

# 2018

## YEAR IN REVIEW



JOHNS HOPKINS  
CENTER FOR CLINICAL  
GLOBAL HEALTH EDUCATION

DIVISION OF INFECTIOUS DISEASES | DEPARTMENT OF MEDICINE  
JOHNS HOPKINS SCHOOL OF MEDICINE  
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# 2018

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# 2018 DIRECTORS' MESSAGE

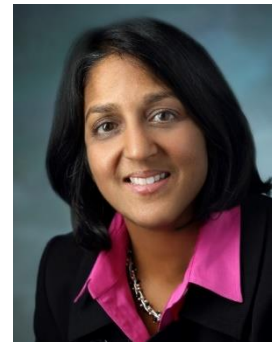
Dear Friends and Colleagues,

By traditional academic measures, 2018 was busy year; 114 studies were active, we delivered 53 presentations, and we published 59 papers. The growth is exciting (if sometimes a little painful).

We have remained steadfast in our focus to address the top global health priorities. In fact, the World Health Organization recently named the list of top 10 Threats to Global Health for 2019, and CCGHE's research, education, and mobile health technology work has addressed all but one of the health challenges named by WHO. Our active work is addressing 5 of the priorities. We are confident that during a period of growth, we have maintained a focus that is well aligned with what the world needs.

2018 saw the end of our long-standing Fogarty HIV and tuberculosis training program in India, which was not funded for another cycle. Over the years we have provided research training and mentorship to more than 150 Indian clinician scientists, with our most recent program including 20 Indian clinicians. We remain committed to building infectious disease research capacity and are actively seeking support to continue this important focus. While our Fogarty-funded work in India ended, we embarked on an exciting new Fogarty training initiative in Uganda in collaboration with Makerere University and the Rakai Health Sciences Program. Twenty-two trainees will be involved in implementation science, geospatial analysis/infectious disease dynamics, and virology/immunology/HIV cure.

We remain grateful to Johns Hopkins University leadership for their support of our work around the world—in India, in Uganda, in Venezuela, in our home city of Baltimore, and points in between. And we are immensely thankful for our funders and supporters—particularly to Raj and Kamla Gupta of the Ujala Foundation of Newtown Square, Pennsylvania, and to David Haas of the Wyncote Foundation. Their sustained commitment to global health is inspiring, and the trust they place in us to improve patient outcomes in resource limited communities around the world is humbling.



Bob Bollinger, MD, MPH  
Director  
Raj & Kamla Gupta Professor  
of Infectious Diseases

Amita Gupta, MD, MHS  
Deputy Director  
Professor of Medicine &  
Public Health

Jane McKenzie-White, MAS, MEd  
Director of Education Technology &  
Design  
Managing Director



## MISSION

In everything we do, our aim is to improve health outcomes for people living in resource limited communities through infectious disease research and education

## APPROACH

- Conduct clinical research to prevent and treat many of the world's gravest health issues
- Develop high quality medical education and research training for care providers and health researchers around the world
- Design and leverage innovative technologies that improve clinical care
- Mentor in-country professionals and Johns Hopkins students to become leaders in clinical research

## PRIORITIES

Tuberculosis and HIV prevention, diagnosis, and treatment, and diseases and conditions that complicate treatment

Alcohol, Drug, & Tobacco Use  
Antimicrobial Resistance  
Anxiety  
Breastfeeding Promotion  
Cancer  
Cardiovascular Disease  
Depression

Diabetes  
Disease Diagnostics  
Environmental Pollutants  
Genomics  
Healthcare Access & Patient Retention  
Meningitis  
Metabolomics

Microbiomics  
Immune Changes during Pregnancy  
Research Training & Mentorship  
Sepsis  
Transcriptomics  
Treatment Adherence  
Vector Borne Diseases

