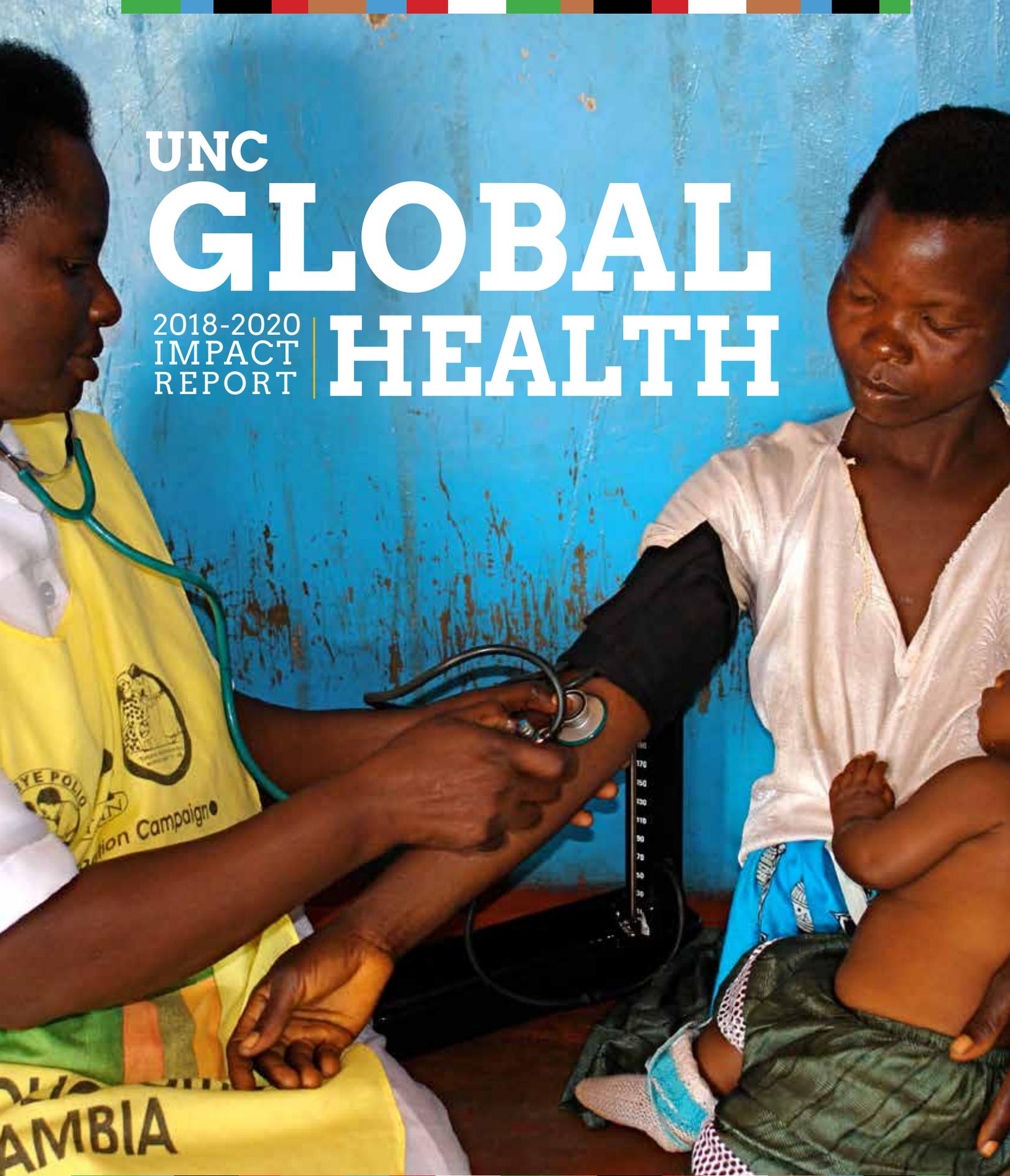


UNC

# GLOBAL

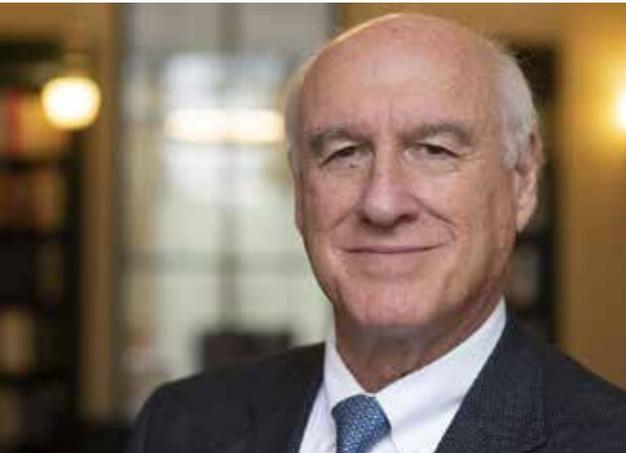
2018-2020  
IMPACT  
REPORT

# HEALTH



From our director:

