

A large, stylized number '19' is rendered in the background. The '1' is a solid dark blue vertical bar on the left. The '9' is composed of a light blue circle with a dark blue dot in the center, and a dark blue curved shape below it that forms the bottom of the '9'.

# Annual Report 2019

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HARVARD PILGRIM HEALTH CARE INSTITUTE

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Elisif Photography, Institute staff & collaborators, Bob Wyllie Photography





## MISSION

The Institute's mission is to improve health care delivery and population health through research and education, in partnership with health plans, delivery systems, and public health agencies.

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## WHO WE ARE

The Harvard Pilgrim Health Care Institute is a research and teaching partnership between Harvard Pilgrim Health Care and Harvard Medical School. As the nation's first medical school appointing department based in a health plan, we are strategically positioned to improve population health and health care delivery locally, nationally, and internationally. We are distinctive for our scope, expertise, and collaborations.

Our mission and activities are highly consonant with the National Academy of Medicine's advocacy for a national Learning Health System — one that incorporates evidence-based practices into routine care, captures new knowledge as part of the ongoing delivery of care, and then applies new knowledge in a timely manner.

We are **41** core faculty, **13** research scientists, **23** fellows, and **159** staff working with hundreds of institutional and individual collaborators around the globe.

# NETS



## DEAR COLLEAGUES,

It is my pleasure to present to you our Annual Report on the activities and achievements of the Harvard Pilgrim Health Care Institute for 2019.

Over the last year, we traveled the world (to 14 countries and across 19 states) to present our work, published 267 peer-reviewed papers, launched 39 new research projects totaling \$177 million, and submitted 111 new proposals. For information on our research, see pages 6–19. We increased our footprint across the Harvard Medical School and Harvard T.H. Chan School of Public Health campuses, continuing a strong tradition of teaching activities, influencing curriculum and securing roles in educational leadership (for details, see pages 24–31). Our recruitment efforts resulted in a record of 9 new faculty (pages 20–23) and 60 new hires across the Institute. With these new faces come new ideas, areas of expertise, and fresh perspectives on our path forward.

Now, for the path forward: in 2019, we concluded our 2015-2019 strategic plan and catalyzed the efforts of faculty and staff alike to develop the new strategic plan for 2020-2024. A year of thoughtful reflection and ongoing discussion yielded a roadmap that details how we will focus our strengths and build capacity to expand into

new areas over the next five years. Building on our expertise and achievements, this plan will inspire, strengthen, and expand our work.

As part of the strategic planning process, we also took a closer look at our mission statement and realized it was missing a key component of much of our work—our partnerships. Our revised mission—see the previous page for the unveiling—highlights the importance of these relationships to the work of the Institute.

We look forward to what the next five years will bring, but first, I invite you to review 2019's achievements and let me know what you think.

Sincerely,

A handwritten signature in black ink that reads "Richard Platt". The signature is written in a cursive, flowing style.

Richard Platt

Professor and Chair, Department of Population Medicine  
President, Harvard Pilgrim Health Care Institute

# STRATEGIC PLAN

VISION FOR 2020 - 2024

To enhance our organizational capabilities and brand to enable greater impact and engagement in comparative effectiveness, prevention, health policy, public health activities, and education.

## STRATEGIC GOALS

1

Broaden our research capabilities and presence for increased impact

2

Strengthen and develop strategic partnerships, connections, and collaborations

3

Intensify our educational programs in population health research methods

4

Enhance our operating efficiency, effectiveness, and sustainability

# RESEARCH



## **RESEARCH**

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We conduct research that can improve health care delivery, inform and enhance prevention efforts, evaluate and inform health care policy, and contribute to public health.

As we reflect on 2019, we are pleased to share some of the highlights of our work.

# Health Policy: Generating Actionable Evidence to Improve Health Policies and Plans

Institute researchers study the effects of health policies and plans on patient health with the goal of informing solutions that improve health care costs, quality, and equity.

## IMPACT OF HIGH-DEDUCTIBLE HEALTH PLANS ON BREAST CANCER DIAGNOSIS AND TREATMENT

Although a growing percentage of the U.S. population has high-deductible health plans, very few studies have examined whether high-deductible health plans act as a barrier to the receipt of essential, life-sustaining care. A study team led by Institute researchers Frank Wharam, Fang Zhang, Jamie Wallace, Christine Lu, Stephen Soumerai, Dennis Ross-Degnan, and colleagues examined the effects of these plans on breast cancer diagnosis and treatment among both vulnerable and less vulnerable women whose employers switched their insurance coverage from health plans with low deductibles to plans with high deductibles. Study results<sup>1</sup>, published in *Health Affairs*, found that low- and high-income women who were switched to high-deductible health plans experienced delays in breast cancer diagnostic testing, early-stage diagnosis, and chemotherapy initiation, compared to women remaining in low-deductible plans. Results suggest that delays in breast cancer care associated with these plans are only partially related to patients' sociodemographic characteristics and that women across the income spectrum might experience high out-of-pocket spending obligations as a barrier to breast cancer care.

<sup>1</sup> Wharam JF, Zhang F, Wallace J, Lu C, Earle C, Soumerai SB, Nekhlyudov L, Ross-Degnan D. Vulnerable And Less Vulnerable Women In High-Deductible Health Plans Experienced Delayed Breast Cancer Care. *Health Aff (Millwood)*. 2019;38(3):408-15

The authors suggest policy makers, health insurers, and employers consider implementing value-based features in high-deductible health plans to encourage successful transitions through key stages of the cancer care pathway.

## CHOOSING A HEALTH PLAN: AN ASSESSMENT OF CONSUMER EXPERIENCES

Choosing a health plan is complicated. The health insurance Marketplaces established by the Affordable Care Act (ACA) include features designed to help consumers



Frank Wharam presents his work on high-deductible health plans at a *Health Affairs* press briefing.

by simplifying the process of choosing a health plan in the individual insurance market. Institute research led by Joachim Hero, Alison Galbraith, and colleagues examined the experiences of consumers who purchased a health plan on or off the federal Marketplace. Four years into the operation of the ACA Marketplaces, study results<sup>2</sup>, published in *Health Affairs*, found that overall, ACA Marketplace enrollees reported better shopping experiences than those enrolling off-Marketplace in the individual insurance market in two states — particularly those in families with chronic conditions. However, enrollees with low health insurance literacy found the selection process challenging regardless of platform. The authors suggest that, while the Marketplace has facilitated coverage for many, steps must be taken to improve consumer assistance for off-Marketplace populations and those with low health insurance literacy.

### **NUTRITION POLICY: STUDYING THE FEDERAL CALORIE LABELING LAW**

Nutrition labeling aims to help consumers make healthier dietary choices in restaurants and other food stores. Institute researchers Joshua Petimar, Fang Zhang, Lauren Cleveland, Denise Simon, and Jason Block examined the effect of posted calorie labeling on calorie purchases using comprehensive sales data from a franchise of fast-food restaurants in the southern U.S. over a three-year period. Study results, published<sup>3</sup> in *BMJ*, show that calorie labeling was associated with a decrease of 60 calories per transaction, a roughly 4% decrease after implementation, followed by a small weekly increase over the next year. The findings suggest that calorie labeling may be most effective as a short-term strategy for reducing calorie purchases, but that other nutrition interventions may be necessary for long-term positive dietary changes in these settings.

2 **Hero JO**, Sinaiko AD, Kingsdale J, Gruver RS, **Galbraith AA**. Decision-Making Experiences Of Consumers Choosing Individual-Market Health Insurance Plans. *Health Aff (Millwood)* Volume 38 (3), 2019-03-05.

3 **Petimar J, Zhang F, Cleveland LP, Simon D**, Gortmaker SL, Polacsek M, Bleich SN, Rimm EB, Roberto CA, **Block JP** (2019). Estimating the effect of calorie menu labeling on calories purchased in a large restaurant franchise in the southern United States: quasi-experimental study. *BMJ* 367: 15837.

## **Taking to the airwaves to discuss their work: faculty on podcasts**

As we seek out new ways to disseminate research, our faculty have found new mediums to reach their audience. Two faculty members, Douglas Krakower and Julia Marcus, were invited guests on podcasts last year to discuss their work. Listen wherever you get your podcasts.