# EXPERTISE

Infectious Diseases

Internal Medicine

Microbiology

Immunology

Pharmacology

Immigrant & Minority Health

Clinical Investigation

Decision Analysis

Medical Anthropology

Biostatistics

Gynecology & Obstetrics

Pediatrics

Global Health

Sexual & Reproductive Health

Mental & Behavioral Health

Epidemiology

Environmental Health Science

Community Health

Instructional Design

Curriculum Development

Learning Assessment

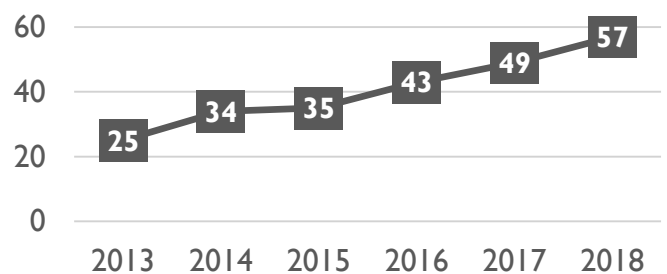
Online Course Platforms

Mobile Health Technology

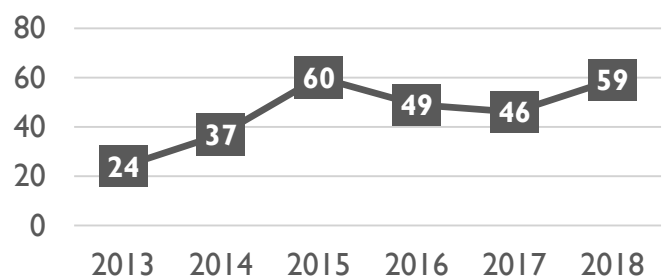
Clinical Trial Monitoring  
& Regulatory Compliance

# 2018

## PEER REVIEWED PUBLICATIONS



## PRESENTATIONS



**203**  
PEOPLE

**5700**  
PREGNANT WOMEN SCREENED  
FOR HIV AT BJGMC

**19**  
MEDIA PLACEMENTS

**3**  
INTERNATIONAL RESEARCH  
CONSORTIA MEMBERSHIPS

**114**  
ACTIVE STUDIES

**32**  
ACTIVE GRANTS & CONTRACTS





# TUBERCULOSIS RESEARCH

Our bilateral team is renowned for its work on tuberculosis disease prevention, diagnosis, and treatment—from biomarker to bedside.

## How Do We Prevent People from Getting TB?

- What are risk factors for getting TB?
- What biomarkers signal a progression from latent, non-symptomatic TB to active, contagious disease?
- What factors place household contacts of TB patients at risk for getting TB?
- How do we keep healthcare workers safe from acquiring TB from their patients?
- How do we prevent transmission of disease from mothers to infants?
- Does a new vaccine show potential for replacing the current 100 year old vaccine?

## HIGHLIGHTED FINDINGS

Kerosene cooking fuel is associated with TB in women and small children, who spend the most time in the home

Significant knowledge and practice gaps exist in internal medicine residents' abilities to diagnose tuberculosis

There is a high incidence of drug-induced liver failure among people being treated for TB and HIV coinfection with isoniazid preventive therapy and antiretroviral therapy. Closer monitoring of severely immunosuppressed patients is needed

Current guidelines call for evaluation of household contacts of individuals with multidrug-resistant tuberculosis; however, the policy is too labor intensive to implement

Observation of TB patients taking medication via video may allow for a higher proportion of prescribed TB treatment doses to be observed, and be more economical, than therapy observed in person

Having tuberculosis and diabetes lowers the response to the TB drug pyrazinamide, but not to rifampin or isoniazid

## How Can We Get Quicker and More Accurate Diagnoses that Help Patients Get Treated Earlier?

- What are the best approaches for screening complex populations, such as children and pregnant women who suffer more severe disease and greater mortality?
- Out of many diagnostic test options, which ones deliver accurate results in the least amount of time?
- What assays can swiftly predict drug resistance?
- Are there diagnostic methods that deliver accurate results and are less costly for use in resource-limited countries?

## What Factors Compromise or Complicate Treatment?

- How does comorbidity with HIV, alcohol use, and diabetes complicate TB treatment?
- What is the role of inflammation in disease severity?
- How do vitamin deficiencies and malnutrition affect immunity and treatment?
- What environmental health factors contribute to and worsen disease?
- What are the mental health effects of disease and how can we support patients during treatment?
- What role does pregnancy play in more severe disease?
- Are current therapies that are recommended for children, adolescents, and pregnant women safe and effective for them just because they are safe and effective in the general population?
- How can we measure treatment toxicity and response in complex populations?

## Can Treatment Be More Effective and Easier for Patients to Take?

- What therapies can replace current regimens that are highly toxic and administered over prolonged period of time?
- What therapies can be safely and effectively administered to complex populations, including children and pregnant women?
- How can we ease the devastating affects of TB among those with HIV and other immunocompromised conditions?
- What mobile health technologies are effective at keeping patients engaged in care?
- How can our research outpace the growing problem of multi-drug resistance?



## HIV RESEARCH

Our Indo-JHU partnership operates a clinical research site for two of the world's largest international HIV research networks, and is among the leaders in participant enrollments. Our Uganda partnership is well regarded internationally for community-based health strategies that refer HIV+ patients into care quicker and maintain continuous care. Our work with Baltimore's Latino immigrant population ensures that people have access to HIV care, regardless of immigration status.

