**Title:** Evaluating the health outcomes of HIV interventions: a mathematical model to combine the science and economics of HIV.

**Abstract:** HIV, the virus that causes AIDS, is one of the world’s most serious health and development challenges. There were approximately 36.7 million people worldwide living with HIV/AIDS at the end of 2015; 1.8 million of these were children (<15 years old). Over the course of the HIV epidemic, the scale of the global response has been unprecedented. Since 2002, an estimated US$80.3 billion in development assistance for HIV programs has been disbursed in over 100 lower-income countries.

This talk will discuss some of the methods that have been developed to help governments and funding bodies understand how best to allocate funds for HIV. The methods rely on compartmental models of HIV transmission and disease progression, and are generally capable of producing estimates of epidemic trends, resource needs, and the impact and cost-effectiveness of HIV responses. Their ultimate aim is to estimate the allocation of resources across programs that best addresses national HIV targets whilst considering various logistic, political, and ethical constraints.