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- 1) This is Vancouver. Here, at the 11th International AIDS conference in 1996, the cure for AIDS was announced. Not the cure for HIV, the virus that causes AIDS, but a treatment for the virus that changed an HIV infection from a death sentence to a chronic, manageable condition like diabetes.
- 2) Antiretroviral drugs, ARVs, are the biomedical triumph that makes HIV treatment possible. However, your ability to access these drugs depends on where you happen to live.
- 3) If you live in the West End of Vancouver, you have access to the world's best medical treatment and the world's best drugs.
- 4) But if you happen to live here, in the shantytown of Kayelitsha, outside of Cape Town, South Africa, your experience with the HIV virus will be completely different. You will probably have very limited access to medical care of any kind, let alone access to expensive antiretroviral drugs. So these two worlds that exist in standards of medical care, specifically access to medicines, is what I would like to talk about today; finally, I'll discuss what we can do about this here at our university.
- 5) The numbers of people living with HIV world wide number in the tens of millions. These numbers are very difficult to grasp or engage with emotionally, so I will focus on the stories of two individuals.
- 6) This is John Finlay. He has HIV and lives in Vancouver. One summer he spoke to us about his experience in 1997, when he lay in a bed at St. Paul's Hospital, dying of an AIDS-related lymphoma. He's spoken about his thoughts after his doctor told him he had three days left to live. Fortunately, this was one year after ARV therapy came into use, so he was able to be treated for HIV and recover from his cancer. And, as you can see, ten years later he is alive and healthy. After his recovery he got his MA in creative writing, wrote a screenplay about his experiences, and now runs a 12 million dollar fundraising company, with more than 400 staff members in three countries. So you can see that he is able to enjoy good health, contribute to his community (including the world community) and live with dignity.
- 7) This is Joseph Jeune. He lives in a village in rural Haiti. He has HIV and it is 2003. Because he is poor, he has no access to antiretroviral drugs, even though they have at this time been available for more than 7 years to those who can pay for them. He probably lives on less than a dollar a day. No-one will pay \$15,000 a year to keep him alive. Without this treatment, however, he will certainly die, leaving behind his wife and children. If his wife is no longer alive, as she certainly may not be (more than half of HIV-positive individuals are women), he children will be orphaned. I'd like you to notice the medical staff in the background, that Joseph is in fact in a clinic, not in his village, unable to access medical treatment of any kind. The medical staff here cannot help him, though, simply because the drugs are too expensive.
- 8) Why is this? Pharmaceutical companies, which carried out much of the latter-stage research and development for antiretroviral drugs own patents on these drugs. A patent is the legal right to exclusively manufacture and sell a product, like a drug, for a certain period of time (often 20 years) in order to recover the costs of development and make a profit. Society gives this right in order to reward and encourage further innovation.

- 9) As a whole, the pharmaceutical industry took in about 3 trillion dollars worth of revenue worldwide in the last decade. 12% of this was spent on Research and Development of drugs. This is more than 300 billion dollars, a tremendous amount, spent to develop drugs (like antiretrovirals) that have saved and improved many lives (like John's in Vancouver). Pharmaceutical companies sell drugs at high prices in order to recover the cost of this R&D, and to do more of it, to create the next generations of treatments. But let's examine what the rest of this \$3 trillion was spent on. 30% was spent on operational costs, which every company has to pay for things like factories, raw materials, and office buildings. 32% was spent on marketing and administration, nearly triple the amount spent on research, causing one to wonder whether drug prices actually need to be so high to cover the costs of research alone. Or whether drug prices specifically for Joseph in Haiti need to be set completely beyond his reach. Finally, 25% of revenue represents profit. John's fundraising company, he says, is not a very good company, more of a social enterprise, really, making only about 3% profit. He would like to be making 10% profit, ideally. Any company making a 25% return is doing phenomenally well. No wonder that the pharmaceutical industry as a whole is the second most profitable in the world.
