

## **AIDS: A History of a Global Pandemic**

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AIDS was first detected and defined as a disease in 1981. Within a few years, the causative agent of the disease was discovered, the human immunodeficiency virus, or HIV. An explosion of scientific activity followed its discovery, in an attempt to understand the virus and how it interacts with its human host, its evolution, and ultimately to use this knowledge to develop diagnostics, drugs, and vaccines to combat AIDS. Despite our efforts, HIV has swept the globe: current World Health Organization estimates are that 35 million people are living with HIV, and 15 million more are already lost to AIDS. In some regions of the world, particularly in sub-Saharan Africa, up to 30% of the population are infected with HIV. The nations that bear this load are reeling under the burden of AIDS, with life expectancy plummeting, millions of orphans, and medical infrastructures and traditional practices of family and community support broken in its wake. After two decades of research, effective anti-viral therapies have been developed that help people live longer and healthier lives with HIV, but the cost of these therapies have made them inaccessible to the vast majority of infected people globally.

This talk will cover a spectrum of topics related to HIV/AIDS:

- How HIV fits into the family of related viruses that infect primates in Africa, called SIVs
- What is known, and what is speculated, about the origin of HIV in humans
- The extent of the global epidemic
- Basic information on the human immune system, how the virus attacks, and how the body fights back

Los Alamos National Laboratory provides an international database for HIV, directed at helping scientists understanding the global diversity of HIV, and focusing our knowledge to help inform vaccine design. Therefore, our current understanding of the implications of the viral diversity for vaccines, and promising vaccine approaches that are now in the pipeline, will also be discussed.