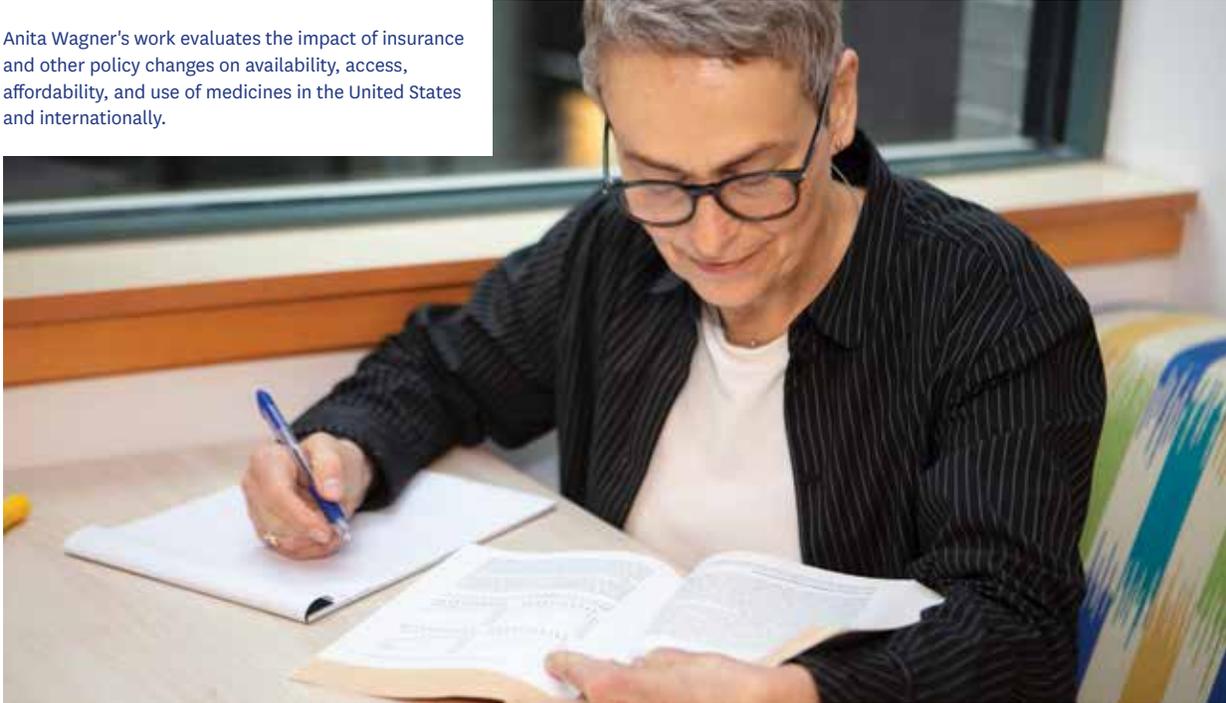
### **JAMA CLINICAL REVIEWS: INTERVIEWS WITH JOURNAL AUTHORS TO EXPLORE THE LATEST CLINICAL REVIEWS**

Douglas Krakower sat down with *JAMA* Fishbein Fellow Angel Desai to discuss preexposure prophylaxis (PrEP) for HIV. Dr. Krakower provided background on PrEP and spoke about challenges to its uptake and potential means of educating primary providers on how to identify candidates for its use.

### **THE LANCET HIV**

Julia Marcus and Douglas Krakower talk to Peter Hayward, Editor of *The Lancet HIV*, about their respective studies on the use of electronic health record data to predict HIV risk and identify PrEP candidates. Marcus and Krakower discuss PrEP and how their studies, developed independently of one another on separate coasts (see pages 14–15 for additional information), fatefully intertwined and became springboards for future projects.

Anita Wagner's work evaluates the impact of insurance and other policy changes on availability, access, affordability, and use of medicines in the United States and internationally.



### ADDRESSING RISING PRICES OF ANTICANCER MEDICINES IN CHINA

Rapidly rising prices of anticancer medicines are an increasing challenge for health care systems and cancer patients in every country. This study<sup>4</sup>, led by research fellow Xiaodong Guan and faculty members Anita Wagner and Dennis Ross-Degnan, examined the impact of a 2012 regulation in China that established maximum retail prices for 30 anticancer medications, and a subsequent 2015 policy that removed price regulation for these medications. During government price regulation, the relative price of regulated medications decreased significantly by about 8% compared to unregulated medications, but when the prices were decontrolled, no significant price changes occurred. Neither government price regulation nor deregulation had a significant impact on volumes of use or average spending either immediately or in the longer term. To control the rapid growth of oncology medication expenditures, more effective measures than price regulation through price caps are needed.

4 Guan X, Yang M, Wushouer H, Han S, Shi L, Ross-Degnan D, Wagner AK. Influence of Government Price Regulation and Deregulation on the Price of Antineoplastic Medications in China: A Controlled Interrupted Time Series Study. *BMJ Open* 2019;9:e031658.

### INCENTIVE PROGRAMS AS PATHWAYS TO IMPROVED HEALTH OUTCOMES

Institute researchers work to improve the supply of and demand for effective and efficient care to treat pediatric chronic diseases. In a new study funded by the American Diabetes Association, faculty member Davene Wright is using behavioral economics to help explain decision making in health care. The use of incentive programs to promote diabetes self-care has the potential to positively impact a widespread lack of adherence among affected populations, particularly adolescents with type 1 diabetes, but few incentive programs have been tested among youth. This ongoing study will design a patient-centered incentives program to increase adolescents' adherence to self-care of type 1 diabetes and ultimately, improve health outcomes.

# Studying Prevention Today for a Healthier Tomorrow

## PROJECT VIVA

**L**ed by Institute faculty, Project Viva is a landmark study of lifecourse influences on health and disease. Continuously funded by the NIH since 1998, Viva has followed a cohort of pregnant women and their (now adolescent) offspring for almost two decades. In 2015, Viva investigators received a highly competitive grant from the NIH Office of the Director to join the Environmental Influences on Child Health Outcomes (ECHO) Program, a consortium of pregnancy and birth cohort studies around the U.S. Institute Vice-Chair Emily Oken is the Principal Investigator of Project Viva, and Marie-France Hivert is the co-PI. Other Viva investigators based at the Institute include Izzuddin Aris, Peter James, Joanne Sordillo, Karen Switkowski, Ann Wu, and Jessica Young.

## 2019 PROJECT VIVA HIGHLIGHTS INCLUDE

- A record 50 publications, for a total of 280 since 2001
- Faculty member Peter James was awarded an Opportunity and Infrastructure Fund grant from the NIH ECHO program to develop Google Street View-based metrics of nature and study their associations with child health using data from Project Viva as well as PRISM, another ECHO cohort based in Boston and NYC
- With Dr. Oken, research scientist Karen Switkowski was awarded a supplement from the NIH Office of Dietary Supplements to examine early vitamin D status and supplement use and later body composition and bone health
- Former Institute fellow Abby Fleisch (now an Assistant Professor at Maine Medical Center) was awarded an RO1 from the National Institute of Environmental Health Sciences to examine Environmental Chemicals, Adiposity, and Bone Accrual Across Adolescence

- Dr. Oken, along with Multiple PI Jorge Chavarro at the Harvard T.H. Chan School of Public Health, was awarded an RO1 from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development entitled, A lifecourse approach to women's cardiometabolic and bone health: from fertility to perimenopause
- Dr. Oken and her mentee Carmen Monthé-Drèze, a neonatologist at Brigham and Women's Hospital, were awarded a Diversity Supplement from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development to study nutrition-stress interactions in relation to pre- and perinatal predictors of childhood obesity
- Dr. Oken and colleagues from the ECHO program published a manuscript in the *International Journal of Obesity* entitled, Understanding childhood obesity in the US: the NIH environmental influences on child health outcomes (ECHO) program

Project Viva research assistants Esrat Bristee and Zaria Starfeldt practice taking height measurements.



# Public Health Practice

## THE U.S. FOOD AND DRUG ADMINISTRATION (FDA) SENTINEL SYSTEM

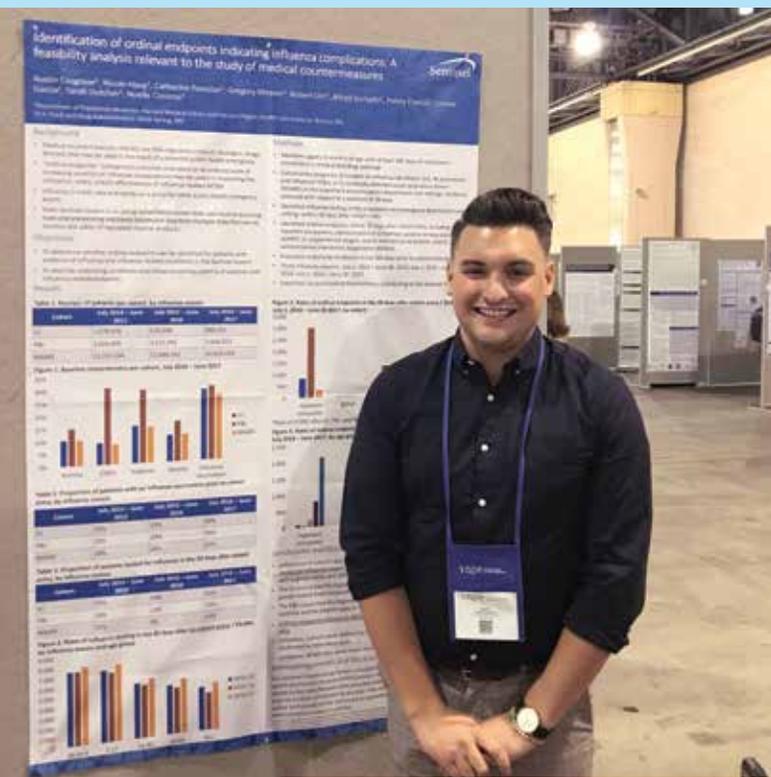
**T**he FDA Sentinel System, based in the Harvard Pilgrim Health Care Institute, is a national program that allows the FDA to monitor the safety and effectiveness of marketed medical products. Sentinel provides a high level of protection for the privacy and security of patients' health information by using a distributed data network in which the data remains with the participating organizations. This network enables the sharing of information derived from the data rather than sharing the actual data. Led by Institute faculty and staff, the program uses curated

electronic health data from health plans and hospital systems, actively accruing data for >70 million people. Using this national data network, FDA regularly conducts safety analyses of the billions of hospital stays, outpatient visits, and pharmaceutical dispensings included in the Sentinel system. Sentinel has performed nearly 400 queries for FDA in support of its regulatory decision-making responsibilities, including 107 active query requests in 2019.