- 10) So it is hard to understand why Joseph cannot access drugs to treat his HIV and cure his AIDS, if drug companies are making so much profit (and spending so much on marketing), certainly making no profit at all from people like him. I'd like to talk about what is done, in the absence of drugs, but with the aid of health care workers, in Joseph's case. Instead of treating his treatable infection, he is instead given palliative care. This means he is made comfortable in his last days and moments. He is helped to prepare a 'memory book', a scrapbook of sorts that he will give to his surviving children, so that they can know something of the man he was when he was alive, and know something of the advice he would give them, since he will certainly not live to see them grow up.
- 11) In 2001 in South Africa, Medicines Sans Frontieres – Doctors Without Borders – MSF was treating people like Joseph in a similar way, unable to actually heal them because of drug prices. One man, much like Joseph, told Dr. James Orbinski, a volunteer doctor from Toronto and head of MSF at that time, “You bring kindness, and your kindness is good. But it will not cure this AIDS. I know there is medicine in your country for people like you. But why not here, for people like me?”
- 12) And this man was right. High drug prices and an international community who would not make them available to people like him were effectively saying that it is acceptable to die of a treatable infection so long as you are poor enough.
- 13) Back in Haiti, Dr. Paul Farmer who founded this rural clinic for people like Joseph said no, actually, this is not acceptable. So he 'borrowed' antiretroviral drugs from his hospital in Boston to treat Joseph. And this is what happened.
- 14) Within six months of beginning ARV treatment Joseph is fully restored to health. Now, like John in Vancouver, he can continue to know his family, contribute to his community, and live with dignity.

- 15) This is because Dr. Farmer, an internationally renowned infectious disease specialist, had to break the law that was keeping him from being able to treat his patients in Haiti. Not an ideal situation, certainly. In 2001 MSF – Doctors without Borders – faced the same problem and thought, well, since drug companies are not making any money from people like Joseph in Haiti or from our patients in South Africa, anyway, we will ask them to reduce their prices in these cases. Despite many months of negotiations, however, drug companies were just not interested.
- 16) But Dr. Orbinksi and others at MSF refused to accept this; their patients were dying needlessly of treatable HIV infection. So with the Treatment Action Campaign they publicly defied the law, illegally importing cheaper generic antiretrovirals to treat their impoverished HIV patients in Kayelitsha on the outskirts of Cape Town, South Africa. And many of their patients were restored to health, as Paul Farmer's patients were in Haiti. This was a critical point in treating HIV in poor communities: it had been argued in the international community that, after all, these people have no running water or wristwatches, so how could they properly take their antiretroviral drugs? Let's not talk about access to treatment for them until these conditions are fixed! But patients were now in fact being cured of AIDS in Haiti and South Africa.
- 17) But we have a situation where well-respected physicians and humanitarian organizations are being forced to break the law. Over drugs like this, Zerit, an antiretroviral whose patent is owned by Bristol-Myers Squibb. What can be done, though, when the patent and thus control is owned by a company who is not willing to respond to the needs of poor people?
- 18) The good news is that the original patent for Zerit is not owned by a drug company but in fact by Yale University. Yale is an institution not designed to generate profit for shareholders but instead committed to the highest standards of learning, research, and human ideals. MSF discovered this, and approached Yale to ask if they would release their patent on Zerit to permit generic production at a price they could afford to treat their patients. But Yale said, sorry, we've already licensed Zerit exclusively to Bristol-Myers Squibb, there is nothing we can do.
- 19) But Yale and BMS discovered that there was something MSF could do and it was this: a catastrophically damaging public relations campaign carried out world wide culminating in an opinion piece in the New York Times slamming BMS and Yale for their indifference to the world's sick and poor. BMS and Yale quickly capitulated, allowing unrestricted generic production for Zerit, bringing the price down from \$15,000 per patient, per year, to \$350 per patient, per year. You can imagine the scale of treatment possible at this price, dozens of times more people who can be cured of the symptoms of AIDS.