# As our faculty work to mitigate COVID-19, the pandemic highlights our critical role



## Institute Leadership

**Myron Cohen, MD**

*Director*

**Peggy Bentley, PhD**

*Associate Director for Education*

**Jeff Stringer, MD**

*Associate Director for Research*

**Irving Hoffman, PA, MPH**

*Director of International Operations*

**Clare Barrington, PhD**

*Latin America Programs Director*

**Anthony Charles, MD, MPH**

*Director of Global Surgery*

**Amanda Corbett, PharmD**

*Global Pharmacology Coordinator*

**Jonathan Juliano, MD**

*Associate Director*

**Yuri Fedoriw, MD**

*Global Cancer Pathology Director*

**William Fischer, MD**

*Director of Emerging Pathogens*

**Michael Herce, MD, MPH, MSc**

*Associate Director of Operations*

**Joseph Tucker, MD, PhD, MA**

*China Projects Director*

**Robin Criffield, BA**

*Program Administrator*

**Diana Stanley, MSPH**

*Administrative Director for Research & Compliance*

As of mid-June 2020, 8 million people have acquired COVID-19 and more than 430,000 have died. Sadly, this tragic pandemic highlights the critical nature of our work at the Institute for Global Health and Infectious Diseases. My colleagues and I have been helping University of North Carolina leaders these last few months as they grapple with the virus. Drawing on our experiences in detecting and managing emerging pathogens, from HIV to Ebola to SARS-CoV-2, we have worked to create isolation and quarantine guidelines, design and staff testing sites and other facilities, launch research studies, and more.

Our faculty have faced similar challenges around the globe. In Malawi and China and Zambia, we have opened clinics, tested for disease, and launched prevention programs. We are steeped in a culture of collaboration. Successfully working together across health science disciplines for many years has allowed our cross campus faculty to join forces immediately this spring to develop the best treatment algorithms. Virologists and immunologists joined clinical research faculty, pivoting from their work on HIV and other diseases to develop trials of potential COVID-19 treatments and vaccines.

Thirty years ago, we started working in Malawi. We were answering HIV questions that were critical to Malawians and important to the world. We saw quickly that in addition to conducting our research, we needed to translate our discoveries into health improvements for the local population and to make the most of educational opportunities for locals as well as University trainees. Instead of so-called “parachute research” — learning what we needed and then leaving — we found that the most enduring scientific successes are realized only through mutually beneficial partnerships. We have honed this model as we’ve opened more sites in Africa, Asia, and Central America. Decades later, we are proud to have built deep, bilateral partnerships with lifelong friends.

When COVID-19 broke out in China, our partners discussed their plans for treatment, the ethical requirements of this work, and more. As the virus reached the U.S. and later Africa, our Chinese collaborators offered us advice based on their experience as well as shipments of much-needed masks, gowns, and gloves for our sites worldwide.

As the most severe pandemic of our lifetime, COVID-19 evokes great fear because it is so highly transmissible and unpredictably fatal. Like firemen running into a fire, we have no choice but to fight this epidemic until it is resolved. We at UNC hope to make important and unique contributions to prevention of COVID-19 on our campus, in our community, and around the world.