### How Do We Prevent People from Getting HIV?

- What factors put a person at risk for acquiring HIV?
- What community-based strategies are effective in helping people make healthy decisions and preventing HIV infection?

### What Factors Compromise or Complicate Treatment?

- What other diseases is HIV a risk factor for?
- How does coinfection with tuberculosis affect HIV treatment?
- What is the role of inflammation in disease severity?
- How does poor nutrition affect immunity and treatment?
- What environmental health factors contribute to, and worsen, disease?
- What are the mental health effects of disease and how can we support patients during treatment?
- What effect does migration have on HIV acquisition and access to care?
- What role does pregnancy play in more severe disease?
- How do we prevent transmission from mother to infant?

### How Can Treatment Be More Effective and Easier for Patients to Take?

- Are current therapies that are recommended for complex populations—such as children, adolescents, and pregnant women—safe and effective for them just because they are safe and effective in the general population?
- How can we measure treatment response in complex populations?
- What role can mobile health technology play in helping providers make treatment decisions and in keeping patients engaged in care?

## 2018 HIGHLIGHTED FINDINGS

US immigration enforcement jeopardizes link to HIV treatment among Latinx migrants in deportation proceedings

Community Outreach Workers in India experience significant economic, personal, and social barriers and feel ill-equipped to deliver care to HIV+ pregnant and breastfeeding mothers and infants

There is an increased risk for HIV infection within the first 2 years of migration in Sub-Saharan Africa; prevention programs focusing on migrants are needed

One-third of HIV+ adolescents in our study discontinued medical treatment, indicating a critical need for counselling and closer monitoring

Both maternal antiretroviral therapy and infant nevirapine prophylaxis are safe and are associated with low HIV transmission via breastfeeding and high infant survival at 24 months



# ANTIMICROBIAL RESISTANCE RESEARCH

Mounting resistance to first and second line drugs is one of the most critical issues in our fight against infectious diseases. Our research defines the problem and offers practical solutions to mitigate risks to patients.

## What is the burden of antimicrobial resistance?

- How does AMR affect patients in the regions in which we work?
- How does AMR prolong recovery?
- What therapies are no longer effective for infectious diseases, and what are the most effective options available?
- What are the major causes of sepsis and how do they differ by region?

## How do we address the growing threat of resistance?

- What are the risk factors for improper antibiotic prescription and usage?
- What healthcare practices mitigate risk of hospital-acquired infection?
- Are there diagnostic methods that are effective and more economical for use in resource-limited countries?

## How can we more quickly identify drug resistant disease?

- What are the most common causes of fever?
- What disease mutations are known predictors of drug resistance?
- What are the most telling microbial markers of treatment response?
- What diagnostic tests can more swiftly confirm cause of fever and thereby limit use of antibiotics for syndromes that don't warrant their use?

## HIGHLIGHTED FINDINGS 2018

In one of the largest studies in a LMIC, we found that multidrug-resistant bacterial infections are a significant problem, and that there are variations in resistance and mortality that are different than in high income countries

Patients in India who receive 3<sup>rd</sup> generation cephalosporin antibiotics and are admitted to the ICU develop drug-resistant *Enterobacteriaceae* very quickly

Multiplex PCR test found to be most sensitive and specific in detecting AmpC beta-lactamase production, which mediates resistance against a class of broad spectrum antibiotics used for high-risk bacteria including *Enterobacteriaceae*

Causes of acute and fatal fever in India are varied and seasonal; strategies adapted for season and age could yield quicker and more accurate diagnoses



# 2018

## UJALA SCHOLARS

The Ujala Foundation of Newtown Square, Pennsylvania, supports research and leadership training for Johns Hopkins junior faculty whose work improves health outcomes for patient in India.



### ROW 1

Akshay Gupte, PhD, Junior Investigator. Host directed adjuvant TB therapies; impact of TB and HIV on lung health of populations

Jeffrey Tornheim, MD, MPH, Assistant Professor. New diagnostic technologies for adult and pediatric MDR-TB patients in India

Vidya Mave, MD, MPH, Assistant Professor. TB comorbidities (diabetes, HIV) and novel tools (hair PK, whole genome sequencing, host biomarkers) to study TB treatment outcomes

### ROW 2

Matt Murrill, PhD, Medical Student. Treatment retention and quality of life of patients with drug-resistant tuberculosis in India

Nishi Suryavanshi, PhD, Research Associate. Women's empowerment, reproductive health, and HIV & TB in clinical settings, and in urban, rural, community settings

Matt Robinson, MD, Assistant Professor. Diagnosis of acute febrile illness, and implication on antimicrobial stewardship and resistance

### ROW 3

Rupak Shivakoti, PhD, MSPH, Assistant Professor. Inflammation in HIV and TB outcomes in adult and maternal-infant populations; nutrition, gut microbiome and inflammation

Jyoti Mathad, MD, MSc, Assistant Professor. Immune changes of pregnancy and how they affect the development of TB

Nikhil Gupte, PhD, Research Associate. Research data analysis and biostatistics

# 2018

## WYNCOTE PROGRAM

The Wyncote Foundation of Philadelphia, Pennsylvania, supports development of junior faculty working on novel approaches to address clinical and epidemiological research questions. The Foundation also supports development of education content and communications that contribute to public awareness of scientific progress.