- 20) A group of students at Yale who were involved in the Zerit campaign, wondered though, if there wasn't a better approach. After all, there are many more antiretroviral drugs than Zerit, and as devastating as the HIV pandemic is, many other infectious and non-infectious diseases together kill 10 million people worldwide every year.

- 21) This because they have no access to existing treatments. Could there be a proactive and systematic way to ensure that people, because of their income, are not denied access to miracle drugs like statins, which treat cardiovascular disease, while thought of as a disease of the rich, is the biggest killer of people worldwide, in both high, middle and low-income countries. There is no reason why people should be denied access to modern medicine for all medical conditions, and that is what we propose to do.
- 22) Because many universities like Yale, and like UBC, are major centres of biomedical research and major contributors to the drug development pipeline. These universities have high-minded aspirations to serve humanity, and say so in their mission statements. This is UBC's: among other things UBC aspires to conduct outstanding research to serve the people of, yes, British Columbia, and of course, Canada, but also the world.
- 23) UBC also has its students, faculty and administration, many of whom are passionately committed to positive social change. And so we propose that, in accordance with its principles, UBC and other universities adopt what we call Global Access Licensing, to ensure access to its discoveries. This is how it works. Every major research university has an office called the Technology Transfer Office, or TTO. The TTO exists to help a researcher who, for example, discovers a molecule that might make a good drug. So they help the researcher patent this molecule. However, because hardly any university can afford to carry out research and development, including expensive late-stage clinical trials, the TTO then licenses the patent to a company, transferring the patent rights, so that the company can develop and exclusively manufacture and sell the drug to people who can afford it, in exchange for money bags. Some of the revenue from the drugs returns to the university in the form of briefcases full of unmarked bills. This is actually somewhat true, as the university is able to use this royalty revenue for any purpose; such unrestricted funding is hard to come by for university administrators, so is highly valued. However, this system leaves all of these people [right hand side] out in the cold, because they don't have the money bags to pay for the drug like people living in high income countries do. So what we propose is that the drug is immediately, simultaneously (non-exclusively) licensed to one or more generic companies, who are able to produce the drug for these people at a lower price (the \$350 per patient per year instead of the \$15,000 pppy). They can pay this price themselves, if they happen to live in a middle-income country, or the price can be paid, for example, by international donors for those living in the lowest-income countries. This was just one example, and there are many different ways that this can work. We are not asking for universities to abandon the profit motive, only to place greater value on serving the people of the world, in accordance with their high moral aspirations. Sounds great, right?
- 24) So yeah, let's hop in the hippie van and hit the road. The Dean's got to hear about our Ideas!
- 25) The wonderful thing, though, is that in fact this idea has already been implemented. In 2007, UBC adopted a set of Global Access Principles, committing it to use Global Access Licensing or some similar strategy to ensure access to relevant technologies developed here for the world's poor. Other major research institutions, for example the University of California at Berkeley, and Emory University, both major contributors to drug development, have adopted similar proposals.

- 26) So how has this revolution in campus drug development culture come about? The students at Yale who helped win the public relations battle over Zerit founded a group called Universities Allied for Essential Medicines (UAEM), dedicated to systematically changing the way universities approach patenting and licensing of their technologies so that they are accessible to people living in poor countries. Our chapter at UBC successfully negotiated with UBC administration and technology transfer professionals to adopt Global Access Licensing, and along with now more than 50 chapters in North America and others world wide, we are able to bring the discussion beyond simply whether this should be done, and get into the details of how best to implement it.