*Myron S. Cohen, MD*

Director, Institute for Global Health & Infectious Diseases

# BY THE NUMBERS

## Impact of UNC's Institute for Global Health and Infectious Diseases



**572**

Active projects ongoing at 20 sites on 4 continents



**\$97.7M**

Research funding, FY '19, 2nd largest funding generated at UNC



**#1**

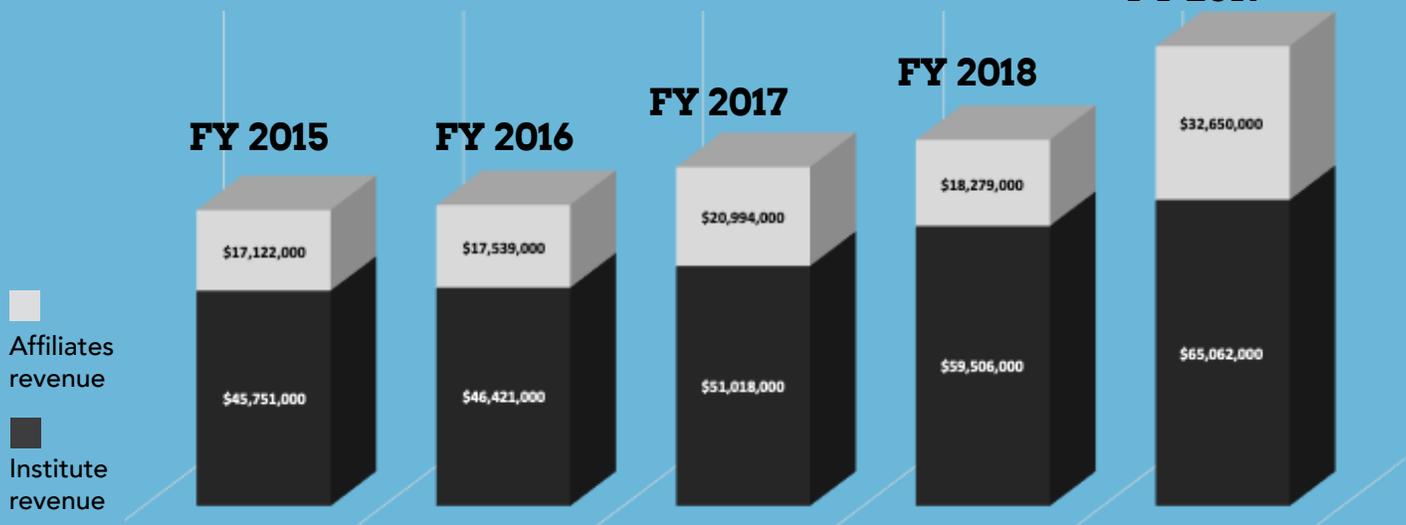
Myron Cohen is top NIH-funded researcher; UNC is 6th public university for NIH funding



**440+**

Journal articles published in last two years

**FY 2019**



**Track record of funding growth, grants and renewals**



**top 1%**

5 researchers named most cited by Thomson Reuters: Ralph Baric, Myron Cohen, Joseph Eron, Aravinda de Silva, David Margolis



**267**

Trainees working globally in clinics & labs with local mentors and UNC faculty



**4th**

Elsevier ranking of most influential institutions globally in HIV/AIDS research



**#1**

Highest ranked university globally for coronavirus research, by Microsoft Academic

# Our global impact: Growing p

● = original flagship sites

● = additional global sites

## North Carolina

The Institute for Global Health and Infectious Diseases counts hundreds of faculty working in UNC's Schools of Medicine, Public Health, Nursing, Dentistry, Pharmacy and others across the campus. Our Chapel Hill team is recognized globally for its research and clinical experience in HIV treatment, prevention and cure among other diseases.