In 2019, the FDA awarded a contract that may reach \$220 million over the next five years to the Harvard Pilgrim Health Care Institute to continue to lead the Sentinel Operations Center and to develop a new Sentinel Innovation Center. The addition of the Sentinel Innovation Center, which will be led by our partners at Brigham and Women's Hospital, signals FDA's commitment to keeping the Sentinel System a robust and cutting-edge national resource.

Plans for the next phase of the Sentinel project include enhancements to increase efficiency and responsiveness, to develop new data sources and more sophisticated methods, to broaden the community of users, to extend Sentinel capabilities to allow multi-national collaboration to support assessment of the safety and effectiveness of marketed medical products, and to enhance the Center's extensive expertise by bringing on additional specialized collaborators.

Institute President Richard Platt serves as the Principal Investigator of the FDA Sentinel System. Other Sentinel investigators based at the Institute include Darren Toh, Jeffrey Brown, Judith Maro, Noelle Cocoros, Sruthi Adimadhyam, John Connolly, Candace Fuller, Jane Huang, Sheryl Kluberg, Christine Lu, Jennifer Lyons, Catherine Panozzo, Mayura Shinde, Katherine Yih, Anita Wagner, and Jenna Wong.



Research Analyst Austin Cosgrove presents a poster on Sentinel findings at the International Conference on Pharmacoepidemiology.

“

We are very pleased to continue leading the Sentinel System along with our collaborating partners — over 60 technology, health care, and academic organizations across the nation.

**RICHARD PLATT**

Professor and Chair of the Department of Population Medicine; Principal Investigator, FDA Sentinel System

**MDPHNET: INFECTIOUS AND CHRONIC DISEASE SURVEILLANCE**

Institute researchers have a longstanding partnership with the Massachusetts Department of Public Health (MDPH) to build and maintain a distributed data network that uses large practices’ electronic health record data to support next-day detection of notifiable diseases such as hepatitis, HIV and tuberculosis, weekly assessment of influenza-like illness, and as-needed monitoring of chronic illness and its treatment. Faculty member Michael Klompas leads this work along with Noelle Cocoros and Sarah Willis. In 2019, Institute researchers worked closely with MDPH in enabling electronic case reporting at multiple new sites, including Partners HealthCare. Eight sites now report cases of notifiable diseases to MDPH via this system. Institute researchers continue working with chronic disease epidemiologists at MDPH to conduct population-level analyses, with recent work focused on hypertension and stroke. Finally, there is a new project underway, led by Julia Marcus and Jessica Young with Douglas Krakower, to estimate preexposure prophylaxis use for HIV among men who have sex with men using data from four sites that participate in the system.

Research Scientist Noelle Cocoros and Project Manager Aileen Ochoa review the RiskScape tool, which provides timely, high-level summaries of specific conditions of interest to public health officials.



# Delivery System Based Research: Creating Tools, Guidelines, and Models for Improved Practice



Institute researchers develop new reference tools, algorithms, and recommendations for clinicians and researchers alike to improve practice, implementation, and research.

## NATIONAL PATIENT-CENTERED CLINICAL RESEARCH NETWORK

Institute researchers play a lead role in the National Patient-Centered Clinical Research Network (PCORnet), an innovative research network that facilitates clinical research by creating a large, highly representative network that directly involves patients in the development and execution of research. In addition to their role as a Coordinating Center for PCORnet, Institute investigators have been continuing studies using data from the network. Carrying forward work from the PCORnet Antibiotics and Childhood Growth Study, investigators have explored the relationship between maternal antibiotic use during pregnancy and child weight outcomes and antibiotic prescriptions in early childhood and weight outcomes when children are 9 to 11 years old. Studies have also explored the link between antibiotic prescribing and pharmacy dispensing data and have worked to link electronic health record data to health insurance claims data. The Institute has just begun a new study led by Jason Block to explore medication-induced weight gain among children and adults for five classes of medications: antihypertensives, diabetes medications, antiepilepsy medications, antipsychotics, and antidepressants. He and colleagues are also working to create the capacity for PCORnet to facilitate population health surveillance for chronic disease.

## DEVELOPING AN UPDATED NATIONAL BIRTH WEIGHT REFERENCE

Taking a lifecourse approach to chronic disease, Institute researchers conduct interdisciplinary research within defined populations to better understand the etiologic factors working at the earliest stages of human development. Fetal growth, typically measured as birth weight-for-gestational-age, is an important clinical indicator of morbidity, survival, and long-term health outcomes in children and their mothers. Previous birth weight-for-gestational-age references may not reflect the current sociodemographic composition of the U.S. and rely on less accurate estimates of gestational age. Institute investigators Izzuddin Aris, Anjali Kaimal, Emily Oken, and colleagues developed an updated reference<sup>5</sup> for clinicians and researchers using the most recent, nationally representative data on birth weight and more reliable obstetric estimates of gestational age. Their reference provides a simple, easy to use online tool for both researchers and clinicians to calculate measures of birth size.

## INCREASING THE USE OF MEDICATION TO PREVENT HIV INFECTION

Institute research focuses on methods to optimize HIV prevention in health care settings with a focus on implementing preexposure prophylaxis (PrEP), an antiretroviral pill that is over 90% effective in preventing HIV acquisition when taken as prescribed but is vastly underutilized. One barrier to use is the difficulty for providers in identifying patients who are at high risk of HIV

5 Aris IM, Kleinman KP, Belfort MB, Kaimal A, Oken E. *Pediatrics*. 2019 Jul;144(1). pii: e20190076. doi: 10.1542/peds.2019-0076. Epub 2019 Jun 14



Jason Block and Dennis Ross-Degnan

## New Director of Research: Jason Block

Jason Block assumed the role of Director of Research in 2019. He takes on this role from Dennis Ross-Degnan, who served as our Director of Research from 2000 to 2019, overseeing our overall research portfolio, which grew from just under \$10M in 2000 to nearly \$60M in 2019.

In this role, Dr. Block provides oversight of our collaborations in both research and clinical education, coordinates our overall research portfolio with the Office of Sponsored Programs, manages our research data systems, and reviews Sponsored Program Applications.

acquisition. Two new studies published in *The Lancet HIV* and led by Institute researchers Douglas Krakower and Julia Marcus developed algorithms that can identify patients who are at risk of acquiring HIV and may benefit from preventive care. Researchers from both studies, one using a patient population in California<sup>6</sup> and the other in Massachusetts<sup>7</sup>, built HIV risk prediction models that could be used in EHRs as automated screening tools for PrEP. The researchers suggest integration of these prediction models into primary care with routine, comprehensive HIV risk assessments by clinicians could play an important role in increasing the prescription of PrEP and preventing new HIV infections.

### PREVENTING HEALTHCARE-ASSOCIATED INFECTIONS

Healthcare-associated infections are among the most frequent causes of death in the United States. Institute researchers lead an array of programs to identify and prevent these infections. Our previous studies in Intensive Care Units (ICUs) showing that daily chlorhexidine

bathing and nasal mupirocin ointment substantially reduced infection risk were a major driver of a change in national practice. The follow-up cluster-randomized Active Bathing to Eliminate Infection (ABATE) trial<sup>8</sup> evaluated whether patients outside the ICU could benefit from a similar decolonization strategy. Institute researchers Susan Huang, Edward Septimus, Taliser Avery, Katherine Haffenreffer, Lauren Shimelman, Micaela Coady, Richard Platt, and colleagues led a cluster-randomized pragmatic trial in partnership with HCA Healthcare involving 53 hospitals and 340,000 hospitalizations. They found that patients with devices like central venous catheters that break the protective barrier of the skin benefitted from the intervention, while there was no important benefit in other non-ICU patients. Based on trial results, the Centers for Disease Control now recommends nasal mupirocin and chlorhexidine bathing as a supplemental strategy to reduce *Staphylococcus aureus* infections for non-ICU patients with devices.

