Interview with Kaye Edwards | Preventing Cervical Cancer in Nicaragua: Can vaccines and screens be means of solidarity?

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S&J: How does justice matter to scientific practices and knowledge in your own work?
Edwards: Justice matters both to my work as an educator at a liberal arts college and to my work in molecular, cellular, and developmental biology. Haverford College, where I have taught since 1986, instituted a social justice requirement for graduation in 1990, which provided generative and productive interfaces for this work. All undergraduates, regardless of their major, had to take at least one course that focused on social justice: issues and instances of discrimination, prejudice or oppression, understood in their cultural or historical context and/or ways to address social injustice and to overcome the discrimination, prejudice or oppression.

I was intrigued by this, because I had done a BS in Biology at Indiana University, a PhD in MCD Biology at University of Colorado, and then did a Postdoc at MIT and really felt like the traditional ways of doing biology weren’t addressing how I wanted to use my scientific knowledge. I wanted something that had more of a direct impact or potentially a direct impact for the larger community, for the larger good and within my lifetime. Perhaps, I was not patient enough. While I could appreciate intellectually why some basic research was critically important to the development of science and to our understanding and our creation of knowledge, it often seemed far removed from having any connection to any real world problems. I had been struggling with these issues for years, and part of the reason why I went to Haverford College was because it was a small institution, where there were scientists with funded research projects, and also social scientists and humanists, all of whom were going to be my colleagues. Haverford is small enough that I’d be able to interact across traditional disciplines. It’s a liberal arts college, and we think about and teach about larger social and humanistic issues that extend beyond the lab.

So when the College instituted the social justice requirement, I jumped right on it. The College had a grant from the Ford Foundation that brought together faculty to design courses within their disciplines that looked at issues of justice. I wanted to develop a course in biology that explored some of these social justice issues. I collaborated with a colleague in comparative literature, Julia Epstein, who was working on illness narratives, and she and I worked together to create a course called “Disease and Discrimination”, which examined infectious diseases and the people who had been discriminated against for having infectious diseases, throughout history and in different cultural spaces. We looked at leprosy, the plague, syphilis, and finally HIV/AIDS, with the goal of illustrating how similar issues (fear, seclusion, quarantine, victim blaming) have happened historically and in cross-cultural spaces. It was great. To do this multidisciplinary collaboration was really wonderful. It was really exciting, and I felt like this is why I wanted to be at a liberal arts institution: I could look more deeply at broader issues, have some very interesting conversations, while also creating opportunities for students in different disciplines who also want to discuss these ideas with each other.

I later developed other courses with a social justice focus. There was “Women, Medicine and Biology,” and a seminar, entitled, “Bodies of Injustice. Health, Illness and Healing in Contexts of Inequality”, which was designed for students who had done summer internships domestically and internationally, working with individuals in in a public health setting or working with children or the elderly. Students would come to the class with those experiences, and the course readings, discussions and assignments would help them to understand how their experiences could be
understood in the context of medical anthropology, health as a human right, and ethical representation of suffering seen in those communities. Students were challenged to think about whether they were working in solidarity with the community and to question what solidarity really looks like.

A framework of social justice has not only informed my teaching to a significant degree, but also program development. Haverford has a Center for Peace and Global Citizenship, which is not an academic program, but a co-curricular program, which funds summer internships, brings in speakers, and provides opportunities for students to go to conferences that are related to peace and global citizenship. So it asks students to consider “who is my community, who am I responsible to/for/with?” I was director of the Center for three years and one of my projects was to set up a post-baccalaureate program called Haverford House. It is a residential program for recent graduates from the college, who live together in a house in West Philadelphia, while each of them works for a different social service organization in the city, four days a week. On the fifth day, they create connections for current Haverford students to work in urban communities, to learn more about these communities and to be in solidarity with different groups in Philadelphia.

Another program I helped develop is the Health Studies minor, another instance of multidisciplinary education. It has a biomedical dimension to it, but it also covers how different cultures conceive of health and wellness, in practice and in writing or visual media. It also examines the social structures that increase people’s risk for certain diseases or that prevents them from gaining and maintaining health lifestyles. This minor looks at the bigger social, political, economic factors that impact health, which is consistent with Haverford’s long-standing concern that our students’ education has some kind of justice component to it. In the Health Studies minor in particular, our students are often majoring in a natural science. 50% of students coming to Haverford anticipate going to medical school. So they take general chemistry their first year, and biology their second year, and they’re thinking scientifically. But because Haverford is a liberal arts institution, we also want them to think about the implications of biomedicine. Those who go on and practice medicine need to think about the social structures impacting whether people are sick, whether they go to the doctor or do not go to the doctor. I think that with health, there are obvious ways in which science and justice intersect, especially in a country that doesn’t have universal health care.