## Nicaragua

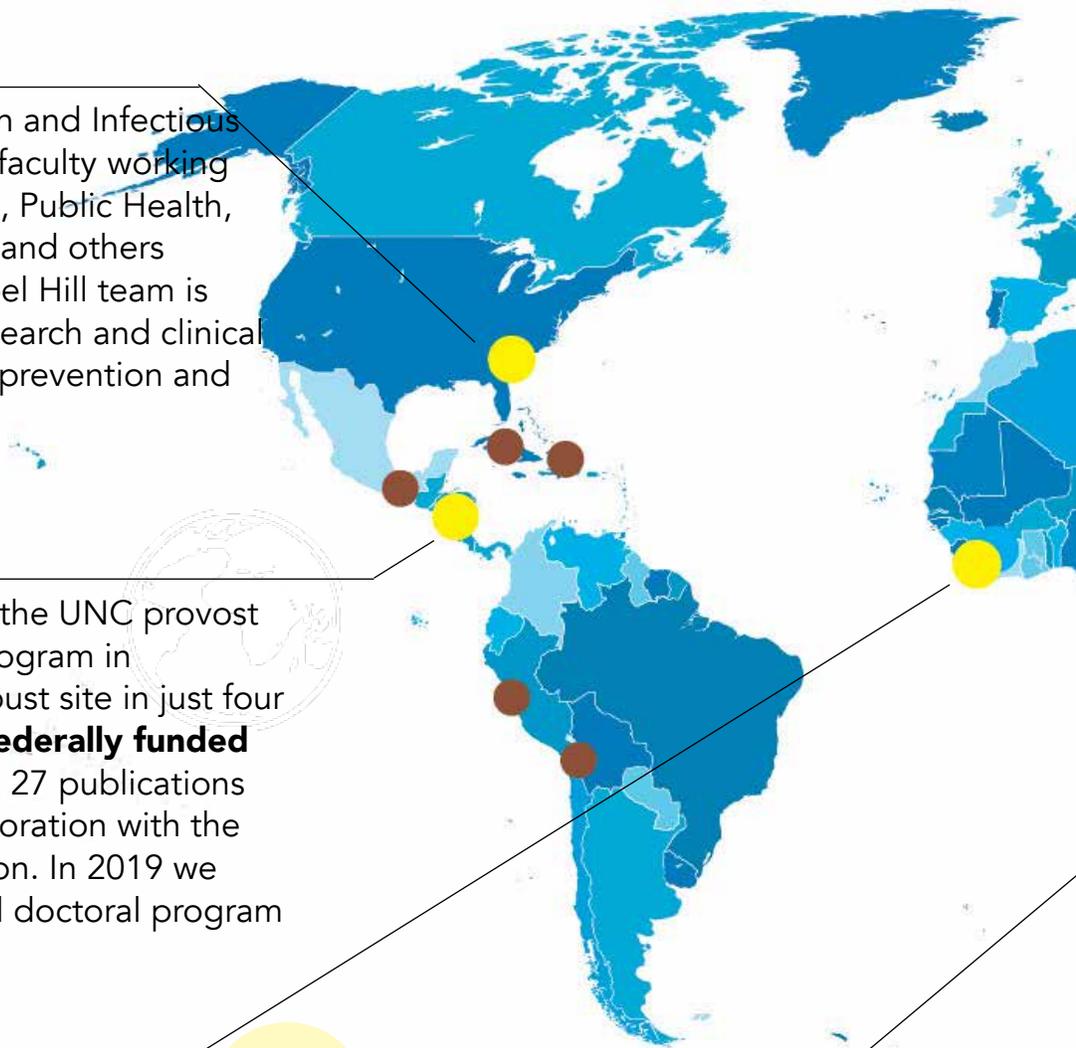
Thanks to seed funding from the UNC provost office for pilot studies, our program in Nicaragua has grown to a robust site in just four years. We're running **seven federally funded awards totaling \$11 million**; 27 publications have resulted from our collaboration with the University of Nicaragua at Leon. In 2019 we established a new biomedical doctoral program at the University.