### ROW 1

Natasha Chida, MD, MSPH, Assistant Professor. Curriculum development and medical education to improve patient outcomes both domestically and abroad

Jeffrey Tornheim, MD, MPH, Assistant Professor. New diagnostic technologies for adult and pediatric MDR-TB patients in India

### ROW 2

Matt Robinson, MD, Assistant Professor. Diagnosis of acute febrile illness, and implication on antimicrobial stewardship and resistance

Matt Murrill, PhD, MD Student. Treatment retention and quality of life of patients with drug-resistant tuberculosis in India

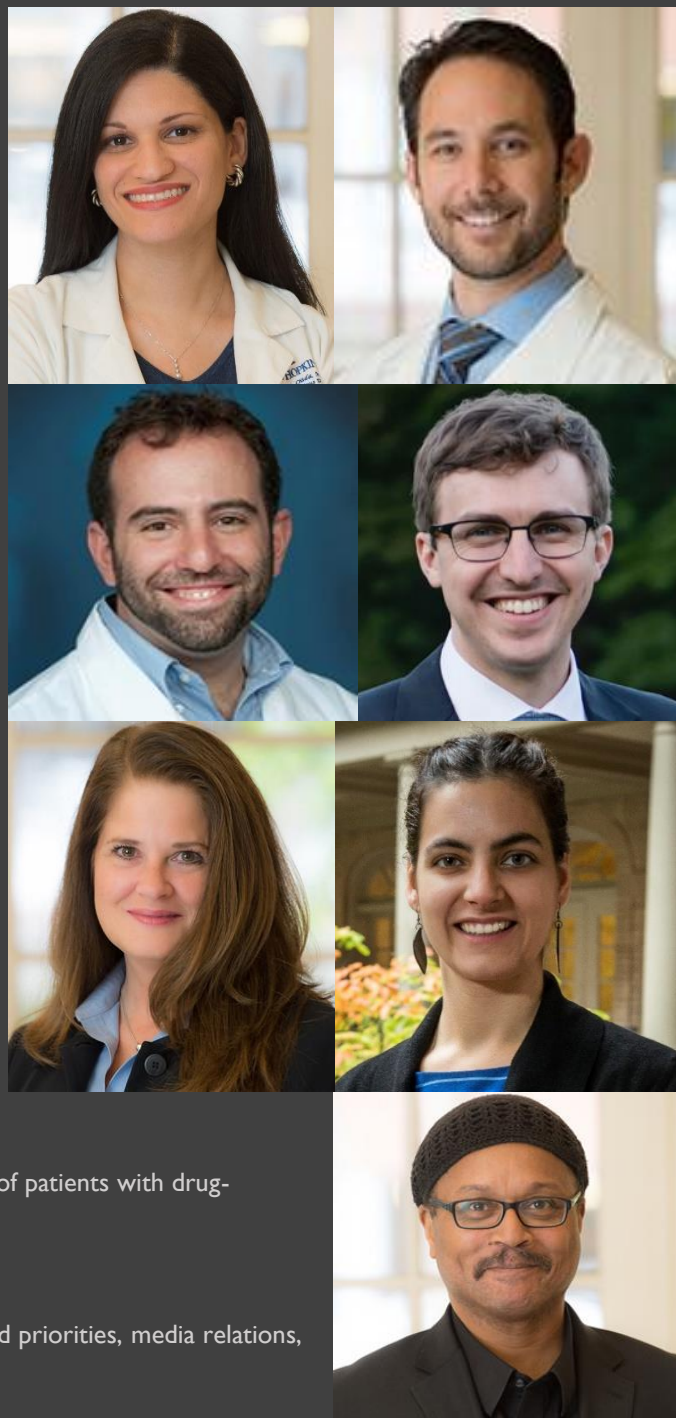
### ROW 3

Molly Bowen. Communications Associate. Communications strategy and priorities, media relations, content development, website management

Samyra Cox, MPH, Research Program Manager. Indo-JHU TB project management

### ROW 4

Matt Williams. Multimedia Specialist. Live event broadcasting and website production



# 2018

## RESEARCH TRAINEES & FIELD PLACEMENTS

### Lubaina Arsiwala

Dr. Arsiwala is a Johns Hopkins Masters of Health Science student with a Bachelor in Dental Survey from DY Patil University School of Dentistry, Navi Mumbai, India. Lubaina is working with Drs. Amita Gupta and Matt Robinson and conducted a field study to BJGMC from June to August 2018 in support of ongoing studies, including “Antimicrobial Use and Diagnosis among Hospitalized Febrile Patients in Pune, India” and “Prevalence and Risk Factors for Oral Cancer among HIV-Infected Adults.” Her trip was through the Johns Hopkins Global Health Established Field Placement (GHEFP) program.



