do we have patients who don't benefit from the ICU who are sent to the ICU? What's the cause of that, and how can we ameliorate or mitigate that? What do different concepts mean

when they're used by clinicians versus what patients hear? For example, we did a study where we interviewed both patients and different kinds of physicians about what they think it means when you say that a patient's condition is "treatable." What we found is, physicians often mean one thing when they say that, and patients think it means something else, so this is a source of miscommunication between patients and physicians. We've got some people who do neuroethics issues related to both the research ethics side and the clinical side. So, we do research in a lot of different areas.

The second thing we do is what we could label as "service," and we there are three ways in which we provide service. There are two actual services that we staff. One is that we provide clinical ethics consultation in both the adult and pediatric hospitals here. We're very involved in a range of clinical ethics. I carry a pager, and I'm on call. I'm a philosopher by training. We have a very active consult service that's grown tremendously over time and is continuing to grow. It's just starting to grow at Packard as well. Then we also have a research ethics consult service that's not quite as big at the present time, but it's something that we do, where we do consults for either researchers or the Institutional Review Board (IRB) itself on different topics.

I would say the third way in which we provide service, which builds on each of those other two sets of activities that we do, is that we are engaged in a lot of policy level issues institutionally, both at the hospitals and on the research side within the academic side of things for Stanford. We try to help give guidance on some policy issues, and sometimes we help write some of our hospital policies. We also end up sitting in a lot of committees when there are ethically controversial decisions to be made. They often reach out to one or more of us to give guidance about issues that the institution faces.

The most exciting thing to me about Stanford and about our efforts here is the integration and the synergies that we can create between the research that we do and the service that we provide. We have that happen in a lot of ways. For instance, we had some very difficult listing decisions that we were facing for transplant patients at Packard. Out of those difficult listing decisions, we realized there wasn't really literature to address these issues, so we wound up doing large surveys in several different areas of transplant programs to find out how people look at this and how they deal with it. We uncovered a huge justice problem with a lot of variation in terms of how things were happening. We were able to then use this both for helping to formulate a policy for us but also to produce generalizable knowledge that we published in the literature. That's sort of a win: we see a problem in the institution, do research that both helps us address the problem that we've got at our institution and that leads to articles that can help other institutions solve similar problems. So we do that fairly freely. We did that on some complicated postmortem sperm procurement cases, for example, that we saw that the policies were all over

the map. We wound up actually doing a study of policies out there and said here's what policy-makers need to do, and here are the two approaches they can have. It also integrates with our third primary mission, which is teaching. There's the same thing on the research ethics: when we get good research ethics consults, we will often times work with the researchers who come to us and say, this is an interesting issue; we should write an article together about the ethics of that. We get great synergies that way.

The third part of our mission is teaching, and we teach at every level. We teach undergraduates. Sandra Lee at the Center is one of the two people who co-teaches the core course for STS. Russ Altman and I co-teach the Bioengineering ethics course. I have a very large Human Biology course on conceptual foundations of bioethics, and I teach a Thinking Matters course. We also have faculty centered in the law school who also teach law school classes. We also teach courses in the school of medicine: we do both required and elective courses in the school of medicine, and biomedical ethics and medical humanities is one of the concentration areas that students at in the School of Medicine can focus on. We do education for postdocs, residents, and fellows. We also have training in education we do for people who are concentrating a little more, including our Medical Scholars concentrators that I mentioned before. And that's another way in which we get synergy going. So, in the projects I mentioned before in hospitals or in our research ethics consults, we find these ethical issues. We will then often start trying to do research projects on it, and then will often bring in medical students or even undergraduates to work with us on these projects. Then we'll publish the articles out of it, usually with medical students as first authors. So in the postmortem sperm procurement example and in two cases of transplant issues that arose, it was a med student who was the first author on the paper. So, that's really what we do.

CL: There are many opportunities for undergraduates to become involved in scientific or computational research, but it can be more challenging to learn about and work on bioethics research. How can undergraduates get involved with bioethics research at Stanford?

DM: That's an interesting question. One thing they can do is serve as research assistants or work for us when we post jobs and positions just like everything else. Another option is, when students are doing their senior thesis or research projects and want to get involved that way, they can work with us. So, it's pretty much the same thing working for us as you would be working for any other scientist. I actually often supervise one or two undergraduate theses. In Human Biology, there is a concentration in bioethics, and then there's also an honors major in Ethics in Society. So, students sometimes do bioethics research projects as part of the Ethics in Society program. Both of those are ways in which we supervise

undergraduate theses. That's where it's really the student's research project, where they're running things. We've also hired undergraduates occasionally on grants to work with us on research projects or to be involved in different things, and that's nice for them when they're applying to medical school and things like that, especially if they've published articles. We've often had students work with us on different research projects.

CL: For students looking to work in bioethics after undergraduate or after college, are there any graduate programs or opportunities that you recommend?

DM: One thing that's really important to note is that bioethics is not a discipline; it's an interdisciplinary field. That means the pathways are much more complicated and, frankly, compared to some other interdisciplinary fields, it's an even more complex pathway. For instance, public health is an interdisciplinary field, and they do have their own Ph.D. programs that are really established. For bioethics, it is not as obvious where you go. In fact, there are barriers to figuring out how you enter the field that are actually quite significant. There are Ph.D. programs in bioethics, but there are a very small number of them, and, frankly, it's not clear that those are the best ways to get into the field. In fact, I am personally very skeptical of most of those Ph.D. programs. Some people go into it through getting their medical degree and then specializing in ethics after medicine. Actually, our center is a pretty good illustration. I have a Ph.D. in philosophy and later did clinical training to be able to do clinical ethics. But my disciplinary background is very much in philosophy, and I have a Ph.D. in philosophy. I also do social science research. So, I'm a philosopher by training, and I've learned all these other skills. So, when you add it up, we've got two philosophers, two anthropologists, four or five physicians, and a couple of lawyers. And sometimes we have people in here with a Ph.D. in theology. So, all of those are appropriate pathways.

I would say the biggest growth areas are in medicine—physicians becoming bioethicists—and social scientists becoming bioethicists, whereas philosophy, and to some extent theology or religious studies, have been the more traditional disciplines. But it's a real mix of people, and often what you need to do in your training is you get your disparate training, and then you need to add other tools to your toolbox. You usually need some other kind of post-doctoral fellowship training program, as long as you build that into your K award—when you're a faculty member in a school of medicine, often you wind up doing something called a K award. There are also an awful lot of bioethics training programs built in and tied into other kinds of fellowship programs.