## Liberia

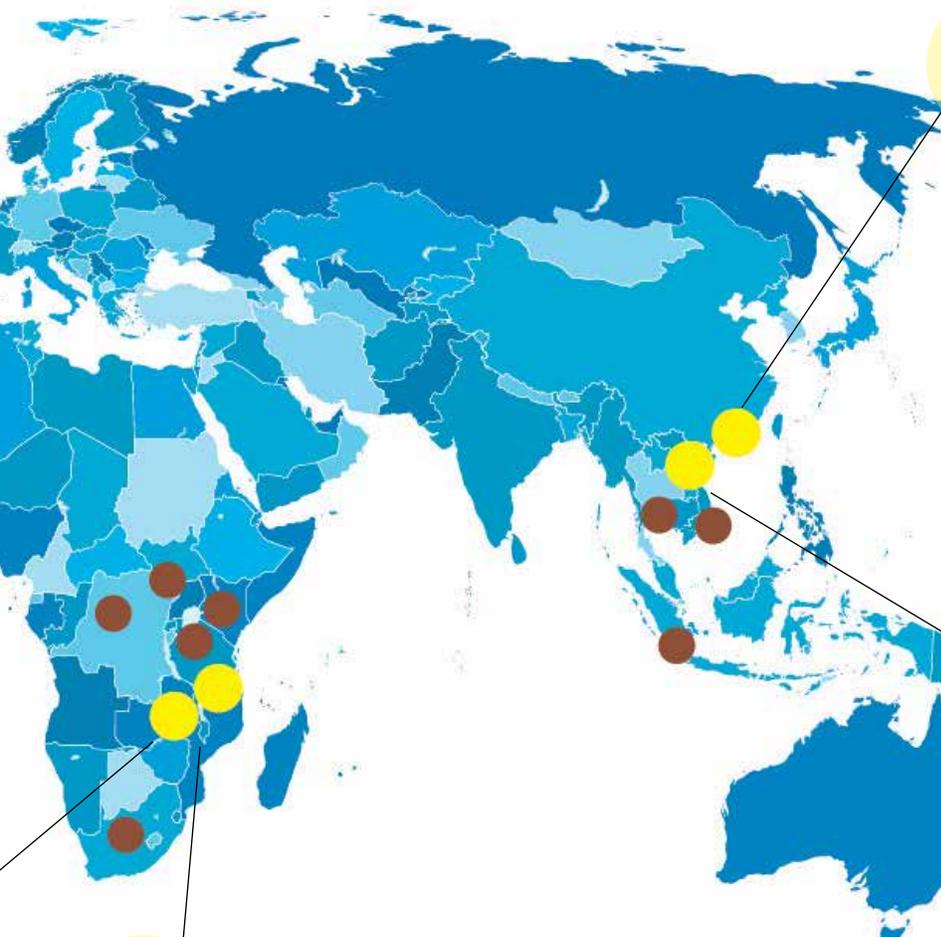
Four years since establishing our site in the wake of the Ebola outbreak, we have built a solid platform for emerging pathogen research. We have garnered **over \$11 million in support** from the National Institutes of Health, Bill & Melinda Gates Foundation, Coalition for Epidemic Preparedness Innovations and others. We have built two clinical research sites, solidifying our presence in a resource-limited country and expanding our capacity to treat and study emerging diseases.

## Zambia

Since its creation in 2012, researchers leading our Zambia site have raised **\$112 million**, with a research focus on resource-appropriate technologies to make pregnancy safer in the world's poorest countries. Members of UNC's Division of Global Women's Health manage the site and have built strong relationships with the Zambian Ministry of Health and University of Zambia. UNC Project-Zambia employs **143 Zambians and manages 21 active projects**. Two faculty members and three fellows live in the country.



# Partners, speeding discoveries



## China

Our productivity in the last four years includes **\$8.5 million in research support** along with 111 peer-reviewed publications and 76 research abstracts. Our innovations in crowd-sourcing have helped inform several WHO guidelines and led to the development of a global guide. Our collaborative research has cemented **relationships with 10 institutes.**

## Vietnam

Our work here began in 2013 to help address and learn from the country's rapid increase in injected drug use and a spike in HIV. **Fourteen local staff** oversee two NIH grants on HIV interventions. After upgrading our clinical, lab, and pharmacy capacity, we were **approved as an HPTN site** in 2017 and have since become a study site for a U.S. National Institute on Drug Abuse's REDART.

## Malawi

UNC Project-Malawi was established over 25 years ago as the Institute's flagship site with a focus on the global AIDS epidemic. The site has grown from a staff of three working out of a closet to employing more than **400 local health professional and staff** and generating more than \$15 million annually in research support. Our work here is recognized as a model in global research, training, and patient care for everything from HIV, cancer, malaria and sickle cell to women's health, adolescent health, and surgery and burn care. In 2018 our **125 published manuscripts included 26 local first-time authors.**

Learn more: [globalhealth.unc.edu](http://globalhealth.unc.edu)

# Works in progress

## Research highlights, 2018-2020

How malaria parasite evades rapid test detection. *Jonathan Parr, Jonathan Juliano*

Development of syphilis vaccine in partnership with Duke, U. of Connecticut, Masaryk U. in Czech Republic and Southern Medical U. in China. *Arlene Sena, Jonathan Parr*

Revealing and reactivating latent HIV virus, pointing to developing a cure. *David Margolis*

Creating a long-acting drug delivery system to prevent HIV transmission. *J. Victor Garcia*

Improving treatment and survival of teens with lymphoma (*Katherine Westmoreland*) and studying rituximab for Castleman Disease (*Matthew Painschab*). They each won 2019 Fogarty research development funding for studies in Malawi, rarely awarded to two people at same site.

