

# HIV Research Has Saved Millions of Lives Globally and Led to Innovative Advances in Multiple Diseases

U.S.-funded HIV research opened the door to breakthroughs far beyond HIV, notes a Fred Hutch cancer expert as World AIDS Day approaches December 1.

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Leaders in HIV research highlighted the critical role of that research has played in advancing HIV science over the past 40 years. In a commentary in [Nature Medicine](#), they explained how U.S.-funded HIV research has increased scientific understanding, treatment and prevention of not only HIV/AIDS, but many other health conditions.

“Thanks to broad U.S. investment, HIV research has opened the door to breakthroughs and treatments for diseases far beyond HIV/AIDS,” pointed out [Larry Corey, MD](#), professor and past president and director at Fred Hutch Cancer Center and corresponding author. “As we approach World AIDS Day and renew our commitment to an AIDS-free generation, we recognize the contributions of HIV research to advances in immunology, cancer, cardiovascular disease, vaccine development, aging and global health.”

The authors noted that U.S.-funded HIV/AIDS research is responsible for saving millions of lives globally and has solidified the nation as a leader in global health. Drs. Jirair Ratevosian, Duke Global Health Institute, Duke University; Chris Beyrer, Duke Global Health Institute, Duke University; Judith Currier, University of California at Los Angeles; Joseph Eron, Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill; Myron S. Cohen, Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill; and Steven G. Deeks, University of California at San Francisco co-authored the piece to bring awareness to the successes and critical outcomes of investing in HIV research.

## Science building on science

HIV prevention, treatment and cure research produced added benefits of solving medical mysteries and answering scientific questions in many other disease areas. Lifesaving advances in immunology, cancer therapy, cardiovascular and neurodegenerative diseases can be attributed to groundbreaking HIV research findings. CAR T-cell therapy, which was initially studied as a potential

treatment for HIV, eventually was adapted to train immune cells to attack cancerous cells. Today, CAR T-cell therapies have transformed treatment outcomes and quality of life for blood cancer patients.

“A well-resourced deep dive into the understanding of just one infection turned out to be great way to learn about human biology. This deep dive directly led to the development of effective therapeutic strategies for lots of other diseases,” commented [Steven Deeks, MD](#), professor in the University of California, San Francisco School of Medicine.

Worldwide, practice-changing improvements to treatment and prevention of tuberculosis were built from U.S.-funded studies in people living with HIV. Research revealed that many subclinical TB cases in people living with HIV were undetected, leading to the creation of better diagnostic and control interventions, less toxic drug regimens and vaccine development strategies for TB. Beyond TB, robust HIV research programs have served as a foundation for pandemic preparedness efforts.

“HIV research has also led the way for global implementation of large-scale treatment and prevention programs for millions in need of HIV therapy and in need of biomedical prevention,” said [Chris Beyrer, MD, MPH](#), director of the Duke University Global Health Institute. “No other condition has required the kind of global solidarity and innovation in implementation science that the HIV/AIDS pandemic demanded, and which the HIV response has delivered, including for some of the most medically underserved communities in the world.”

## Momentum for HIV vaccines and new technologies

Over the past 40 years, U.S.-sponsored HIV research has improved diagnostics, treatment and preventive approaches for people living with HIV. Yet a cheap and effective HIV vaccine remains necessary to achieve control of the disease in the U.S. and globally.

An estimated 40% of Americans newly diagnosed with HIV are not in populations being targeted for pre-exposure prophylaxis, or PrEP. Furthermore, recent statistics show that most children living with HIV globally are not receiving treatment and 30% of people living with HIV globally receive no therapy.

Research investments have pushed scientific understanding toward an effective vaccine. Current HIV vaccine studies are focused on training B cells to produce a series of antibodies that could broadly neutralize the virus. Beyond HIV, these studies have deepened scientific understanding of B cell immunology and could lead to vaccines to prevent other types of infections, reductions in metabolic cancers and new approaches to addressing autoimmune diseases.

“The synergies between the immunological advances emanating from the HIV field to areas of autoimmunity, cancer immunotherapy and cardiac inflammatory disease continue to build,” Dr. Corey noted. “We should continue the momentum in HIV discovery medicine that has fueled such progress and benefited so many.”

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