

## **Academics and Pandemics**

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In Albert Camus's *La Peste*, a small Algerian town is ravaged by an outbreak of plague. Dr. Barnard Rieux, the main protagonist, narrates a moving story of suffering and pain, and of faith in knowledge, even in the face of death. The story of one town's struggle mirrors the world's own struggle, as today we gather to remember the 30 million people who have died since the start of the great modern pandemic of HIV/AIDS.

Dr. Rieux implores the reader to "*be resolved to compile this chronicle, so that we should not be one of those who hold their peace but should bear witness in the favour of those stricken people, so that some memorial of the injustice and outrage done them might endure and to state quite simple what we learn in a time of pestilence: that there are more things to admire in men than to despise.*"

This year, 2 million people have died from HIV/AIDS, and 2.7 million became infected. Over 30 million people live with HIV infection. The numbers are so staggering that they create disbelief. Josef Stalin famously said that "*the death of a million people is a mere statistic, but the death of one man is a tragedy*".

Some years ago, I made my first visit to Tambarum Hospital in Madras, which had become India's AIDS hospital. Row after row of the narrow beds were filled with people younger than I. As a physician, I was prepared to see the tragedy of death, but was unprepared to see the tragedy of helplessness, sorrow and resignation. All of us, healthy and the dying, stood hallow, silent and monochromatic as if AIDS had killed all colours.

We in Universities have a special role as witnesses and actors in this great epidemic. Today, I'd like to consider three questions. First is to discuss how pandemics change societies. Second, what Universities can do to battle global killers. Lastly, I examine our collective response.

### **Pandemics change societies**

Pandemics throughout history have killed millions, but have also altered, sometimes profoundly, the fabric of societies. Epidemics of the plague in the 14<sup>th</sup> and 15<sup>th</sup> century including the Black Death may have shrunk Europe's population from about 70-90 million to 30-40 million. The Plague restructured politics; giving more power to agricultural labourers and weakening the feudal system. The relationship between aboriginal peoples and visitor has been forever altered by disease. Hawaii's population fell from about 500,000 to 84,000 in the early 19<sup>th</sup> century due to epidemics of syphilis, TB and influenza. World War I ended, in part, because the Spanish flu made soldiers too sick to fight.

We ought not to think of only infectious pandemics, and I use the word pestilences in a very general sense. For example, the death rates of men between age 15-55 years in parts of Russia exceed those in Africa, due almost entirely to excesses of tobacco-related mortality from 1960-1990 and binge alcohol drinking, especially since 1990. Thus, Russia faces a demographic crisis, with too few adult males in many parts of the country.

AIDS has restructured our world. Within parts of Eastern and Southern Africa, as many as a sixth of young adults have died from HIV infection. Prior to HIV, three-quarters of 15-year old girls in Botswana could expect to reach age 60. Today, only one quarter can hope to do so. AIDS has caused widespread orphan hood, forced grandparents to become parents, and starved schools of teachers, governments of administrators, and the police of officers. Thankfully, this level of devastation has not spread to Asia, as was once feared.

We ought not to take false comfort in the fact that these dying voices are in foreign tongues, thousands of kilometres away. The list of reasons for us to care about AIDS is long. AIDS raises security concerns, as countries whose populations and economies have been ravaged by AIDS become fertile breeding grounds for civil conflict and even terror, some of which can be brought to our shores. AIDS decreases economic growth and foreign investment.

However, the reason for us confront AIDS cannot simply be instrumental. There are more essential reasons to care. They are the reasons relating to our humanity, our sense of shared purpose on this crowded planet.

AIDS represents the first major challenge in the irreversible era of globalization. It is by no means the last, and we have before us the great trials of climate change, the emergence of the non communicable diseases and global financial governance. Let there be little doubt that how our generation responds to this first great test of the millennium will shape the ethos of how we collectively face others.

Moreover, AIDS has occurred during a time of extraordinary riches. Our parents could not have imagined that we today would have accumulated so much wealth, such incredible technologies and such dominance over resources. The contrast is sharp- we live in an era of incredible opportunity, yet remarkable deprivation. We have no excuse of poverty, only of imagination or the will to use our imagination.

AIDS has occurred in the era of MTV, of student activism, and social networks enhanced by technology. The youth of the world, not officialdom, have driven the response to do more. These same youth brought down the Berlin wall, and elected the first African-American president of the United States. Youth know that they have the power to shape the world's trajectory, and to shake up governments and to have all of that presented in a living, vibrant and disruptive 24-hour news cycle.

Youth will thus recognize what Spiderman once said: "*With great power comes great responsibility*". What then, is the responsibility of academic institutions in fighting AIDS?