6 **Marcus JL**, Hurley LB, **Krakower DS**, Alexeeff S, Silverberg MJ, Volk JE. Use of electronic health record data and machine learning to identify candidates for HIV pre-exposure prophylaxis: a modelling study. *Lancet HIV* 2019-07-05

7 **Krakower DS**, Gruber S, Hsu K, **Menchaca JT**, **Maro JC**, Kruskal BA, Wilson IB, Mayer KH, **Klompas M**. Development and validation of an automated HIV prediction algorithm to identify candidates for pre-exposure prophylaxis: a modelling study. *Lancet HIV*, 2019-07-05

8 **Huang SS**, **Septimus E**, Kleinman K, Moody J, Hickok J, Heim L, Gombosev A, **Avery TR**, **Haffenreffer K**, **Shimelman L**, Hayden MK, Weinstein RA, Spencer-Smith C, Kaganov RE, Murphy MV, Forehand T, Lankiewicz J, **Coady MH**, Portillo L, Sarup-Patel J, Jernigan JA, Perlin JB, **Platt R**; ABATE Infection trial team. Chlorhexidine versus routine bathing to prevent multidrug-resistant organisms and all-cause bloodstream infections in general medical and surgical units (ABATE Infection trial): a cluster-randomised trial. *Lancet*, 2019-03-04.

# The Genome as a Landscape for Research

**R**apid advances in genomic technologies and the availability of increasing amounts of genomic information influence how health care is provided. In 2019, Institute researchers studied the risk factors for asthma from both a genetic and environmental perspective.

## SCANNING THE GENOME FOR CLUES TO ASTHMA SUSCEPTIBILITY

A genome-wide association study is used in genetics research to associate specific genetic variations with particular diseases. The method involves scanning the genomes from many different people and looking for genetic markers that are associated with disease development. Identifying the genetic variants associated with asthma this way is crucial for determining the genetic basis of asthma. It is also necessary to understand how genetic heterogeneity underlying asthma risk may be influenced by ethnic background, using large, multi-racial

patient populations. In 2019, Joanne Sordillo and Ann Chen Wu published<sup>9</sup> results from a large, multi-ethnic genetic analysis of people with asthma. Their study identified novel associations with potential relevance for asthma susceptibility in older adults of diverse racial backgrounds. Study results suggested that unique biological pathways may contribute to asthma susceptibility within older adults of different ethnicities.

## EPIGENETICS: USING THE NOSE AS A WINDOW INTO THE LUNGS

While genetic factors are thought to account for approximately 60% of asthma susceptibility, the remaining proportion is believed to result from environmental exposures. The study of epigenetics exists at the intersection of these two factors, genes and environment. Our individual epigenetic profile reflects chemical changes to our DNA that determine how much or how little our genes are expressed. These chemical modifications to our DNA, collectively called the epigenome, can occur as a result of environmental exposures, and provide a unique opportunity to understand the interplay between genetic and environmental factors in disease processes. In a new study published in *Nature Communications*<sup>10</sup>, Institute researchers Andres Cardenas, Joanne Sordillo, Sheryl Rifas-Shiman, Marie-France Hivert, Emily Oken, and colleagues conducted an epigenome-wide association analysis of nasal samples collected from 547 early-teen children. Results showed that the nasal epigenome is altered in children with asthma, allergy, and airway inflammation.



Ann Chen Wu's research focuses at the intersection of genetic epidemiology and health services research.

9 Dahlin A, Sordillo JE, Ziniti J, Iribarren C, Lu M, Weiss ST, Tantisira KG, Lu Q, Kan M, Himes BE, Jorgenson E, Wu AC. Large-scale, multi-ethnic genome-wide association study identifies novel loci contributing to asthma susceptibility in adults. *J Allergy Clin Immunol*. 2019 Apr;143(4):1633-1635.

# Improving How Research is Done: Honing Research Methods

**I**nstitute researchers lead large national networks that use electronic health data to support clinical trials, comparative effectiveness research, and health services research. Our faculty and fellows are also skilled at fine-tuning novel methods and finding innovative ways to apply these methods to public health issues.

## POOLING DATA WHILE PROTECTING PRIVACY

In multi-site studies, it may be infeasible to pool individual-level datasets due to privacy and other considerations. New work<sup>10</sup> led by Institute researchers Di Shu, Darren Toh, and colleagues proposes three methods for making inference on hazard ratios without the need for pooling individual-level datasets across sites. All three methods require only one file transfer between the data-contributing sites and the analysis center. The researchers justify these methods theoretically, illustrate their use, and demonstrate their statistical performance using both simulated and real-world data.

## MACHINE LEARNING AND TYPE 2 DIABETES

Machine learning holds promise as a tool to assess type 2 diabetes (T2D) risk. Such tools take many risk factors into account to determine which factors or

<sup>10</sup> Cardenas A, Sordillo JE, Rifas-Shiman SL, Chung W, Liang L, Coull BA, Hivert MF, Lai PS, Forno E, Celedón JC, Litonjua AA, Brennan KJ, DeMeo DL, Baccarelli AA, Oken E, Gold RD. The Nasal Methylome as a Biomarker of Asthma and Airway Inflammation in Children. *Nature Communications*. 2019; 10 (3095).

<sup>11</sup> Shu D, Yoshida K, Fireman BH, Toh S. Inverse probability weighted Cox model in multi-site studies without sharing individual-level data. *Stat Methods Med Res*. 2019 Aug 26.

## 2019 Thomas S. Inui Lecture

### TOO MUCH MEDICINE: WINDING BACK THE HARMS OF EXCESS

The Thomas S. Inui Lecture is an annual event established in 2000 and named for our founding Chair. Dr. Inui led the Department for eight years until his departure in 2000 and returns to Boston for the lecture each year.

The 2019 Annual Thomas S. Inui lecture featured Fiona Godlee, Editor in Chief of *The BMJ*. In a homecoming of sorts, Dr. Godlee returned to the Institute for the first time after having studied here as a Harkness Fellow from 1994 – 1995. Dr. Godlee navigated a busy day of meetings with junior faculty and the research divisions, offering her expertise on how faculty can: publish in high-impact journals, overcome obstacles encountered when trying to leverage intervention and observational studies for multiple analyses, make pediatric health research appealing to medical journals, and more.

Dr. Godlee, who descends from a long line of doctors, opened her talk with this statement:

*“I want to make my starting point clear — I believe in medicine. I think it’s a good thing. It does wonderful things. Modern medicine is one of humanity’s greatest achievements, prolonging life and alleviating suffering. But my thesis is: that medicine has a great potential to do harm. It has gotten things wrong in the past — terribly wrong — and it continues to do so.”*

Many thanks to Fiona Godlee for joining us for an exciting lecture and robust discussion.

combinations might lead to a diabetes diagnosis in the future. Institute research fellow Shangyuan Ye and colleagues evaluated<sup>12</sup> the prediction accuracies of existing risk score systems, in particular, testing scoring systems based on Western populations versus those based on Eastern populations. They show that a one-size-fits-all approach to identifying patients at high risk for T2D is not ideal when predicting risk in populations with differing lifestyles and genetics and propose to use the ensemble learning to improve prediction accuracies by automatically combining all the individual score systems.

### CAUSAL INFERENCE WITH OBSERVATIONAL DATA AND TIME VARYING CONTINUOUS TREATMENTS

Researchers are often interested in using observational data to estimate the effects of sustained treatment strategies (e.g. “always treat with a particular drug versus never treat”). But observational data leave room for confounding, uncontrolled factors that may influence study results. Therefore, in this setting, it is important to adjust for both baseline common causes of treatment and the outcome, such as sex and race, as well as factors that change over time. Adjusting for time-varying risk factors that are themselves affected by treatment has been particularly challenging. In this situation, inverse probability weighted estimation is a valid alternative approach for assessing the effect of treatments. Previous implementations of this method are only useful for yes/no treatments, but not for graded ones, such as drug dose. Jessica Young and co-authors propose<sup>13</sup> a modified approach that works for continuous time-varying treatments and can be implemented with off-the-shelf software.

12 Liu Y, Ye S, Xiao X, Sun C, Wang G, Wang G, Zhang B. Machine learning for tuning, selection, and ensemble of multiple risk scores for predicting Type 2 Diabetes. *Risk Management and Healthcare Policy* 2019, 12, 189-198.

13 Young JG, Logan RW, Robins JM, Hernán MA. Inverse probability weighted estimation of risk under representative interventions in observational studies. *Journal of the American Statistical Association* 2019, 114 (526): 938-947.

### STUDY DESIGNS

Standard sample size calculation formulas for stepped wedge cluster randomized trials assume that cluster sizes are equal. However, in practice, cluster sizes often vary and ignoring this variation may lead to an under-powered study. Institute researchers Tom Chen, Rui Wang, and a doctoral student at Harvard University<sup>14</sup> caution that cluster size variation should be considered in the study design stage and develop new sample size formulas for settings with variable cluster sizes. They evaluate the proposed methods through simulation studies and illustrate that the average power of a stepped wedge cluster randomized trial decreases as the variation in cluster sizes increases, and the impact is largest when the number of clusters is small.