### Puja Chebrolu

Dr. Chebrolu is an internal medicine physician and a Cornell Global Health Research Fellow. She is working with Drs. Jyoti Mathad and Mallika Alexander at BJGMC primarily to study gestational diabetes within the PRACHITI cohort. She will be working with BJMC over the next 3 years and plans to study diabetes in other study populations as well.



### Spruha Kurlekar

Ms. Kurlekar is a final year MBBS student in Seth G.S. Medical College and KEM Hospital, Mumbai. In summer 2018, she conducted a research elective at Johns Hopkins School of Medicine in Baltimore, where she worked with Dr. Matt Robinson on antimicrobial resistance in India. She intends to pursue further education in the field of internal medicine.



### Nicky Mehtani

Dr. Mehtani is a second year internal medicine resident at Johns Hopkins Hospital. As a medical student at Johns Hopkins University, she worked with Dr. Kathleen Page in 2015-2016, analyzing Baltimore City STI surveillance data to understand the initial effects of the Affordable Care Act on the demand for publicly-funded STD clinics. During residency, Dr. Mehtani spent two months working with Drs. Amita Gupta and Vidya Mave in Pune, India, where she designed and conducted a retrospective analysis examining time lags between immunologic failure and transition to second-line treatment among HIV patients visiting a government-sponsored ART clinic. She also assisted with two ongoing studies related to food insecurity among HIV patients and loss to follow-up among MDR/XDR-TB patients. Her interests include health systems research, applied epidemiology, and translating research findings into durable policies and interventions.



### Pranay Vishwanath

Mr. Vishwanath received a master's degree in Bioinformatics from Johns Hopkins in fall 2018. He is working with Drs. Amita Gupta and Jeffrey Tornheim, and is focusing on organization of data and generation/streamlining of bioinformatic pipelines for analysis of TB drug resistance assays. He received a bachelor's degree in Biotechnology at the Hong Kong University of Science & Technology in 2016.





# 2018

## BJGMC-JHU FOGARTY HIV-TB TRAINING PARTNERSHIP

Housed within the U.S. National Institutes of Health, the Fogarty International Center supports research conducted by partnerships of US and international scientists. Fogarty's focus is to build research capacity in low and middle income countries, and to ensure sustainability by training next generation scientists.

The BGJMC-JHU training partnership is a decades-long Fogarty effort that offers intensive research training to clinicians in India in HIV-TB epidemiology and laboratory research as well as mentorship for developing research protocols, analyzing data, and preparing and presenting scientific findings. Distance-learning modules supplemented regular professional development activities at BJGMC, and off-site training at Johns Hopkins University rounded out the program. Trainees were selected by a Training Advisory Committee (TAC) comprising senior faculty from JHU and BJGMC. The TAC also reviewed progress and provided recommendations for strategic scientific training priorities.

2018 marked the final year of the BJGMC-JHU Fogarty HIV-TB Training Program.

### YEAR 1: 2015

Dr. Anita Basavaraj; Dr. Sunita Girish; Dr. Aarti Kinikar; Dr. Geeta Pardeshi; Dr. Sangita Shelke



### YEAR 2: 2016

Dr. Vasudha Belgaumkar; Dr. Smita Deshpande; Dr. Amit Kale; Dr. Rahul Lokhande; Dr. Shilpa Naik; Dr. Chhaya Valvi



# SCHOLARS

### YEAR 3: 2017

Dr. Murlidhar Tambe, Dr. Usha Nikumbh, Dr. Ibrahim Ansari, Dr. Bharti Daswani, Dr. Samir Joshi  
Dr. Kiran Jadhav, Dr. Rajesh Kulkarni, Dr. Sunil Bhambre, Dr. Ambarish Mathesul, Dr. Yogesh Gavali





## GLOBAL GRAND ROUNDS IN INFECTIOUS DISEASES

Hosted by Dr. Matt Robinson, Global Grand Rounds in Infectious Diseases (GGRID) is a monthly video conference that offers a forum for health providers in caring for persons with infectious diseases.