I had a research lab in the biology department when I first started at Haverford, but then I realized that while I did have interesting multi-disciplinary conversations with faculty, I also wanted to be able to teach about how science and society intersect. This was why the Social Justice requirement was so important for my professional trajectory. It created a space where this teaching could occur. I wanted to share that way of thinking and broader issues with students, but the Biology curriculum was too proscribed. In order to pursue tenure in the Biology department, I needed to teach laboratory courses in electron and fluorescence microscopy; I needed to teach cell biology; I needed to teach molecular genetics; I needed to have a research lab and have thesis students. There was no time to do those multidisciplinary courses. So I had to rethink the path I was taking towards tenure in the biology department. I moved out of that position in the Biology department and taught part-time while my children were young. My position gradually became full-time again, as it included some administrative program development work in addition to the teaching. It’s only recently, as I’m coming towards the end of my career at Haverford, that I’ve been thinking, “How can I better integrate my experiences and interests?” I’m a scientist by training, and that helps to inform my thinking and the kinds of analysis that I do, the way I think about problems, and the fact that I am comfortable with quantitative analysis. I have that foundation, but I had another strand: gender studies. As a developmental biologist, I studied and taught about sex determination and sexual differentiation. As a woman in the sciences I was interested in some of the gender pressures about combining family and career, and the political issues around women in medicine and biology. In 2010, I had an opportunity to go to Nicaragua, and it was there that I
learned that cervical cancer was the leading cause of cancer deaths among women in Nicaragua and I realized that addressing this issue could combine biology, gender studies, and social justice. At the time, the Gardasil vaccine, which targeted the two most common oncogenic types of HPV, was recently released, and I had learned of a Merck-funded program to provide the vaccine to low-income clinics. So, I thought that I could perhaps be a bridge-builder in advancing the prevention programs. I had contacts in community clinics through ProNica, the Quaker organization I had been involved with, and I’m really interested in gender studies, I have the biology, I’ve worked in program development. Ok! I can pull this all together.

S&J: Do you choose your research topics based on any social or ethical criteria or hopes?
Edwards: Being in Nicaragua and hearing that cervical cancer is the leading cause of cancer deaths among women was shocking, since cervical cancer is almost completely preventable. Why were so many women dying when screening methods are known and there is a vaccine that could help prevent the original infection by HPV? Seeing this unnecessary suffering and death made me look for ways that I could contribute. I felt that the plight of these women was unjust, and that maybe I had the skills and the connections that could make a difference.

S&J: How did an interest in social justice change your career trajectory?
Edwards: It definitely did, but it has been an evolving, slow arc. One of the things I do now as an advisor, mentor and teacher is to help students see that there are other ways to work in health, besides being a doctor or a biomedical researcher. Not that those things aren’t important, but I think people choose to go into them because they are the obvious paths. I definitely did that in my career, and I wish that I had stopped to think more about what to major in, or whether or not to go to graduate school.

There was a moment in graduate school that seemed really pivotal to me, even at the time. I was probably a 3rd year graduate student when my grandmother died of breast cancer. I went back to her small farming community in southern Indiana for the funeral, and the friends and neighbors and community members were donating to the American Cancer Society. Back at graduate school I had friends and colleagues who were writing grants to the American Cancer Society, but they wanted funding to study cell-cell interactions in Drosophila embryos. Intellectually and scientifically I understood the connection, but I also appreciated that it would be a long time before that research could help someone like my grandmother. This was not what her friends thought they were donating money for. So this was a huge wake-up call to me, and it made me appreciate and recognize that I had a really different set of goals than a lot of people in graduate school with me. Intellectually I could justify it, but not emotionally. That’s when I started to think that I needed to be doing something that has the potential to alleviate suffering more directly or more immediately.

I ended up going to MIT for my first postdoctoral fellowship, and at the time it was quite divorced from any kind of thinking about what the community needs. People there were thinking about their projects and how they were going to make a name for themselves in science, and they were totally engaged in their research and focused on one problem and only on that. It was not the right place for me. I left there after a year and went to Harvard Medical School, where I was working on Leishmania, a parasitic protozoa. While I was on maternity leave, my advisor moved to another university, so I began working at New England Biolabs, which had a tropical parasitology research lab. The company makes restriction enzymes for molecular biology research, but the person who founded the company had this 1960’s mentality that science should be for the people. A lot of the profits from the company were put into this tropical research lab.