14 Harrison LJ, Chen T, Wang R. Power calculation for cross-sectional stepped wedge cluster randomized trials with variable cluster sizes. *Biometrics*, First published: 18 October 2019

Rui Wang is the Director of the Division of Biostatistics, the Institute's home for statistical consultation and research.



# Thought Leadership: Weighing in on Today's Pressing Issues

**I**n addition to publishing solid scholarship based on research findings, investigators often pen think pieces on relevant, timely topics in health care and medicine in high-impact journals.

## CLOSING THE GENDER WAGE GAP AND ACHIEVING PROFESSIONAL EQUITY IN MEDICINE

In this *Journal of the American Medical Association (JAMA) Viewpoint*<sup>15</sup>, Maryam Asgari and colleagues discuss the persistent, widening wage gap between men

<sup>15</sup> Asgari MM, Carr PL, Bates CK. Closing the Gender Wage Gap and Achieving Professional Equity in Medicine. *JAMA* 2019-04-05

and women in the workforce, including medicine. The authors address the challenges in assessing wage equity and suggest a call to action for leaders in medicine.

## DIRECT-TO-CONSUMER GENETIC TESTING AND POTENTIAL LOOPHOLES IN PROTECTING CONSUMER PRIVACY AND NONDISCRIMINATION

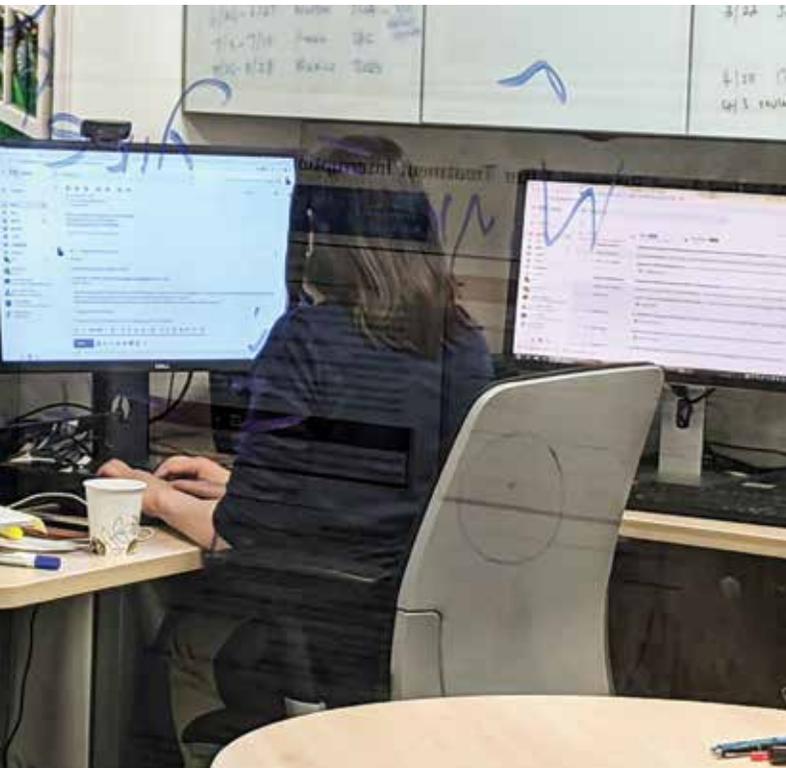
In this *JAMA Viewpoint*<sup>16</sup>, Rachele Hendricks-Sturupp, Christine Lu, and colleague examine issues of privacy and discrimination in the era of increasing use of direct-to-consumer (DTC) genetic testing. The authors argue that ethically sound and enforceable laws, regulations, and policies are needed to safeguard and protect the privacy rights of DTC genetic testing consumers and assuage concerns about genetic information discrimination among both socially vulnerable and non-socially vulnerable populations in the United States.

## RISK COMPENSATION AND CLINICAL DECISION MAKING — THE CASE OF HIV PREEXPOSURE PROPHYLAXIS

Preexposure prophylaxis (PrEP) for HIV is an antiretroviral pill that is over 90% effective in preventing HIV acquisition when taken as prescribed. In this *New England Journal of Medicine Perspective*<sup>17</sup>, Julia Marcus, Douglas Krakower, and colleagues examine clinician concerns and biases toward prescribing PrEP and suggest strategies to mitigate those biases.

<sup>16</sup> Hendricks-Sturupp RM, Prince AER, Lu CY. Direct-to-Consumer Genetic Testing and Potential Loopholes in Protecting Consumer Privacy and Nondiscrimination. *JAMA* 2019-04-18

<sup>17</sup> Marcus JL, Katz KA, Krakower DS, Calabrese SK. Risk Compensation and Clinical Decision Making — The Case of HIV Preexposure Prophylaxis. *N. Engl. J. Med.* Volume 380 (6), 2019-02-08



# New Faculty

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We added nine new core faculty members in 2019. Read on to learn more about our new additions.



## **IZZUDDIN ARIS**

**PhD in Epidemiology** | National University of Singapore, Singapore

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### **HOMETOWN**

Singapore

### **WORK BEFORE HPHCI**

I was a post-doctoral fellow at the Singapore Institute for Clinical Sciences from 2015–2017, and subsequently at the Institute from 2017–2019.

### **EXPLAIN WHAT YOU DO**

My research focuses on the paradigm of the developmental origins of health and disease, which postulates that potential drivers of adult chronic disease, including obesity and diabetes, have their origins at key stages of the lifecourse.

### **DESCRIBE A CURRENT PROJECT**

One of my current projects aims to characterize health trajectories from birth through adolescence using novel biostatistical approaches and quantify their causal and modifiable determinants in participants of Project Viva.



## **TOM CHEN**

**PhD in Biostatistics**  
Harvard University

### **HOMETOWN**

Poughkeepsie, NY

### **WORK BEFORE HPHCI**

I was a post-doc at the Institute before joining as a faculty member.

### **EXPLAIN WHAT YOU DO**

I'm a statistician focused on discovering methods to analyze data mired with complex correlations, missing data, or numerical fitting issues. Most of my days involve a lot of scratch paper and writing code.

### **DESCRIBE A CURRENT PROJECT**

I'm currently writing a paper and a corresponding R package to analyze multilevel and stepped wedge cluster randomized trial data and estimate the various correlations induced from such designs. This package will also include options for stochastic approximation fitting for faster computation and fewer numerical errors for large-scale data.



## **KURT CHRISTENSEN**

**MPH/PhD in Health Behavior & Education** | University of Michigan

### **HOMETOWN**

Mound, MN

### **WORK BEFORE HPHCI**

I come to the Institute from Brigham and Women's Hospital, where I was a postdoc, then an instructor in medicine.

### **EXPLAIN WHAT YOU DO**

I research the economic, medical, and behavioral impact of genomic testing, with an emphasis on healthy populations. I use many methods, including clinical trials, simulation modeling, and retrospective analyses of medical records.

### **DESCRIBE A CURRENT PROJECT**

I am a co-investigator on the Pre-EMPT Model, an NIH-funded study that examines clinical outcomes and the cost-effectiveness of newborn genetic screening. In this study, I lead development of the hypertrophic cardiomyopathy module.



## **SANJAT KANJILAL**

**MPH** | Emory University;  
**MD** | Harvard Medical School

### **HOMETOWN**

Richland, WA

### **WORK BEFORE HPHCI**

Infectious Diseases doctor at MGH/BWH, Associate Medical Director of Microbiology at BWH, co-Instructor for Microbiology at Harvard Medical School, scientific advisor for a local biotech company

### **EXPLAIN WHAT YOU DO**

I'm trying to figure out how to prevent infections from antibiotic-resistant bacteria by building prediction models with large scale observational data and then deploying them as clinical decision support tools at the point of care.

### **DESCRIBE A CURRENT PROJECT**

I'm building machine learning models to help clinicians choose the optimal antibiotics for patients with sepsis.



## XIAOJUAN LI

PhD in Epidemiology  
UNC-Chapel Hill, NC

### HOMETOWN

Yichang, China

### WORK BEFORE HPHCI

I worked in drug development research after college. There, I was introduced to pharmacoepidemiology and decided to pursue a graduate degree and an academic career in it.

### EXPLAIN WHAT YOU DO

I conduct methodological and applied research to generate valid, actionable evidence regarding the uses, benefits, and harms of medical treatments from high-dimensional real-world data to inform clinical decisions and health care policy.

### DESCRIBE A CURRENT PROJECT

I am examining the conditions under which it may be possible to replicate the findings of previously published randomized clinical trials with observational data and state-of-the-art causal inference methods.



## ALON PELTZ

MD/MBA | Vanderbilt University;  
MHS | Yale University

### HOMETOWN

Tel Aviv, Israel

### WORK BEFORE HPHCI

I worked as an Associate Medical Director for Massachusetts Medicaid where I helped lead the state's quality improvement programs for ACOs and health plans.