In addition to Johns Hopkins School of Medicine, four Indian clinical sites now participate, with addition of Medanta the Medicity in March 2018:

- Byramjee Jeejeebhoy Government Medical College, Pune
- D.Y. Patil Medical College, Pune
- Krishna Institute of Medical Sciences, Malkapur
- Medanta the Medicity, Gurgaon

Each month a junior researcher from a different site presents an infectious disease patient case, and participating sites discuss challenges in diagnosis and treatment.

## TIME COURSE

Conducted by Dr. Natasha Chida, the 2018 Johns Hopkins School of Medicine TIME Global Health Course introduces basic concepts in global health relevant for future clinical and/or research practice. The 3-day course is designed for first year medical students at Johns Hopkins.

The subject of global health is vast and complicated, so the course is structured into specific core competencies in global health as outlined by the Consortium of Universities for Global Health (CUGH). Specifically:

- Global Burden of Disease
- Globalization of Health and Health Care
- Social and Environmental Determinants of Health
- Capacity Strengthening
- Health Equity and Social Justice
- Sociocultural and political awareness
- Strategic Analysis
- Ethics

The course comprises lectures, expert panels, and small group sessions focused on case discussions of real-life global health delivery work.

## ID CLINICAL MINUTE

December 2018

U=U (Undetectable = Untransmittable)

October 2018

Five Key Studies from IDWeek 2018

August 2018

Ebola Virus Disease: A Brief History, the 2014 Epidemic, and the Aftermath

June 2018

Updates in C Diff: Rapid Review of the 2018 IDSA Guidelines

April 2018

The Guinea Worm: Going...Going...

February 2018

Old Disease in Modern Times: Plague and the 2017 Madagascar Outbreak



L-R: Johns Hopkins University President, Ronald Daniels; Raj Gupta; Kamla Gupta; Dr. Robert Bollinger; Dr. Amita Gupta; Johns Hopkins School of Medicine Dean Dr. Paul Rothman. Photo by Robert Smith Photography

# 2018

## RAJ & KAMLA GUPTA PROFESSORSHIP

Friends, colleagues, and university leadership gathered on September 5, 2018, to witness the dedication of the Raj and Kamla Gupta Professorship in Infectious Diseases and the installation of CCGHE Director Robert C. Bollinger, MD, MPH, as the inaugural recipient.

The dedication celebrated Raj and Kamla Gupta's enduring commitment to Johns Hopkins researchers working to improve infectious disease outcomes among underserved patients around the world. The Guptas immigrated to the U.S. from India in 1968 so that Raj could attend Cornell University. Mr. Gupta rose through the ranks of Rohm and Haas to serve as Chairman and CEO. He has served on the boards of Hewlett Packard and Vanguard, and is a past Chairman of the American Chemistry Council, and the Society of Chemical Industry, America Section. Currently he is a member of the boards of Arconic Inc., IRI, and is Chairman of Avantor Inc., and APTIVE PLC (formerly Delphi Automotive PLC), and Senior Advisor to DuPont.

The professorship was presented to Johns Hopkins University President Ronald Daniels by Dr. Paul Rothman, Dean of the Johns Hopkins School of Medicine. President Daniels reflected on the Gupta's remarkable journey from immigrants to philanthropists, and their commitment to making the world a better place. "Raj has embodied and enacted the deep sense of fairness and cooperation that have animated him

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"I have seen the impact, first hand, of what your partnership has meant to so many in India."

Dr. Robert C. Bollinger, Inaugural Professor

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throughout his career, and made vital contributions to our shared goal of nurturing a healthier, more peaceful global community."

Raj Gupta reflected on his experience living the American Dream, and his and Kamla's personal mission to pay their good fortune forward. "Bob Bollinger's work has made a positive impact on the lives of so many around the world," he said. "The Gupta family and the Ujala Foundation are pleased to play a small part in recognizing the many contributions of Dr. Bollinger, and in supporting future research that improves outcomes among patients who suffer from infectious diseases."

Dr. Bollinger expressed his gratitude to family, friends, and colleagues for their support through his career. Addressing Raj and Kamla Gupta, Bollinger indicated that the impact of their generosity rippled far beyond Johns Hopkins. "The people in India who have benefited most from your support may seem worlds away. However, I have seen the faces of many mothers and fathers in Pune cured of TB. I have seen and held babies who were born healthy without HIV infection, due to access to treatment for their mothers. I have seen the impact, first hand, of what your partnership has meant to so many in India. I can tell you that, while they may seem far removed from today's event, our neighbors in India are right here."



### PRESS RELEASES

emocha Named to 2018 Top 10 Most Innovative Companies in Health by Fast Company [news release]. Baltimore, MD: emocha Mobile Health; February 20, 2018.

