

Essential Medicines and the University Challenge: Promoting Local Research for Global Impact

Universities Allied for Essential Medicines, UBC chapter

Lack of access to essential medicines

- Worldwide, two billion people lack access to essential medicines¹, defined by the WHO as minimum medicine needs for a basic health care system².
- The list includes medicines for the treatment of HIV, malaria and tuberculosis, but also non-communicable diseases such as diabetes, cancer and cardiovascular disease.
- High drug prices are among the factors that impede access to these life-saving medications.

- In high-income countries, patients can be insulated from the high price of drugs by third-party payers, such as insurance companies and government funded health care programs.
- In low and middle-income countries, public health expenditure is often insufficient to pay for needed medications.
- The high price of medicines becomes a question of life and death in developing countries, where patients are responsible for covering the high cost of drugs out of their own pockets and seldom have health insurance³.

The effect of patents

- One of the major determinants of a drug's price is whether the drug is protected by a patent.
- A legal patent on an invention guarantees its owner a period of market exclusivity, allowing them to sell the invention at any price they see fit. This provides an economic incentive to invest in R&D.
- However, this also means new life-saving medicines are unnecessarily unaffordable for many of the people who need them.

A generic solution

- Drugs with minimal patent protections are commonly referred to as *generics*. When generic production is permitted, multiple producers can compete for market share, and prices are driven down.
- For example, between 2000-2006, the price of antiretroviral treatment for HIV dropped 99%⁴. At the same time, the number of HIV patients receiving treatment in low and middle-income countries (LMICs) increased dramatically⁵.

The role of universities

- As publicly funded institutions, universities have great potential to contribute towards the public good through research and innovation.
- 15 of the 21 most important drugs introduced in the US between 1965 and 1992 were developed using knowledge and techniques from federally funded research⁶.

- The stated vision of the University of British Columbia emphasizes “*conducting outstanding research to serve the people of British Columbia, Canada, and the world*”⁷. Realizing this vision requires promoting global access to the products of its research.
- However, the commercialization of health technologies by universities traditionally focuses on economic returns to the university. This approach does not take global access to innovations into account.
- By prioritizing access during negotiations with industry, universities have the opportunity to make their innovations available worldwide.

Examples of mechanisms for promoting access

- Market segmentation: grant exclusive rights only within high-income countries (HICs), so generic production is possible for LMICs
- Field of use restrictions: when a new drug has multiple uses, grant exclusive rights only for the applications that are relevant in HICs
- Grant worldwide exclusive rights, but require low-cost provision in LMICs
- Non-exclusive or open-source licensing
- Licensing to patent pools

UBC now supports global access

- As of 2007, the University-Industry Liaison Office (UILO) has adopted a set of **Principles for Global Access to UBC Technologies**⁸.



- These principles state that UBC will:

- *“Endeavor to ensure that under-privileged populations have ‘at cost’ access to UBC research innovations through negotiated global access terms wherever possible.”*
- *“Continue to seek partnerships with non-for-profit and charitable organizations to provide much needed funding for neglected disease areas.”*
- *“In measuring the success of technology transfer activities at UBC, societal impact has become a key metric.”*

Recent UBC technologies with planned global access terms

- Dr. Brett Finlay's research on innate immunity focuses on finding an alternative to antibiotics for the treatment of diseases such as diarrhea-causing *E. coli* and salmonella, typhoid fever, dysentery, ulcers and tuberculosis⁹. Funding for this project is conditional on the final product being made affordable to people living in developing countries¹⁰.

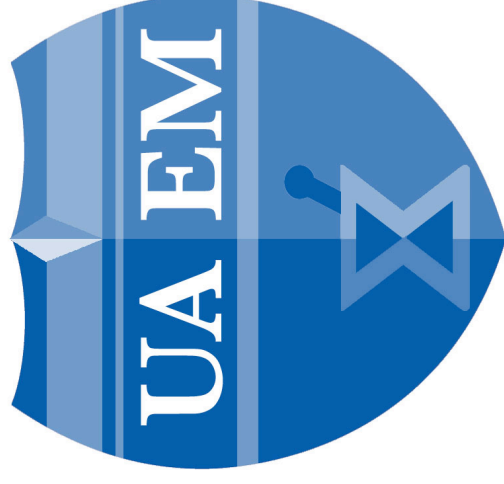
- Dr. Kishor Wasan's research group has developed a new formulation of Amphotericin B¹¹ for the treatment of fungal infections, as well as the parasitic infection visceral leishmaniasis, a neglected tropical disease which is fatal if left untreated¹².
- The commercialization agreements with iCo Therapeutics includes measures to promote affordability and accessibility of the formulation to countries in the developing world¹³.

About the authors

Universities Allied for Essential Medicines (UAEM) is an interdisciplinary group of university students which aims to enhance the global health impact of our schools' biomedical research. We work with universities in three areas:

1. Ensuring that health care innovations developed at universities, such as drugs, are made **affordable and accessible** in low and middle income countries
2. Reducing or eliminating the barriers to research on **neglected diseases**
3. Measuring success of technology transfer by its **social impact** rather than only by economic measurements

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