### EXPLAIN WHAT YOU DO

I conduct research on socioeconomic disparities in health care outcomes. My work tries to bridge social, care delivery, and insurance policy to help improve outcomes for vulnerable populations.

### DESCRIBE A CURRENT PROJECT

I'm working to develop better methods for predicting clinical outcomes. Through artificial intelligence and improved information on social and environmental circumstances, I hope we can more easily identify those at higher risk for asthma attacks to support earlier intervention.



## HEFEI WEN

PhD in Health Services Research  
& Health Policy | Emory University

### HOMETOWN

Beijing, China

### WORK BEFORE HPHCI

Assistant Professor in Health Management & Policy, University of Kentucky, 2015-2019

### EXPLAIN WHAT YOU DO

I am committed to leveraging rigorous quantitative methods to inform health and social policies surrounding the substance misuse and addiction issues in the U.S.

### DESCRIBE A CURRENT PROJECT

My faculty grant project uses HPHCI data to examine changes in opioid prescribing for Medicare Advantage population, in response to recent state and Medicare policies that limit the duration and dosage of the initial prescription for acute pain.



## DAVENE WRIGHT

PhD in Health Policy  
Harvard University

### HOMETOWN

Stone Mountain, GA

### WORK BEFORE HPHCI

I interned at the CDC & worked at Mathematica Policy Research. I was also an Assistant Professor at the University of Washington in the Departments of Pediatrics and Pharmacy.

### EXPLAIN WHAT YOU DO

I want to improve the supply of and demand for effective, efficient care to treat pediatric chronic diseases using many tools — behavioral economics, decision analytic modeling, economic evaluation, and conjoint analysis.

### DESCRIBE A CURRENT PROJECT

InvesT1D aims to test the impact of patient-centered financial incentives on adolescent adherence to self-care for type 1 diabetes. We have an interdisciplinary team and adolescents are forthcoming and fascinating research subjects.



## HAO YU

PhD in Health Services Research & Policy | University of Rochester

### HOMETOWN

Anhui, China

### WORK BEFORE HPHCI

Senior Policy Researcher at RAND Corporation; Professor, RAND Graduate School; Instructor and Assistant Professor, School of Public Health, Shanghai Medical University, China

### EXPLAIN WHAT YOU DO

Through rigorous and objective analyses, my research has focused on how health care financing and delivery reforms affect vulnerable groups, such as children with special health care needs, the mentally ill, and underserved populations.

### DESCRIBE A CURRENT PROJECT

Prior studies documented that the Affordable Care Act Medicaid expansion boosted health care demand. One of my projects added to the literature by discovering that the expansion affected the practice location decisions of new physicians.



## BY THE NUMBERS FACULTY + STAFF

41 CORE FACULTY

17 AFFILIATED FACULTY

45 AFFILIATED CLINICAL FACULTY

13 RESEARCH SCIENTISTS

23 FELLOWS

60 NEW HIRES IN 2019

159 STAFF



## **TEACHING**

In 2019, our faculty expanded on the Institute's longstanding tradition of training medical students by taking on new leadership roles and developing new courses. Courses taught by Institute faculty instill a sound knowledge of public and population health issues, including innovations in science and medicine, health care insurance systems, and disease prevention. Institute faculty with clinical expertise provide supervision to medical students and residents during clinical practice and facilitate the application of theory to practice.

# Classroom Teaching

## HARVARD MEDICAL SCHOOL

### Taking Leadership within the Harvard Medical School Curriculum

**B**eginning this academic year, Laura Garabedian serves as Co-Director of Essentials of the Profession I, a required first-year Harvard Medical School (HMS) course that covers four disciplines: health policy, medical ethics, social medicine, and clinical epidemiology and population health. In this capacity, she leads a team of eight discipline-specific co-directors, oversees curriculum development and integration, and works closely with HMS Curriculum Services to manage the administration of the course. She also sits on the HMS Pathways Preclerkship Subcommittee, which focuses on educational policy and curriculum development for preclerkship students.

### Still “Essential” to the HMS curriculum: Clinical Epidemiology and Population Health

Clinical Epidemiology and Population Health remains a core component of the Harvard Medical School Pathways Curriculum in three different required courses: Essentials of the Profession I, Essentials of the Profession II, and Transition to the Principal Clinical Experience. These courses are led by faculty members Laura Garabedian, Jason Block, and Emily Oken and combine teaching of core skills of clinical epidemiology (biostatistics, study design, and critical reasoning) as they apply to the care of individuals and populations with an introduction to key public and population health topics. The main takeaways for medical students include understanding the health policy context in which they will practice and gaining the skills to foster critical thinking. Fifteen Institute faculty participated in teaching this course in 2019.



### Teaching Infectious Diseases at All Levels

Faculty member Sanjat Kanjilal serves as an instructor in both first-year and Advanced Integrated Science Course (AISC) infectious disease courses. He co-instructs the infectious disease component of the Immunity and Defense and Disease (IDD) course, a required component of the HMS Pathways Curriculum. Topics include introductions to bacteria, virology, and parasites, and deeper dives into subjects such as mycobacteria, spirochetes, DNA viruses, and more. The second course, the AISC Microbiology and Infectious Diseases, equips students to assess the 21st century challenges of infectious diseases: the persistence of infectious diseases as a source of suffering and mortality around the world, even as our scientific understanding of infectious diseases expands and we develop new tools for prevention. Students explore recent progress and outstanding questions relating to different state-of-the-art topics in Microbiology & Infectious Disease and partake in clinical sessions.

### Metabolism, Nutrition, and Lifestyle Medicine: Where Students’ Clinical-Inspired Questions Inform Research and Practice

The subject of nutrition has seen a resurgence in the Harvard Medical School curriculum. Institute faculty member Marie-France Hivert and her co-director Christopher Duggan developed the AISC Metabolism,

“

My hope is that future physicians will not focus on just treating disease, but preventing it, based on sound science related to nutrition, physical activity, and behavior changes. Training future physicians today on how they can make a difference in a healthier population tomorrow is just the start.

**MARIE-FRANCE HIVERT**

Associate Professor

Nutrition and Lifestyle Medicine. The first iteration of the course took place in April 2019 with highly positive student feedback.

*Metabolism, Nutrition and Lifestyle Medicine* leverages boundless access to the expertise of multiple faculty members across HMS-affiliated institutions, offering a robust selection of guest lecturers with expertise in nutrition, physical activity, and behavior change. Faculty member Peter James served as one of the course's first guest lecturers, discussing his study of the influence of geographic contextual factors— including exposure to nature, the built environment, the food environment, and socioeconomic factors— on health behaviors and chronic disease.

As a result of the success of the AISC and her overall advocacy for a stronger presence of nutrition and lifestyle education, Dr. Hivert was asked to review the entire HMS curriculum and integrate nutrition as a longitudinal theme to be woven across many courses. Dr. Hivert will lead a comprehensive review of the curriculum, recommend key opportunities for incorporating this critical health care topic, and spearhead implementation of the curriculum revisions.

## HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

### Applied Regression Analysis

Faculty member Sharon Lutz leads this course, which provides students with the skills necessary to perform regression analyses and to critically interpret statistical issues related to regression applications in the public health literature.

### Epidemiologic Methods in Health Services Research

This course introduces students to the application of standard and advanced epidemiologic methods to health services research, comparative effectiveness research, and patient-centered outcomes research. Faculty member Darren Toh serves as a co-instructor of the course, which also features Institute guest lecturers Jeffrey Brown, Richard Platt, Dennis Ross-Degnan, and Frank Wharam.

### Managing Health Care Costs

Faculty member Frank Wharam lends his expertise as a guest lecturer in Managing Health Care Costs. The course is offered to students in their first or second year of the Master of Public Health program.

### Statistical Inference II

Faculty member Rui Wang leads this doctoral-level statistical course, addressing several advanced topics in statistical inference including limit theorems, multivariate delta method, properties of maximum likelihood estimators, asymptotic relative efficiency, robust and rank-based procedures. Jessica Young guest lectures in the course.

### Introduction to Clinical Epidemiology

Faculty member Emily Oken teaches in this core course in the Program in Clinical Effectiveness. It covers core epidemiologic concepts and study designs from the perspective of clinical research.

## Lectures and Seminars at the Institute

With over 78 seminars or lectures held at the Institute in 2019, there is no shortage of learning opportunities. Whether sponsored by the Institute, or one of our research divisions or centers of excellence, talks held at the Institute broach a broad range of topics, expertise, and methods.

For more information, read on — and fill your calendar by visiting the new Event Calendar on our website: [www.populationmedicine.org/events](http://www.populationmedicine.org/events).

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### BIOSTATS SEMINARS

The Division of Biostatistics invites speakers whose research interests align with the Institute, with the goal of keeping faculty, analysts, research fellows and students, and quantitative Institute researchers up to date with cutting-edge statistical methods.