### **What can Universities do?**

At their core, Universities create knowledge and they educate the next generation of thinkers. In his essay *The Proficiency and Advancement of Learning* published in 1605, Francis Bacon argued that the central role of knowledge in general (and science in particular) was to serve and to seek **doubt**. Said he: "*If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties*". He also urged that a rigorous process of inquiry so that societies not let important issues "*pass by lightly, without intervention.*"

This begs the question if Universities should retreat into their ivory towers, when the fires of an epidemic rage. That is a fair question. Students have not channelled their energy and commitment to solely demand more research. No, students have demanded action, from debt cancellation, to exerting pressure on western pharmaceuticals to lower drug prices. My friend James Orbinski reminds us that political opportunities are fleeting, stating "*in politics... there is no right balance between life and death when life is possible.*"

Both perspectives would thus likely have room for, if you will permit me, "love in a time of cholera", if for no other reason than to remind us of the moral choices by which we arrived on the scene. But what then, is the place of doubt? I argue that indeed, doubt in the time of cholera, and the role of Universities in query and criticism, serves the world uniquely and well. I do so for three reasons. First, the pursuit of doubt fills a need that other institutions do not provide. Second, the past application of ideas and practice borne in doubt has improved health enormously. Third, and most important, that future action borne in doubt can best help us to create an enduring memorial of justice for those stricken by AIDS.

It is true that we begin with a moral position. We declare our side, as Dr. Rieux urged us to do so, when he said “*on this earth there are pestilences and there are victims, and it is up to us, so far as possible, not to join forces with the pestilences.*” But in establishing that moral ground, we cannot abdicate the use of other faculties- of reason, criticism and scrutiny. Moreover, it would be counter to our unique station where we **not** to call upon our wealth, technology and communication, tools which no earlier generation has had.

Global solutions demand that various institutions play different roles. NGOs and activists’ mobilize support. Governments deliver services. The major global institutions, like the World Health Organization and the World Bank are followers of ideas but seldom their creators. A unique role of Universities is to create doubt and debate.

Universities bear a special responsibility to periodically and carefully distance themselves from those who act, and even those who fund our salaries and our research, to dispassionately seek truths, however inconvenient. This is not just the usual plea for academic freedom, but recognition that such knowledge provides a check against the slippery slopes of certitude for the world’s big problems. Drew Faust, President of Harvard University recently lamented that Universities did too little to counter the prevailing romanticism of economic theories that have pushed us into the most painful recession since the 1930s. When lives and not only treasure is at stake, we cannot let AIDS “pass lightly, without intervention”.

Historically, universities had only begun to be formed in Europe prior to the Black Death, and were shaped by the events rather than shaping events. Centuries later, as societies made collective decisions to invest in the great Universities of the world, like the University of Toronto, their role in the social order grew. Universities helped to mobilise modern epidemiological, laboratory and clinical science against the Spanish flu pandemic of 1918/19. They undertook experiments, heroic in their nature, to slow transmission of the then unknown virus. The result: American cities which took seriously the crude measures of social distancing, and blocking respiratory transmission had fewer deaths than cities that did not.

Universities went on to strongly influence the development of modern disease control programs. The union of public health programs and knowledge yielded spectacular fruits and contributed to astounding gains in health in the last few decades. Life expectancy has increased more in the last 50 years than in the preceding 5000.

A short 50 years ago, Jonas Salk gave us an inexpensive vaccine against polio- and we are now on the cusp of sparing every future generation from this scourge. A group of scientists and policy makers gathered nearly four decades ago to launch the Extended Program on Immunization that has raised the percentage of the world’s children immunized against common childhood infections from 5% in 1970 to over 80% today, saving 3 million children a year. The crowning achievement is of course, the World Health Organization-led eradication of smallpox, which once caused about 3 million deaths a year, including killing one of my aunts at the age of 3. And success is not only in vaccines. Simple use of impregnated bed nets and combination therapies for malaria dramatically reduces child deaths. Richard Doll and Richard Peto’s research has led to identification of smoking as a major cause of premature death worldwide. And today, male smoking deaths in western populations have declined after decades of increases. But smoking deaths continue to rise in developing countries.

Universities have done less well to explain what they do well. Newspaper columnists Peggy Wente and Jeff Simpson have criticised professors as unaccountable. I hazard to guess that they might arrive at a different conclusion if they really understood, for example, the globally influential work on sexual transmission of HIV done by Frank Plummer and Allan Ronald at the University of Manitoba.

## **Our response**

Let me discuss our collective response to HIV/AIDS. First we have much positive news this year. New HIV infections may have peaked in 1996, and have subsequently fallen by nearly a third. About 4 million people are on life-prolonging treatment, 10-fold higher than a decade ago. AIDS deaths probably peaked in 2004.

The future of the epidemic lies with the uninfected. We have some successes in prevention. As Stephanie Nolan described recently in the *Globe and Mail*, modest and imperfect efforts by the Indian government and the World Bank to take sex work seriously, have changed a potential catastrophe into a manageable public health problem. New HIV infections have dropped by over ½ in South India. In some parts of Africa, there are declines in new infections. We should take comfort in the declines, but we must understand better why the epidemic exploded in parts of Africa and why it has retreated. Today, you can take your pick from ABC or D- meaning Abstinence or Be faithful, Condoms or Death- to explain Uganda's remarkable decline in HIV. Not all these hypotheses can be true.

