

#IASONEVOICE

# Standing up for science

The support and investment of the United States has been responsible for some of the most groundbreaking and historic health milestones in the world. The National Institutes of Health (NIH) has led to highly effective treatments, such as of life-saving antiretroviral therapy and pre-exposure antiretroviral prophylaxis, turning a fatal infection into a chronic, manageable one in many places. Millions of lives have been saved by implementing those scientific advances through the US President's Emergency Plan for AIDS Relief (PEPFAR) and The Global Fund to Fight AIDS, Tuberculosis and Malaria, including the elimination of mother-to-child HIV transmission in several countries. These incredible achievements have positioned the US as a global leader in aspirational and innovative approaches to human health, garnering respect and gratitude from the world.

Today, potentially historic gains against HIV are within our grasp, including the possibilities of an HIV cure, a preventive vaccine and long-acting antiretroviral regimens. Yet, the US President's first budget proposal threatens to slash support for the necessary life-saving scientific research that would get us there. This is not the time to pull back, but to put our foot on the gas to advance research and scientific discovery, as well as the delivery platforms, systems, and partnerships to make the research meaningful to reach the people who need it.

To generate the tools we need to save lives and tackle the health issues we face today, the NIH needs to be secure in its funding to make new commitments for multi-year research grants. The proposed 18% cut to the NIH budget – which includes the elimination of the NIH's Fogarty International Center – would prevent the awarding of new grants and cripple important research endeavours. The budget savings from elimination of the Fogarty Center will be minimal – representing only 0.1% of the NIH budget – but the costs will be staggering, depriving the world of new generations of researchers who would undertake studies of vital importance.

To better understand the full ripple effects from the US funding cuts, we talked to three IAS Members and leading scientific researchers. Here is what they had to say...

**Ingrid Katz** is an assistant professor at Harvard Medical School and a physician-researcher based at Brigham and Women's Hospital in Boston, Massachusetts. Ingrid's research focuses on the social determinants of health behaviour among disenfranchised populations. She is currently studying factors impacting HIV treatment refusal in Soweto, South Africa.

*“What this would mean for me as a researcher is that, essentially, all the work that I do is going to stop in its tracks. Fogarty is really the glue globally for the NIH. It would mean the end of support for researchers in-country who are building up the infrastructure for research; it's the end of collaborations that have been built over decades. It's also the end of growing a new generation of researchers who are committed to global health. I really think the ripple effects of this are beyond what we can imagine.”*



You only have to look at HPTN 052 to see the impact of the massive NIH undertaking. When those results were released, we found out that, basically, anyone living with HIV who is on treatment and has their viral load suppressed can get to the point where they will not transmit the virus to their partner. This drove the World Health Organization to change its guidelines; it was really a game changer, and HPTN 052 was just one of the NIH studies that provided critical evidence for how we proceed in the work we do around HIV.

I think that when you have budget cuts like this, it discourages people from going into this field. You take any promising researcher out there, any recent graduate who might be interested in doing this work, and if they see that there is absolutely no opportunity, then they are not going to do it. They are going to go in a different direction, and so we will lose a generation of researchers. This is a challenging time to be a scientist or a researcher, and the environment is certainly not as hospitable as it used to be.

The NIH impacts all of us, not just those of us who are primarily focused on research, because to address such a huge issue as HIV, you need to come at it from different angles: policy, clinical work, research and programmatic. Everything is interrelated; so if one piece is completely removed, then the rest of the infrastructure can really fall apart. Whether you are a professional in Kansas or in Kisumu, we are all working in this together, and the NIH holds it all together.

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**Rochelle Walensky** is professor of medicine at Harvard Medical School and a practising infectious disease physician at Massachusetts General Hospital and Brigham and Women's Hospital. Rochelle's research interests focus on model-based analyses of the cost-effectiveness of HIV testing, care and prevention strategies to inform HIV/AIDS policy internationally and domestically.

This is unlike financing other diseases because this is a transmissible disease, and so the control that we have seen so far could really take a reverse course if we are not careful.