Improving pregnancy outcomes in Zambia and South Africa using wearable technology. *Jeff Stringer*

Reading slides from Malawi and Zambia on specialized microscopes in Chapel Hill. *Yuri Fedoriv*

Studying the safety and efficacy of antibodies in preventing HIV infection in high-risk women in Africa. *Myron Cohen with Larry Corey, HVTN*

New and ongoing studies of anti-microbial resistance and immunocompromised hosts. *David van Duin*

read more: [globalhealth.unc.edu/research-highlights](https://globalhealth.unc.edu/research-highlights)



## COVID-19: Rapid innovation

UNC's global health and infectious diseases community has responded remarkably to the challenges of the COVID-19 pandemic. Many of our physicians have been deployed to patient care and to advise the university and UNC Health administrators as well as county, state, and federal leaders.

Researchers quickly pivoted to focus on SARS-CoV-2, from developing a test that immediately improved UNC Health's capacity to diagnose patients to exploring potential treatments and vaccines. Faculty with extensive knowledge of viral infections, epidemiology, and critical care medicine are leading regional and national efforts to fight COVID-19.

The decades-long work by epidemiologist **Ralph Baric, PhD**, on coronaviruses guides much of our work. Baric and his team of researchers are working on model development and identifying antivirals and vaccine formulations. The use of remdesivir, an antiviral drug that the lab has studied in recent years, was accelerated in April 2020 when early tests showed it shortened hospitalization for COVID-19. The UNC team is developing a clinical trial of a second drug also evaluated in Baric's lab.

Another group is collecting plasma from recovered COVID-19 patients to test its potential to help current patients. **Luther Bartelt, MD**, and **David Margolis, MD**, are drawing on the experience working with convalescent plasma during the SARS outbreak in 2002-2003 and the Ebola epidemic of 2013-2014.

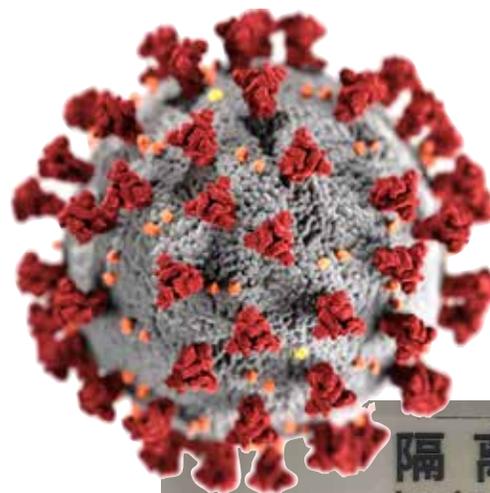
Other innovations:

- **David Wohl, MD**, helped lead local testing strategies including establishing a temporary site on UNC's campus, where they have tested an average of 80-100 North Carolinians daily since March 2020.



## ons, response thanks to global experience

- William Fischer, MD, was deployed by the World Health Organization to Switzerland, Azerbaijan, and South Korea to study COVID-19 hospitalization.
- HIV Cure Center investigators led by David Margolis, MD, have launched clinical trials on potential COVID-19 treatments.
- Ross Boyce, MD, and Allison Aiello, PhD, are working with the State of North Carolina to study cases of COVID-19 with mild or no symptoms and to monitor the prevalence of the disease over time.
- Angela Wahl, PhD; Martina Kovarova, PhD; and J. Victor Garcia, PhD developed a universal in vivo model for evaluating zoonotic transmission of coronaviruses into humans. Lisa Gralinski, PhD with UNC's Baric Laboratory is deploying the model to evaluate prevention strategies, immune responses during acute infection, and possible direct transmission of new viruses from bats to human.
- Myron Cohen, MD, serves on the National Institutes of Health's ACTIV Committee, a public-private partnership organizing COVID-19 research. And as an executive committee member of NIAID's COVID Prevention Network, Cohen leads research on the use of monoclonal antibodies for the prevention and early treatment of COVID-19.



Photos, clockwise from top left: Ralph Baric's lab led the study of remdesivir, an antiviral that speeds recovery from SARS-CoV-2; drive-through COVID-19 testing site on UNC-Chapel Hill campus; CNN's Brooke Baldwin interviewed Institute Director Myron Cohen on February 7, 2020, as the first U.S. case was confirmed; a SARS-CoV-2 cell; Linghua Li, a former postdoctoral researcher at UNC, in Eighth People's Hospital in Guangzhou, China in March 2020.



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## EDUCATION

Cultivating our next global health leaders.



## SERVICE

Reducing the burden of disease worldwide.

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