- 27) Importantly, this isn't just a paper tiger at UBC. The first drug brought out under Global Access Licensing was announced also in late 2007. This young man suffers from a disease called leishmaniasis ["LEASH-man-i-a-sys"] in its most deadly form: visceral leishmaniasis, from which he will certainly die if untreated. This is the sandfly that transmits the parasite to millions of people every year. There is an existing treatment, amphotericin B, "amp B" for short. However, it has many problems: it must be administered intravenously, so good luck to you getting an IV line if you happen to live in rural Africa or rural Asia where the disease is endemic. It also will kill the patient 1 of every 3 times; not such a bad deal I suppose if you are going to die 3 of 3 times untreated, but I think modern medicine can do better than that. And this is Dr. Kishor Wasan ["WASS-on"], a pharmaceutical sciences prof at UBC who has done just this. He has made an oral formulation of Amp B that addresses the delivery concerns (no IV line required) and the toxicity concerns as well. We have also learned that the drug is greater than 99% effective in eradicating the parasite in animal studies. An incredibly exciting development. Lastly, the drug has been licensed under Global Access Licensing that ensures that it will be made available at cost, to people in poor countries who need it most.
- 28) Without Global Access Licensing being established at UBC, Dr. Wasan, although having all the best of intentions (he is from India which is heavily affected by leishmaniasis) may not have had a clear path to make his drug available to people in poor countries. In turn, the more researchers at UBC who know about Global Access Licensing the easier it is for the Tech Transfer Office here to implement it. So we'd like you to help out, just a little bit if you can.
- 29) You can tell your 300 closest friends about it, in a lecture hall, or your friends and classmates at the pub.
- 30) You can talk to your prof about it (profs love talking about their research!), who herself may be working on a drug or a medical or engineering technology that can help people living in the developing world. If she isn't, odds are she knows someone who is. If other researchers at other universities hear about Global Access Licensing, it will help us encourage their administrations to get on board as well.

- 31) So far I've discussed the affordability of medicines, or the "Access Gap" as we call it. There is also a Research and Development Gap. Here are six of the disease categories that burden the health of the people of the world most heavily. Cardiovascular disease, cancer, HIV/AIDS, tuberculosis, malaria, and all other tropical diseases taken together. In a world where drug development priorities reflected the burden of disease on the world's people, the outcome of new drugs for each disease category would look like this. As you can guess, however, this is actually the picture: cardiovascular disease and cancer, which affect rich people who can pay for new drugs, are heavily invested in. Even though HIV/AIDS does affect people in rich countries, it is still neglected. The outcome of new drugs for TB, malaria and other tropical diseases is simply abysmal. This is because the affected people are poor, and so they cannot reward drug companies' R&D efforts.
- 32) So we would like this to change as well, and help establish a university research network for neglected diseases that can help change this picture. There are already a few excellent organizations dedicated to this effort, like the Drugs for Neglected Diseases Initiative, and we would like universities to organize themselves to support their efforts, and others', in a big way.
- 33) You can do something right now. Go to uaem.org and sign our Philadelphia Consensus Statement (under "Add Your Voice"). This expresses our three key proposals: that university discoveries should be accessible and affordable to poor people, that research and development for neglected diseases (like TB, malaria and others) is prioritized, and that the success of universities' technology transfer activities is measured in terms of impact on people's well-being, rather than as profits returned to universities.
- 34) And this is the kind of world you can help to create. In 2007 there were nearly 3 million people on antiretroviral drugs, 3 million people whose lives can turn out like John's in Vancouver, and Joseph's in Haiti. There are still probably 6 million people who still lack access, but it is an incredible start. In 2002 this scale of treatment was simply unimaginable; fewer than 300,000 people had access to ARVs, and so nearly every story of HIV-AIDS ended in tragedy for a family and a community. For the present scale of treatment to be possible, much has been done in terms of access to medical staff for the world's poor – overcoming problems like Malawi's ratio of 1 doctor for 100,000 people remains a major challenge. But it is certain that without affordable medicines, three million people on treatment would be simply impossible.
- 35) And you can see that even in sub-Saharan Africa, the part of the world most devastated by the HIV pandemic, the picture has changed dramatically from 2003 when, as shown in dark blue, more than 90% of people lacked access to treatment. But by 2007, as the colours fade, in many countries more than 50% and in some areas more than 75% of people now have access to therapy, an incredible achievement.
- 36) So help us make the choice to create the kind of world where this young man can enjoy the good health he deserves, and live his life as we do, with dignity. Thank you for your kind attention.