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### BROWN BAG SEMINARS

For over 10 years, the Institute has convened Brown Bag seminars to encourage faculty to share their work with their colleagues. These lunchtime gatherings typically occur twice a month (Thursdays at noon), giving busy faculty the opportunity to stay up to date on the research of their colleagues. Brown Bag seminars foster a strong sense of support and collaboration among the Institute community.

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### CHERP AND PROMOTER SEMINARS

The Center for Health Care Research in Pediatrics (CHERP) and Precision Medicine Translational Research Center (PROMoTeR) hold monthly seminars to learn about the research of others in and outside the department related to children's health care or interesting new methods. Seminars are typically held 2<sup>nd</sup> Tuesdays at 10 am.

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### CORAL MEETINGS

The Division of Chronic Disease Research Across the Lifecourse (CoRAL) faculty, fellows, staff, and external collaborators meet monthly to hear from outside speakers on topics related to their research or to share their own research avenues and progress. Invited speakers have research interests that intersect those of CoRAL, and their visits often result in new collaborations and engaging, ongoing discussion.

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### HPI SEMINARS

The Health Policy and Insurance (HPI) Research Seminar Series provides Health Policy and Insurance Research Fellows, other students, and researchers with the knowledge and tools necessary to conduct rigorous health policy research. Seminars are typically held 2<sup>nd</sup>/4<sup>th</sup> Wednesdays at noon.

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### THOMAS S. INUI LECTURE

This annual event was established in 2000 and named for the founding Chair of the Department of Ambulatory Care and Prevention, known today as the Department of Population Medicine. Dr. Inui led the department for eight years until his departure in 2000 and returns to Boston for the lecture each year.

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### TIDE SEMINARS

The Therapeutics Research and Infectious Disease Epidemiology (TIDE) division invites experts in pharmacoepidemiology, surveillance, and infectious disease prevention research to share their research. The division is revamping their seminar series, expected to launch mid-2020.

# Fellowships and Mentoring

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**A** productive fellowship can be a catalyst into a successful research career. Institute research fellows receive strong mentorship, support, and regular feedback on their work including how to achieve their desired goals and steps to increasing career trajectory both at the Institute and beyond. We wish the best of luck to the following individuals who completed their fellowships in 2019:

## **Izzuddin Aris**

Faculty member, Harvard Pilgrim Health Care Institute (see page 20)

## **Andres Cardenas**

Assistant Professor in Residence, Environmental Health Sciences, University of California, Berkeley

**Tom Chen (Thomas O. Pyle Fellowship)** Faculty member, Harvard Pilgrim Health Care Institute (see page 21)

## **Unni Gopinathan (Fellowship in Health Policy and Insurance Research)**

Senior Researcher, Cluster for Global Health, Division for Health Sciences, Norwegian Institute of Public Health

## **Xiaodong Guan (Fellowship in Health Policy and Insurance Research)**

Dean of Research, Peking University, China

## **Rachele Hendricks-Sturup (Thomas O. Pyle Fellowship)**

Health Policy Counsel, The Future of Privacy Forum, Washington, D.C.

## **Joachim Hero (Thomas O. Pyle Fellowship)**

Associate policy researcher, RAND Corporation, Boston, MA

## **Mara Murray Horwitz (HMS Fellowship in General Medicine and Primary Care)**

Assistant Professor, Division of General Internal Medicine, Boston Medical Center, Boston, MA (beginning September 2020)

## **Xiaojuan Li**

Faculty member, Harvard Pilgrim Health Care Institute (see page 22)

## **Welcome to the Institute: Introducing New 2019 Fellows — and One New Fellowship**

### **FELLOWSHIP IN HEALTH POLICY AND INSURANCE RESEARCH**

As health care delivery and health insurance systems rapidly change, the need for individuals trained in novel methods to produce sound evidence—the kind that will inform policy and program changes for the betterment of population health—grows more urgent. New 2019 fellows include:

#### **Cathy (Mengyuan) Fu**

**MENTOR(S):** Dennis Ross-Degnan, Anita Wagner

**FOCUS:** Promoting equity in access to and quality use of medicines in China, especially among vulnerable populations such as the elderly, patients with rare diseases, and rural patients.

#### **JinSong Geng**

**MENTOR:** Hao Yu

**FOCUS:** Using data collected in China to evaluate the preference of patients and physicians on reimbursement of therapeutic technologies for chronic diseases, and to evaluate patients' satisfaction with reimbursement of chronic diseases by their insurance policies.

## Suzanne and Robert Fletcher Prize in Population Medicine

In 2019, the Institute awarded the second annual Suzanne and Robert Fletcher Prize in Population Medicine, named for Professors Emeriti Suzanne and Robert Fletcher, who have been national leaders in advancing the field of clinical epidemiology. An expert panel of Institute faculty reviewed submissions from Harvard Medical School and Harvard School of Dental Medicine students, judging each by the importance of the topic for population health, clarity of expression, and quality of writing.

### SANJAY KISHORE AND MARGARET HAYDEN, HARVARD MEDICAL SCHOOL STUDENTS

Their winning submission, “Lessons from Scott County: Progress or Paralysis on Harm Reduction?”, focused on harm reduction programs, and syringe exchange programs in particular, as cost-effective but underutilized tools for reducing the spread of HIV and HCV in the midst of the rising rates of intravenous drug use and was later published<sup>18</sup> in *The New England Journal of Medicine*.

<sup>18</sup> Kishore S, Hayden M, Rich J. Lessons from Scott County — Progress or Paralysis on Harm Reduction? *N Engl J Med*. 2019 May 23; 380(21):1988-1990. PMID: 31042821.

## THE DELIVERY SCIENCE FELLOWSHIP

In 2019, we launched a Delivery Science Fellowship in partnership with Atrius Health. The fellowship is designed to provide exceptionally promising future health care leaders with an opportunity to learn about and participate in health care innovation, adoption, implementation, evaluation, and spread within a setting that combines the resources of a progressive multispecialty physician group practice and a nationally-renowned academic department.

### Amir Meiri

**MENTOR(S):** Dennis Ross-Degnan, Jason Block

**FOCUS:** Implementation of operations-focused projects at Atrius Health to help improve the quality of patient care delivery.

**CURRENT PROJECT:** Implementing tele-screening for diabetic eye disease within primary care.

## THOMAS O. PYLE FELLOWSHIP

Endowed by Harvard Community Health Plan to honor its former Chief Executive Officer, the Thomas O. Pyle Fellowship Fund provides funding for individuals studying critical topics in domestic health policy and health care systems. New 2019 fellows include:

### Mohammad Alrahwashdeh

**MENTOR(S):** Michael Klompas, Chanu Rhee

**FOCUS:** Improving the measurement of sepsis-associated organ dysfunction and severity of illness using electronic health record data, fulfilling a need for more precise detection and surveillance mechanism for sepsis

### Saumya Chatrath

**MENTOR:** Laura Garabedian

**FOCUS:** Investigating how patients with chronic conditions respond to changes in cost sharing and to non-linear health insurance contracts and mapping these changes in utilization to disease-specific outcomes.

### Dongdong Li

**MENTOR:** Rui Wang

**FOCUS:** Modeling and inference of multiple event times and their dependence in the presence of informative censoring with application to cancer survivorship studies, and approximating methods and inference for privacy-protecting distributed analysis.

2019–2020 Institute Fellows



### Whitney Sewell

**MENTOR:** Julia Marcus

**FOCUS:** Using survey and qualitative data to understand patterns of HIV preexposure prophylaxis use, and developing tools to facilitate increased awareness and uptake of HIV preexposure prophylaxis in clinical settings.

### ADDITIONAL FELLOWS

The Institute also welcomes fellows and visiting students not enrolled in Institute training programs. These fellows train with faculty as part of existing research grants or under outside training programs.

### Anna Grummon

**(David E. Bell Postdoctoral Fellowship)**

**MENTOR:** Jason Block

**FOCUS:** Examining whether companies reformulate products in response to the recent federal mandate requiring food retailers to post calorie information.

### Diana Juvinao-Quintero

**MENTOR:** Marie-France Hivert

**FOCUS:** Analyzing data from the Gen3G cohort to investigate associations between maternal glycemia or other metabolic factors in pregnancy and changes in methylation in offspring.

### Elizabeth Suarez

**MENTOR:** Judy Maro

**FOCUS:** Surveillance of adverse drug reactions in pregnancy, and using administrative claims data to research the safety of drug use during pregnancy.

### Allison Wu

**MENTOR(S)** Marie-France Hivert, Emily Oken

**FOCUS:** Dual-energy x-ray absorptiometry (DXA) measured abdominal adiposity and its association with cardio-metabolic risk in adolescents, as well as childhood dietary exposures associated with the accumulation of DXA-measured abdominal adiposity.

### Shangyuan Ye

**MENTOR:** Rui Wang

**FOCUS:** Development and application of statistical methods to develop improved risk-adjustment models and to compare different hospital ranking systems based on hospital-acquired infections.



Gordon Moore presents Candace Fuller with the inaugural Gordon Moore Award for Excellence in Mentoring.