Tip Sheet: Johns Hopkins Researchers Present at Annual CROI Meeting [news release]. Baltimore, MD: Johns Hopkins Medicine; March 1, 2018.

One-Month Tuberculosis Prophylaxis as Effective as Nine-Month Regimen for People Living with HIV [news release]. Bethesda, MD: National Institutes of Health; March 5, 2018.

Smartphone App Keeps an 'Eye' on Daily Tuberculosis Therapy [news release]. Baltimore, MD: Johns Hopkins Medicine; April 26, 2018.

National Institutes of Health Awards emocha Mobile Health \$1 Million for Multi-State Study [news release]. Baltimore, MD: emocha Mobile Health; August 29, 2018.

### CCGHE IN THE NEWS

In-Depth: How digital health technologies can help the United States address the opioid epidemic. *MobiHealthNews*. January 5, 2018.

The Health App that Beat Hurricane Harvey. *Politico*. January 18, 2018.

WHO sets disease priorities for 2018; Tuberculosis once again not included. *Contagion Live: Infectious Diseases Today*. February 15, 2018.

TB medication adherence rates up, thanks to smartphone app. *YourCentralValley.com* (Fresno, CA). March 2, 2018.

Study Results for IMPAACT P1078 Presented at CROI 2018. *IMPAACT Network News*. March 7, 2018.

Preventive TB therapy during pregnancy causes excessive adverse events. *Infectious Disease News* (via Healio). March 8, 2018.

No difference in safety for HIV+ pregnant women deferring TB Tx. *MedPage Today*. March 9, 2018.

Adverse pregnancy outcomes with isoniazid preventive therapy in HIV. *Infectious Disease Advisor*. March 9, 2018.

Isoniazid preventive therapy: do the risks outweigh the benefits in pregnant women with HIV? *aidsmap*. March 13, 2018.

Infectious Diseases Can Be Tackled, Here are 3 Solutions. *The Hill*. May 9, 2018.

Enhanced immigration enforcement could worsen HIV epidemic. *Infectious Disease News* (via Healio). July 21, 2018.

Enhanced immigration enforcement in US\$17M is awarded to support HIV, disease ecology, mHealth projects. *Global Health Matters*. August 16, 2018.

Amita Gupta and Sujata Bhatia: Doing a World of Good. *American Institute of Chemical Engineers*. August 29, 2018.

Doctor who tackled HIV and other infectious diseases in India honored. *India Abroad*. September 11, 2018.

Perspectives: How can we improve mental health services for people living with HIV in the Asia-Pacific?. *amFAR*. September 19, 2018.

Cutting off immigrants from public benefits means American children will pay the price. *The Baltimore Sun*. September 28, 2018.

Indian American donors gave more than \$1.2 billion to US universities, colleges: report. *The American Bazaar*. October 1, 2018.

Gupta, Page named Hopkins Mission Honorees. *Johns Hopkins Medicine*. October 2, 2018.

Superbugs kill more in India than globally, mortality rate is 13%. *The Times of India*. November 20, 2018.

Venezuela's health crisis demands an urgent regional response. *The Washington Post*. November 27, 2018.