Novel coalitions have formed to create a safe and practicable HIV vaccine. But even in the absence of a vaccine, several interventions can block transmission. The most clearly effective preventive interventions against HIV are those targeting groups that—because of high rates of partner change, increased susceptibility to infection, or both—are highly vulnerable. Sex workers, their male clients and men having sex with men are examples. However, interventions have not been implemented to wide enough scale. Nor do we have enough knowledge about the importance of sex work networks to explain the higher prevalence in African countries.

Recent calls for antiretroviral drugs to become readily accessible worldwide have resulted in profoundly greater availability of these drugs. ARVs prolong life, but are not a cure for AIDS. All countries have an interest in minimizing the number of people who will need ARVs, and for them ensuring easy access. About 5 million people still need treatment. We must remember that in Botswana, which has the best funded, best organized ARV program, 200,000 adults are on treatment, but in the same period, 300,000 people became newly infected.

Some years ago, the health reporter for the *Economist* commented in a meeting in Geneva that the big story was the David's of the world, namely NGOs, activists, and Indian generic drug manufacturers, beating the Goliaths- big Pharma and the US government. His concern was that in the public imagination, such a happy ending would be seen as a problem solved. And indeed, too many activists made similar claims about treatment. However, we need great caution in letting the ARV story also pass lightly, without scrutiny. Relying on ARVs alone raises the questions about the spread of resistance strains around the world and whether ARV access will strengthen or weaken prevention efforts by leading, for example, to lower condom use rates. Moreover, research into better classes of ARV drugs has not kept up with the need, in part because large pharmaceuticals are intimidated by generic pricing.

AIDS has spurred the creation of the Global Fund for HIV/AIDS, tuberculosis and malaria. Nearly \$15 billion dollars was spent on AIDS last year. Over 60 Universities and colleges in North America and Europe began departments of global health, many in response to AIDS. AIDS has forced us reconsider political alliances. Who could have imagined that US President Bush, with only minimal prompting, would commit to spend some 25 billion of US taxpayer dollars to fight global AIDS? Cynics might point out, with justification, that the US response was fuelled by religious groups. But Dr. Rieux also formed a brotherhood with the church to fight the plague, stating that what he hated was death and dying.

However, the global response has also exposed fault lines. The most important is the need to address the routine killers, not merely the dramatic ones. In the 20<sup>th</sup> century, perhaps 20 million died from AIDS, 100

million from pandemic influenza, 200 million from wars and famine, and 2 billion children died from routine infections and neonatal conditions. Similarly, while smoking killed 100 million adults in the 20<sup>th</sup> century, on current patterns, it is on its way to kill 1 billion people this century.

Thus routine diseases demand the bold resolve we have seen against AIDS. My colleague Jeff Sachs has proposed turning the Global Fund into a Global Fund for Health Systems. His idea deserves careful scrutiny and debate. The Institute of Medicine panel advising US President Obama on the global health called on him to double spending to \$15 billion a year, but to balance the increase across diseases, including \$2 billion for non-communicable diseases.

AIDS has exposed the problems with reliance on developmental assistance, including Dambiso Moyo's extreme but popular views. Most importantly in my view, foreign aid is severed from science. It would not be too harsh to suggest that current CIDA culture dismisses knowledge generation. Yet, numerous reviews have shown that the research into new methods of disease control and their delivery, not increased wealth or education or doctor availability, is the chief explanation for the enormous progress in health over the last few decades. Given that research is the basis for new knowledge to fight global diseases, the world is vastly under investing in health research.

Economist Stéphane Mechoulan recently pointed out that the incentives to make new technologies for developing countries rely way too much on altruism, which can wax and wane with any political cycle. If we apply the ideas of the late philosopher John Rawls with modern evidence on how health improves, we might well use the AIDS pandemic to dramatically restructure developmental assistance. Rather than deliver money, developmental institutions would create and deliver ideas, tools, applications and knowledge relevant for the poor.

There is no reason to think why Canada cannot be a pioneer in innovative developmental assistance, or to think that the legal and economic research required to design such an innovation cannot come from these halls, from those of you in this room. The required scholarship to meet the above challenges is not limited to biomedical science, but spans humanities, law, engineering and other disciplines.

### **A summary**

Camus in *La Peste* spoke of “*that radiant eternal light which glows, a small still flame, in the dark core of human suffering. And this light too illuminates the shadowed paths that lead us.*”

I submit that we, who study, live and work in the institutions of learning, serve the world best by the unwavering pursuit of knowledge, with a deep scepticism for what is considered conventional wisdom, or as too easy truths. In our privileged position, doubt is our currency and its pursuit is our light. We must argue that evidence, science, reason and logic be the pillars upon which our compassion and action be based. Such a position is not easy, but it is what we as a corpus can offer humanity.

In the end, we must realize that the global HIV pandemic asks us about how we see ourselves in the world. In acting, we accept the claim that we have on one another; we state that only imagination limits our deeds; and we commit, together, to making a meaningful difference, however small, for the people with whom we share this Earth.

Thank you.