

Like most other fields, disciplines, and enterprises, bioethics too has gone globalized. By which I mean, it's not just a global phenomena where bioethical issues are in each country. But there are bioethical issues now about crossing borders.

So let's start with one of my favorite topics, medical tourism. Okay so 8 million people, last year alone, traveled from their country of residence to a different country for medical care. It started with cosmetic surgery, but now expanded to bypass surgery. Highly credentialed hospitals especially in Thailand and India, which are the leaders. Brazil is next. Iran is trying to become the Islamic medical tourism capital of the world.

Some of the cases of medical tourism, of course, are really nefarious, sort of black market. Like some people really do get on a plane and go over to a country and buy a kidney. That's a problem.

That one of the things that can happen when we talk about cross border transactions in bioethics is the difference in regulatory environments, shall we say. Right? There, the reason that you're traveling is not just because it's so much cheaper, or the stay in the hospital much nicer than they might get, or the wait shorter.

It's that they're actually doing something that most of us would regard as terribly unethical, and is illegal, but they're traveling to a country that doesn't properly regulate.

And then again, there's just the whole, if you're going to have a face lift why not have it as part of a beach holiday. I mean, really.

So a colleague of mine traveled to Thailand as part of bioethics conference looking at different health care facilities and had a very surreal experience in one day traveling to two different hospitals. One was a very highly esteemed hospital, joined to a university, but for general medicine. And while the quality was high, incredibly crowded conditions, no air conditioning, open pen waiting rooms.

And then in the afternoon they went to a private hospital that specializes in medical tourism, especially cosmetic surgery, insertions of dimples and eyelid lifts, where the nurses wore pink miniskirts and ran around in roller skates. So I don't know if that's bioethics but it's really cool.

One of the most compelling issues in bioethics today, huge outsourcing happening now, of clinical research trials overseas. Just like the medical tourism but this is outsourcing the research protocols. OK. So of products at the FDA in the United States governs, between 45 and 60% of the clinical trials are now done overseas.

Sometimes the international research is great because the reason the researchers go to that area is for scientific or humanitarian reasons. Right if we want to study how to deal with the tsetse fly or dengue fever, we need to go where it's endemic. And leave our laboratory. That's a good thing. As long as we're careful to have protections and understand cross cultural differences and how to do informed consent.

But sometimes, especially with private pharma, research is outsourced not for those reasons, but because it's first cheaper. Just like the medical tourism, right? Lower regulatory environment. So much easier to get an OK to do the research. And perhaps most worrisomely, sometimes to exploit a moral loophole in research regulations.

So, let me explain. If we've got a new medicine that we hope helps you, we're going to do a randomized double blind trial. It means we're going to divide all of you in half. And half of you are going to get the investigative drug and half of you are going to get what? Well, the standard of care treatment.

We don't want to make you worse off because half of you won't get the active arm. We can't make you worse off for having participated in the trial. So the regs say you have to at least get what would be the standard of care if you weren't in the clinical research trial.

But now if you're a US researcher and you're trying to investigate a new drug, and your control arm has to have the standard of care, that might be really an expensive thing that you have to give everybody. Whereas if you go to a super resource poor country, their local standard of care might be nothing.

Well, let's go there because at least half the people enrolled will get this investigational drug which might, we don't know, but might end up doing good. So aren't they all better off?

Well, the worry of sort of cherry picking the world's poor to serve as the research guinea pigs for drugs that often would never be sold to them. Either because the disease state isn't endemic there or because the therapy is something that, even if it turns out to work, can't possibly be afforded by the local economy.

Here's the last issue, food and how we feed a planet in 2050. So right now 10 companies own 75% of the seeds planted in the earth right now. And most of those are genetically modified seeds.

What is genetically modified? We insert a gene from an unrelated species. It's different from hybridization or cross pollination because those you've got the same species, just different cultivators. Here you really are just taking a gene from one kind of thing into another.

My favorite is the Arctic flounder gene that helps preserve against frostbite, has been moved into a strawberry. 93% of the corn in the United States right now is GMO. 93% of soybeans. 96% of cotton.

This is a train that has already left the station. But one of the worries about those seeds when put in the context of poor countries-- some of those seeds have been developed out of absolutely humanitarian intent. OK.

Golden rice is a great example. So between a quarter and half million kids every year get blindness for vitamin A deficiency. And by the way, if you're blind in a poor country, half of them are dead within a year. OK. It's not just blindness. It's a life threatening condition. And they've developed golden rice which has the Vitamin A, the ability to synthesize it, built into the rice itself.

But many GMOs, those done by agribusiness, aren't about humanitarian versions. It's about increasing market share. Seeds built to be tolerant of herbicides, in particular Roundup. Which is a very, very toxic chemical that's used as a herbicide.

So if the company sells the seed that's been genetically modified to be able to tolerate Roundup-- and also, by the way, sells Roundup-- it means that you can cover your field in Roundup because it'll keep the weeds down. And your corn or soybeans will still grow.

So, huge worries here about, really, monoculture. Right. Where the idea sounds so good that everybody runs to it and then we've only got one crop. Which, by the way, makes you too dependent on the company but also makes you very vulnerable to changes in diseases that might come along and wipe out the crop and leave everybody hungry.

Real concerns about when crossing borders is really a chance to leverage very uneven power relationships. Industry tends to find its level for where regulations lightest. Sometimes that's OK, but

sometimes that's worrisome. Thank you.