## Gordon Moore Award for Excellence in Mentoring

The Harvard Pilgrim Health Care Institute strives to provide its staff, fellows, faculty, and leadership with strong mentoring to facilitate their development. Since our inception, we have evolved an active internal mentoring program through multiple processes. In 2019 we launched the Gordon Moore Award for Excellence in Mentoring. This annual award celebrates outstanding Institute members who inspire, support, and catalyze a colleague's development to become the best they can be in their careers and lives. A nomination for excellence in mentoring appreciates individuals who have had a transformative role in the professional or personal development of one or more mentees.

### CANDACE FULLER, RESEARCH SCIENTIST

The recipient of the inaugural 2019 Gordon Moore Excellence in Mentoring Award, Candace Fuller embodies all qualities of an outstanding mentor through developing others' talents, serving as a role model, coach, and supporter, and through advocating for work-life balance.

# National Leadership Positions

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## Jason Block

- Continuing Medical Education Committee, The Obesity Society

## Maureen Connelly

- Planning Committee, National Academy of Science, Engineering, and Medicine Convocation titled: Promotion and Tenure Policies and Incentives in Higher Education

## Alison Galbraith

- Committee on Child Health Financing, American Academy of Pediatrics

## Marie-France Hivert

- Scientific Committee and Writing Group, Endocrine Society Guidelines on Prevention of Diabetes and Cardiovascular Disease (published July 2019)
- Program Committee, American Heart Association Scientific Sessions from the Councils of Epidemiology and Lifestyle
- Nominating Committee, American Heart Association Lifestyle Council

## Michael Klompas

- Sepsis Task Force, Infectious Diseases Society of America
- Surviving Sepsis Campaign Guidelines Committee

## Douglas Krakower

- External Content Expert, United States Preventive Services Task for Evidence Summary for HIV Preexposure Prophylaxis
- HIV Technical Expert Panel, Substance Abuse and Mental Health Services Administration



## Xiaojuan Li

- Education Committee, Society for Epidemiologic Research

## Emily Oken

- Co-Chair, Protocol Implementation and Evaluation Committee, ECHO Program, NIH
- National Advisory Board Member, Nutrition in Pregnancy Conference, The Moore Institute for Nutrition & Wellness at Oregon Health & Science University
- Chair, Scientific Advisory Committee to Section on Women's and Children's Health, Division of Research, Kaiser Permanente Northern California
- Planning Committee Member, Workshop on Nutrition in Pregnancy, National Academy of Medicine

## Catherine Panozzo

- Vice Chair, International Society for Pharmacoepidemiology Vaccine Special Interest Group

## Richard Platt

- Leadership Consortium for a Value & Science-Driven Learning Health System, National Academy of Medicine
- Co-Chair, Evidence Mobilization Action Collaborative, National Academy of Medicine



### **Chanu Rhee**

- Sepsis Guidelines Committee, American College of Emergency Physicians
- Sepsis Task Force, Infectious Diseases Society of America

### **Jim Sabin**

- Chair, Council on Ethical & Judicial Affairs, American Medical Association

### **Edward Septimus**

- Chair, Patient Safety Committee, National Quality Forum
- Consensus Standard Approval Committee, National Quality Forum
- Sepsis Task Force, Infectious Diseases Society of America
- Technical Expert Panel, AHRQ Safety Program to Improve Antibiotic Use

### **Natasha Stout**

- President-Elect, Society for Medical Decision Making

### **William Taylor**

- Primary Care and Chronic Illness Standing Committee, National Quality Forum

### **Rui Wang**

- Biostatistics and Study Design core, NIH Collaboratory

### **Frank Wharam**

- Co-chair, Advisory Panel on Healthcare Delivery and Disparities Research, PCORI

### **Davene Wright**

- Oversight Advisory Board, American Heart Association Strategically Focused Research Network
- Board of Trustees, Society for Medical Decision Making
- Co-chair, Pediatric Interest Group, Society for Medical Decision Making
- Special Committee on Meeting Innovation, Society for Medical Decision Making

## Honors/Awards

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### **Ebert Fellowship, Harvard Medical School Eleanor and Miles Shore Faculty Development Award**

Sharon Lutz

### **HMS Aesculapian Club 2019 Inductee**

Emily Oken

### **American Society for Clinical Investigation Inductees**

Maryam Asgari

Emily Oken

### **Society for Pediatric and Perinatal Epidemiologic Research Mentoring Award**

Emily Oken

### **Women's Executive Leadership in Academic Medicine Fellowship**

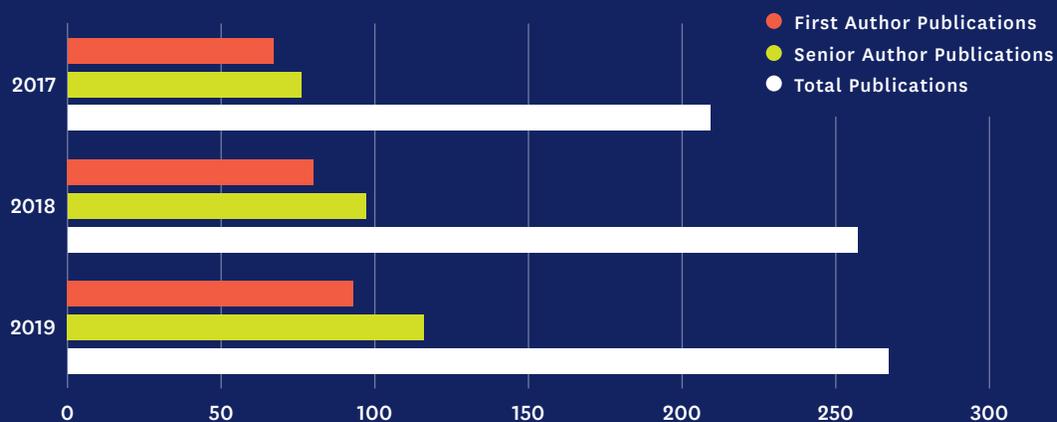
Maryam Asgari

# 2019 BY THE NUMBERS

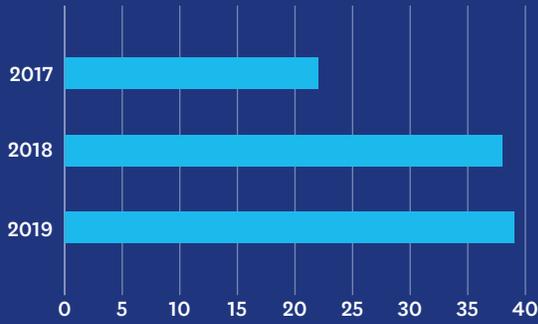
IN 2019 WE PROMOTED OUR WORK VIA



## PUBLICATIONS IN PEER-REVIEWED JOURNALS



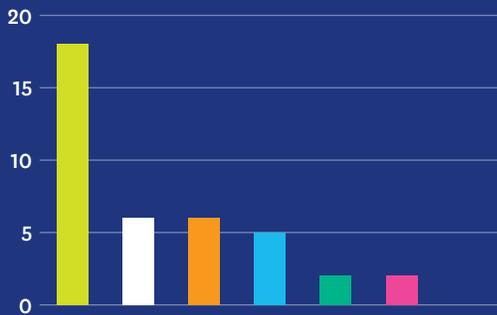
NEWLY FUNDED PROPOSALS (TOTAL #)



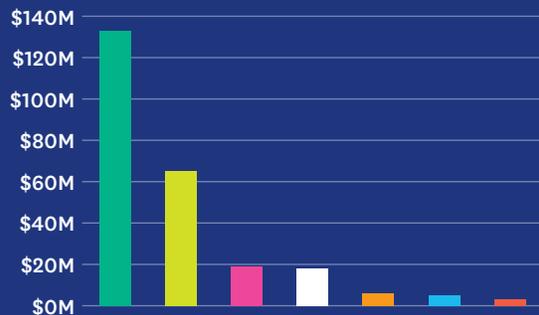
DOLLAR AMOUNT OF NEW AWARDS



NUMBER OF NEW 2019 AWARDS (BY FUNDER)



DISTRIBUTION OF ALL ACTIVE AWARDS (BY FUNDED AMOUNT)



**FUNDERS**

- CDC
- FDA
- NIH
- Industry
- Other Federal
- PCORI
- Other (Foundation/Internal/State)

AWARDS + GRANTS



**129**

ACTIVE GRANTS



**39**

NEW AWARDS



**111**

NEW PROPOSALS SUBMITTED



**\$177M**

IN NEW AWARDS



**\$57M**

IN GRANT/CONTRACT REVENUE

## **MISSION**

The Institute's mission is to improve health care delivery and population health through research and education, in partnership with health plans, delivery systems, and public health agencies.

DEPARTMENT OF POPULATION MEDICINE



**HARVARD**  
MEDICAL SCHOOL



Harvard Pilgrim  
Health Care Institute

**HARVARD PILGRIM HEALTH CARE INSTITUTE**

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