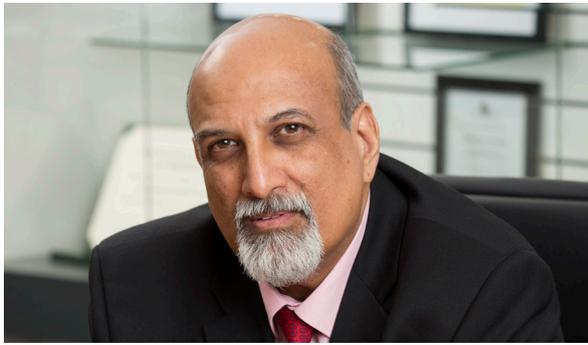
I think that the infrastructure that HIV has forced us to create and the attention that this disease has resulted in have led to benefits that are far beyond just HIV itself. There are many dimensions of HIV programmes; some are keeping patients alive, some are keeping parents alive so that these countries are not financing orphans, and some of it is for political and social stability. There are studies that have documented that the labour force is stronger in PEPFAR countries versus non-PEPFAR countries. Or, for example, that there is political stability and absence of violence in PEPFAR countries versus non-PEPFAR countries, or that there is more rule of law. It is not necessarily just about health; there is a lot of motivation around this to do it for the stability of nations.



*“In the HIV world, HPTN 052 demonstrated once and for all in a very large multisite, multi-country trial that was funded by the NIH: if we give treatment to people, their partners will not get infected. I was a beneficiary of NIH funds related to that trial, and we demonstrated that the intervention in some situations could actually save money and, in other situations, would be very cost effective in very resource-limited nations like India. With those studies, the guidelines changed. What we do in medicine for people, what we recommend, changed because of the results of those studies.”*

In the international health space, we know for certain that there will always be another infectious disease outbreak and that if we don't have either the clinical manpower or the research manpower to understand these diseases and keep them at bay, we are going to have many problems to come.

Airplanes move, diseases move, and I don't care how tall you want to build your wall; you're going to get diseases that cross it. We need people to understand these diseases, to understand how they are transmitted, and that requires study. If you can't understand diseases internationally, then you certainly will not understand them when they reach your homeland.



**Salim S Abdool Karim** is pro vice-chancellor for research at the University of KwaZulu-Natal in Durban, South Africa. He is also director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA), a professor at Columbia University, and an adjunct professor at Cornell University. A clinical infectious disease epidemiologist, Salim performed research on tuberculosis (TB) and HIV treatment that shaped the current therapeutic approach to treating co-infected patients.

CAPRISA was created through an NIH grant back in 2002 and it remains to this day the major source of our grants. Right from the start, the NIH set out to support scientific excellence in our research; with long-term studies on immune responses and natural history of acute HIV infection as well as substantial clinical trials that have impacted global policy.

At CAPRISA's inception, we initiated a study on how to treat patients with TB and HIV. We undertook a three-arm randomized controlled trial, which took nine years, and since we released the results in 2009, it has impacted on international policy and guidelines

on the treatment of HIV-TB co-infection. The results showed that we could reduce deaths by 56% by initiating antiretroviral therapy (ART) in an integrated manner with TB treatment. In today's world, a patient with TB and HIV being treated anywhere in the world is likely being treated to some extent based on our research results. The US government guidelines on how to treat patients with TB and HIV draws upon our research, and so in many ways, the research that we did in South Africa is the basis on which doctors are treating patients in the US with TB and HIV.

One of the biggest challenges we have in Africa right now is to reduce the number of new HIV infections. The research we are involved in regarding HIV vaccines and broadly neutralizing antibodies to prevent HIV is largely being driven by US global health funding through the NIH. If the US government decides to cut the NIH's budget by the proposed 18%, then those projects may be cut as they require long-term investments. It would be a huge setback in our efforts, and indeed everyone's efforts around the world, to find an HIV vaccine.

*“This is an attack not just on science, but it's undermining the very foundations of the ethos of medicine – to care for our fellow humankind, especially those less fortunate and in need of our help. The US government has a key role to fulfil in ensuring it continues its critically important financial support for global medical research that helps those most vulnerable in all nations, including the US.”*

