

# DISPATCHES FROM THE WAR ON SCIENCE

By Richard Jeffreys

Before the current president's inauguration, his embrace of extreme right-wing ideology and his tenuous relationship with truth, facts, and evidence—not to mention reality generally—were already well known, and this raised justifiable fears about how the incoming administration would approach the pursuit of science.

Warning signs appeared during the transition to this administration, when reports emerged that they were planning to establish a commission on vaccine safety led by a promoter of anti-vaccine misinformation and conspiracy theories. Only the widespread outrage generated by the news stymied the plan.

This early skirmish augured a pattern that is playing out repeatedly: The administration proposes or initiates policies aiming to devalue, undermine or damage scientific research and then advocates fight back, with varying degrees of success (see the Union of Concerned Scientists report on the first two years of the administration for a review of its many anti-science activities<sup>1</sup>).

High-profile examples include support for climate change denialism and the associated withdrawal from the Paris Climate Agreement, married with Orwellian efforts to scrub references to the issue from federal agency websites and other materials. Environmental protections are being rolled back without scientific basis.

The president's egregious ban on travel to the U.S. from several predominantly Muslim countries has affected scientists, some of whom found themselves unable to enter the country to take up appointments at U.S. research institutions. Foreign scientists have also been targeted due to paranoid espionage fears, with reports of people being ejected from the National Institutes of Health (NIH) campus for no valid reason<sup>2</sup> (NIH Director Francis Collins subsequently apologized for what he called "mishandled" security<sup>3</sup>).

Of direct relevance to HIV, hepatitis C virus (HCV), and tuberculosis (TB) research, the administration has proposed reducing funding for the NIH in every budget it has produced to date. Most recently, the White House submitted a FY2020 budget cutting HIV research by 13.9%, with the largest decrease, 16.4%, reserved for the relatively small cure research funding line. At around the same time, the current occupant of the White House was proudly tweeting news about two people who were possibly cured of HIV infection by stem cell transplants, as if he were due some credit.

In fact, the research related to the new HIV cure cases occurred in Europe and received significant funding from the U.S.-based nonprofit organization amfAR. Yet amfAR and other science-supporting charities will almost certainly be hurt by another destructive administration intervention: the change to the tax code to eliminate deductions for charitable donations.

HIV research has also been hit by a recent administration move to reject long-established scientific processes in favor of the priorities of anti-abortion ideologues. There is a long history of the use of fetal tissue in scientific research, which occurs within a rigorous ethical framework. Of particular importance to HIV treatment, cure, and prevention research, transplantation of fetal cells is the best approach for creating mice with immune systems made up of human cells (humanized mice). Because HIV cannot infect mouse cells, humanized mice represent the only small-animal model for evaluating candidate interventions.<sup>4</sup>

Research involving fetal tissue is now banned at the NIH, and any funding for external scientists is subject to a new review process that is likely to curtail most, if not all, further studies in the U.S. Funding to some existing grantees has already been stopped, ending ongoing projects, including work related to developing an HIV cure.

The Guardian | 26 JULY 2019

## War on science: Trump administration muzzles climate experts, critics say

NATURE • 26 JUNE 2017

## Scientists in limbo as US Supreme Court allows modified travel ban

The Washington Post | APRIL 3, 2019

## NIH police yank Iranian graduate student from lab as agency clamps down on security

NATURE • 11 MARCH 2019

## Trump seeks big cuts to science funding—again

NATURE • 17 JANUARY 2017

## Trump's vaccine-commission idea is biased and dangerous

The Washington Post | JUNE 5, 2019

## New restriction on fetal tissue research 'was the president's decision'

STAT+ | DECEMBER 9 2018

## HIV research halted after NIH freezes acquisition of fetal tissue

The administration's attempts to reduce and interfere with research funding come at a time of major advances on multiple fronts. The HIV field has been transformed by the advent of treatment as prevention, undetectable=untransmittable (U=U), and pre-exposure prophylaxis (PrEP). In HCV, the advent of direct-acting antivirals has largely consigned unwieldy and often toxic interferon-based regimens to history. TB, a disease for which decades saw almost no biomedical innovation, finally has new prevention and treatment options and promising vaccine candidates.

These advances are opportunities to build on—not a reason to defund and derail research.

Thankfully, the U.S. House of Representatives has rejected the administration's proposed FY2020 NIH funding cuts, replacing them with increases and even inserting language requiring that HIV research support grow by the same proportion as the overall NIH budget. The latest draft Senate FY2020 budget language also significantly increases NIH funding levels and HIV programming, but the bill has been delayed by ongoing debates over abortion rights, family planning, and the so-called Mexico City gag rule preventing U.S. funding for international health programs that inform people about reproductive health.

As we move toward the 2020 election, it's vital to call on all candidates—including the incumbent—to reject all anti-science machinations and prioritize support for scientific research and evidence-based policies.

\* After this article went to press, the National Task Force on Rule of Law and Democracy issued a report on curbing political interference in government science, available online at: <https://www.brennancenter.org/our-work/policy-solutions/proposals-reform-volume-ii-national-task-force-rule-law-democracy>

### Notes

1. Union of Concerned Scientists. The State of Science in the Trump Era (2019). Cambridge, MA: Union of Concerned Scientists; January 2019. <https://www.ucsusa.org/center-science-and-democracy/state-of-science-trump-era>
2. Bernstein L, Sun LH, Rein L. "NIH Police Yank Iranian Graduate Student from Lab as Agency Clamps Down on Security." The Washington Post [Internet]. 2019 April 3. Available from: [https://www.washingtonpost.com/national/health-science/nih-police-yank-iranian-graduate-student-from-lab-as-agency-clamps-down-on-security/2019/04/03/79f98bca-555a-11e9-8ef3-fbd41a2ce4d5\\_story.html](https://www.washingtonpost.com/national/health-science/nih-police-yank-iranian-graduate-student-from-lab-as-agency-clamps-down-on-security/2019/04/03/79f98bca-555a-11e9-8ef3-fbd41a2ce4d5_story.html)
3. Sun LH, Bernstein L. "NIH Director Apologizes for 'Mishandled' Security that Blocked Iranian Scientists." The Washington Post [Internet]. 2019 April 5. Available from: <https://www.washingtonpost.com/health/2019/04/05/nih-director-apologizes-security-measures-that-blocked-iranian-scientists/>
4. Allen TM, Brehm MA, Bridges S, et al. Humanized immune system mouse models: progress, challenges and opportunities. Nat Immunol. 2019 Jul;20(7):770–4. doi: 10.1038/s41590-019-0416-z.