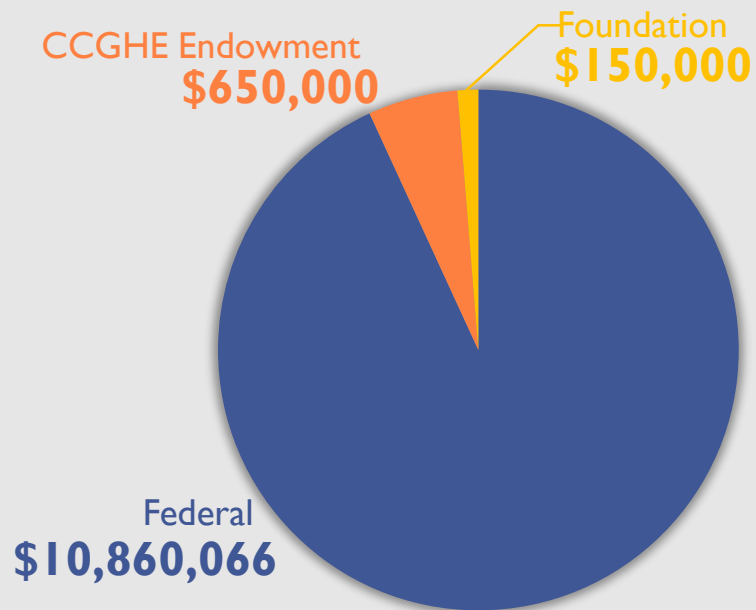
# PEOPLE

ROW 1: Rupak Shivakoti, Matt Robinson, Kathleen Page, Amita Gupta, Bob Bollinger, Jane McKenzie-White, Larry Chang | ROW 2: Jonathan Golub, Natasha Chida, Maunank Shah, Jeff Tornheim, Yuka Manabe, Jyoti Mathad, Kelley Dooley | ROW 3: Nishi Suryavanshi, Vidya Mave, Nikhil Gupte, Anita Shankar, Andrea DeLuca, Jessica Elf, Akshay Gupte | ROW 4: Bharat Randive, Sachin Atre, Sandesh Patil, Mallika Alexander, Neetal Nevrekar, Mandar Paradkar, Ivan Marbaniang | ROW 5: Shri Vijay Bala Yogendra Shivakumar, Rewa Kohli, Neeta Pradhan, Vandana Kulkarni, Sona Deshmukh, Smita Nimkar, Sadaf Inamdar | ROW 6: Amita Nagaraj, Molly Bowen, Gabriela Smit, Samyra Cox, Sameer Khan, Savita Kanade, Gauri Dhumal | ROW 7: Kate Bergstrom, Gail Jessop, Alison Pack, Rose Warlick, Ana Cervantes, Sagar Bhagwat, Matt Williams, and more than 150 contract research staff in India.



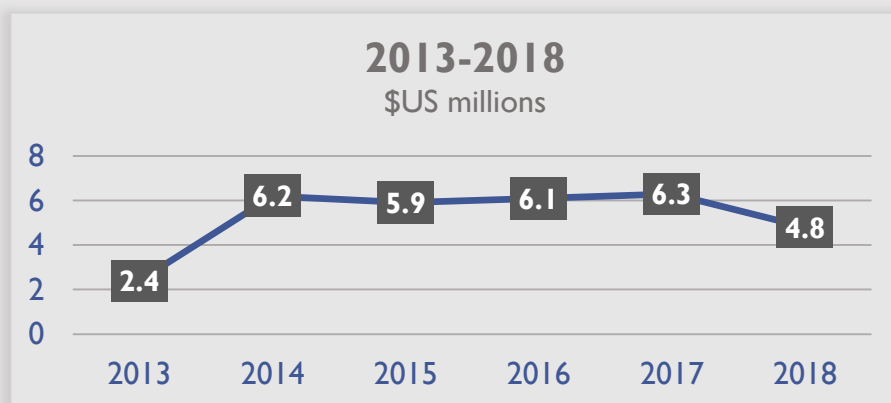
# 2018

## REVENUE



**\$11,660,066 | 2018 TOTAL**

## INDIA ONLY





# 2018

## SUPPORTERS

We are enormously grateful to our 2018 supporters—particularly to our primary donors, the Ujala Foundation of Newtown Square, PA, and the Wyncote Foundation, who, for the last 5 years, have encouraged our work and fostered our growth.

AIDS Clinical Trials Group

amfAR: The Foundation for AIDS Research

U.S. Centers for Disease Control and Prevention

Gilead Foundation

Infant Maternal Adolescent and Pediatric Clinical Trials Group

Johns Hopkins Center for AIDS Research

National Institutes of Health

- CRDF Global
- Eunice Kennedy Shriver National Institute of Child Health and Human Development
- Fogarty International Center
- National Institute of Allergy and Infectious Diseases
- National Institute on Drug Abuse
- National Institute of Mental Health
- National Institute of Minority Health and Health Disparities

Persistent Systems

Roopa & Subhash Makhija Foundation

Ujala Foundation

UNITAID

Willowcroft Foundation

Wyncote Foundation

## CONTENT & PRODUCTION

Molly Bowen, Communications Associate

### PHOTOGRAPHY

- Fred Dubbs, Johns Hopkins Medicine  
P7, image 5 | P8, image 6 | P14, row 3: images 1, 5; row 6 image 4; row 7: images 1, 6
- Kaveh Sardari Sardari Group: [www.sardari.com](http://www.sardari.com)  
P1: images 1, 3 | P7: images 1, 2, 7, | P8: images 1, 2, 5, 7 | P14, row 1: images 1, 3, 5, 6; row 2: images 2, 4; row 3: images 4, 6; row 7: images 2, 3; row 8: images 2, 4, 5, 7
- Robert Smith, Robert Smith Photography: [www.robertsmithphotography.com](http://www.robertsmithphotography.com)  
P12
- Miind Sonkamble  
P7: images 3, 9 | P14, row 3: images 2, 3; row 4: images 1-7; row 5: images 1-7; row 6 images 1, 5-7
- Getty Images  
P5: Science Photo Library - SCIEPRO
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