It was fascinating work, but I loved teaching when I was a graduate student, so I knew I wanted to be at a liberal arts institution where teaching was valued. However, it would be difficult in a small college to work on parasitic nematodes and use radioactive iodine, which is what I was doing at New England Biolabs, so when I applied to Haverford, I returned to basic research, using
model systems. This was a pragmatic decision, because I thought there were other goals I could achieve. I ended up teaching in the Biology department for 6 years, before I was able to direct my energies towards social justice issues. I eventually was able to have social justice be the primary focus of my work at Haverford. I continue to help students think more intentionally about their own goals so that they can find their professional "sweet spot" in a less time consuming way.

I do think that [work that falls between basic research and medical care] is becoming more visible and more intentional. NSF grants now have a "broader impact" component, and with NIH grants there is a big push for translational research. But what is translational research? It isn’t public health; it’s still clinical health and tertiary care, not prevention, but at least it’s encouraging scientists to think outside the lab, outside the test tube. This is a significant shift from the 70’s and 80’s when I was involved in biological research.

S&J: How was your work influenced by Science for the People?

Edwards: There were parts of my early life, pre-college, that made me think more broadly about life. I was raised Roman Catholic and went to parochial schools 1st-12th grade, and part of how I was educated was to think about how to use your talents to do God's work in the world. The Catholic influence was important, but I was also the first person in my family to go to college. I always struggled with how to explain to them what I was doing. The only reason my father would agree that I could go to college was if I had a clear career trajectory, and that it was going to lead to a job. The only thing he could imagine for a girl who was interested in science and math was to be a high school teacher. I was always trying to make sense of what I was learning and trying to translate it back so my family could understand. There were also social forces, such as Sputnik, and the national push to educate more people in science, engineering, and math. So the nuns in my grade school were pushing me to go into math & science. We had an editor visit our 8th grade class, and I was fascinated by her work and wanted to be an editor, but because I was good at science and math, I was pushed in that direction. I was channeled into doing something career-focused and in science. Within that, there was a larger context that I needed to do something for the social good. So there were multiple factors that didn’t always align.

When I was a postdoc at MIT, I often felt like I was in a convent. It felt so incredibly cloistered, when you’d walk down the hall and people wouldn’t even look you in the eye because they were so immersed in their own heads. There was pressure to be hyper-focused on a particular project, and I resisted it. One of the ways I resisted was through volunteering with Science for the People. I reviewed articles that would be published by Science for the People, so I became involved with a group of people who were thinking about the role that science could play, and the dangers that science might pose for society. My work with Science for the People was partly resistance to the cloistered environment that I felt I was in, but also gave me another community that showed me what I was interested in was not off the wall. There were other people interested in the public good, and I could probably do science in a different lab that would be more consistent with my larger goals. Science for the People was really important for me, and, thinking back to the editor who came to my 8th grade class, there may have been a part of me that recognized "I’ve always wanted to be an editor!" Science for the People let me be a part of a community that was thinking about the role of science in society and how we could be more reflective as scientists.

Scientists are professional problem solvers, but big social problems can’t be approached from a single disciplinary perspective. Health is too entangled with biology, history, politics, culture. So I think you really need different perspectives to look at health. You can push with one set of tools and maybe you can unravel a certain piece of a problem, and you might be able see how to move it in a certain direction, but you can’t get very far, because the solution is going to get tangled up with something else. You need someone else who can come along and see, for example, why the intervention isn’t being accepted. You have to be willing to collaborate if you want to solve big, real-world problems. Science is so good at bringing a problem into the lab, isolating it and controlling
variables so you can understand one particular aspect deeply, but you can’t do those kinds of controls in the real world. You have to work with complex systems, and that requires thinking differently, thinking outside of the typical concerns of lab science.

**S&J: What advice do you have for scientists and engineers who want to translate their work into sources of solidarity?**

**Edwards:** One of the things that worked well for me was getting out of the lab, getting out of my comfort zone and interacting with other people. So I would encourage people to move into other communities and learn from other people. I resonate strongly with the Eduardo Galeano quote, ["I don't believe in charity. I believe in solidarity. Charity is so vertical. It goes from the top to the bottom. Solidarity is horizontal. It respects the other person. I have a lot to learn from other people"]]. So, I would say, listen to other people because you have so much to learn from them. Get out of your narrow confines. Not all the time, because you have a skill set and a job to be done, but get out and expand your community and these things will come to you. Then listen and follow your heart.