HARVARD PILGRIM HEALTH CARE INSTITUTE

ANNUAL REPORT 2020

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PHOTOGRAPHY:
Institute staff & family, Elisif Photography, Bob Wyllie Photography, Stephanie Bulthuis, and Brigham and Women's Hospital.

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.

WHO WE ARE

The Harvard Pilgrim Health Care Institute is a research and teaching partnership between Harvard Pilgrim Health Care/Point32Health and Harvard Medical School. As the nation's first medical school appointing department based in a health plan, we're strategically positioned to improve population health and health care delivery locally, nationally, and internationally. We're 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 **44** core faculty, **16** research scientists, **25** fellows, and more than **200** staff working with hundreds of institutional and individual collaborators around the globe.

DEAR COLLEAGUES,

This annual report documents the year during which we confronted the new problem of COVID-19 and began to grapple more seriously with the generations-old consequences of systemic racism. I am writing this introduction during the week in which Massachusetts experienced its first day in many months with no COVID deaths, and also the week in which the Centers for Disease Control (CDC) advised us that COVID-immunized individuals no longer need to wear masks in most settings. While we can celebrate some successes against COVID-19, we are only beginning to address the challenge of health inequity.

To the outside observer, our transition to remote work appeared seamless. This appearance masked extraordinary effort by so many members of our Institute, who made it possible to continue working while coping with the complexities of managing life at home.

In part because that transition worked so well, it proved possible both to keep up the research and teaching we had already planned, and also to take on a large portfolio of new activities. In this report we document some of the highlights. For COVID-19 these spanned public health surveillance, investigating the natural history of the illness, measuring the treatments, making hospitals safe for patients and health care workers, and understanding the impact of COVID on health plan members. We are only beginning our work on health equity. But we have new work in progress to assess the impact of race on members' access to care, especially as it has been affected by COVID-19. As is the case for much of our work, we hope it will have both local and national impact.

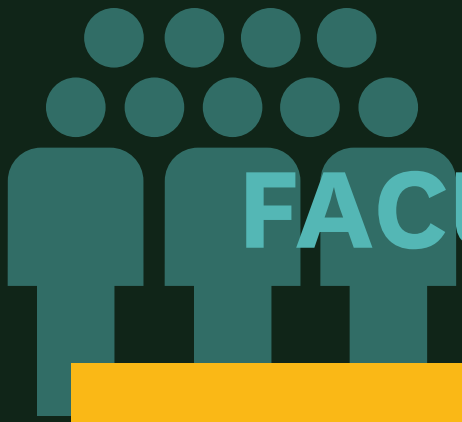
Our goal always is to use our skills and resources to work toward a healthier and more equitable society. I invite you to take a look and let us know what you think.

Sincerely,

Richard Platt

Richard Platt

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



FACULTY + STAFF

16
RESEARCH SCIENTISTS

25
FELLOWS

11
AFFILIATED FACULTY

55
NEW HIRES IN 2020

41
AFFILIATED CLINICAL FACULTY

>200
STAFF

44
CORE FACULTY


RES
FAR

RESEARCH

We conduct research on the structures, processes, and outcomes of the health care and public health systems. Our work blends a population and public health focus, is anchored in health care delivery, and leverages unprecedented data resources derived from health care delivery systems along with methodologic expertise in analyzing those resources.

During 2020 we responded to the twin crises of COVID-19 and the stark spotlight of the burden of racial inequality on health by adding a substantial portfolio of COVID-19-related research sponsored by the U.S. Food and Drug Administration, CDC, and the Patient-Centered Outcomes Research Institute, and developing new programs in health disparities and equity. Our ability to respond as we did highlighted the critical value of dually trained medical and public health professionals and underscored the value of population health approaches, evidence-based policy, public health systems, and public health education and communication efforts.

A MULTIFACETED RESPONSE TO THE PANDEMIC

Institute members are working on the front lines and on research and public health projects to add to the growing and evolving body of knowledge on COVID-19. As this body of knowledge grows, so do our publications—visit www.population-medicine.org/COVID for the latest list.

COMPARATIVE EFFECTIVENESS

Rui Wang is co-leading the Vitamin D for COVID-19 (VIVID) trial. This clinical trial is evaluating whether taking vitamin D supplements can reduce the severity of symptoms and reduce the rate of seeking health care for symptoms or concerns related to a COVID-19 diagnosis. The study is also looking at whether Vitamin D can reduce the chances of being infected for household members of newly infected individuals.

DELIVERY SYSTEMS

Michael Klompas, Chanu Rhee, and Meghan Baker lead the Infection Control Program at Brigham and Women's Hospital (BWH) and the Dana Farber Cancer Institute in Boston. In this capacity, they have been responsible for overseeing the hospitals' preparations and policies to safely manage COVID-19 as well as to detect and control clusters of infection. They have also gained national profiles in the science of COVID-19 transmission, epidemiology, and prevention in health care settings by publishing numerous influential viewpoint articles and research studies, including a highly cited article describing a large hospital-based outbreak and lessons learned. Much of this work has been done in collaboration with Institute colleague Sanjat Kanjilal, who is Associate Medical Director of Clinical Microbiology at BWH. Dr. Kanjilal assisted in the validation of alternative specimen types that allowed for expansion of outpatient and peri-operative testing.

Douglas Krakower examined the impact of COVID-19 on use of HIV preexposure prophylaxis (PrEP) at Fenway Health, the largest PrEP provider in New England. Despite a successful shift to telehealth, COVID-19 was associated with major disruptions in PrEP refills, new starts, and HIV/sexually transmitted infection testing. The refill lapses were associated with age, race, ethnicity, and insurance type. The study was highlighted in the opening press conference of the International AIDS Society's annual meeting in July 2020.

DESCRIPTIVE EPIDEMIOLOGY

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. Jason Block leads several projects within PCORnet that are exploring how electronic health records can be used to support population surveillance in the U.S. Recently, that work has led to a large-scale effort to characterize and follow patients with COVID-19. The study will facilitate surveillance and population health analysis on topics that are identified as high priority areas within COVID-19+ adults and children by CDC and PCORnet.

During a time of social distancing measures and increasing social isolation, green spaces may be a crucial factor to maintain a physically and socially active lifestyle while not increasing risk of infection. Peter James led a new study examining whether greenness is related to COVID-19 incidence and mortality in the United States. Results[1] indicate exposure to green space had beneficial impacts on county-level incidence of COVID-19 in the U.S. and may have reduced county-level COVID-19 mortality rates, especially in densely populated counties.

1 Jochem O. Klompmaker, Jaime E. Hart, Isabel Holland, M. Benjamin Sabath, Xiao Wu, Francine Laden, Francesca Dominici, **Peter James**, County-level exposures to greenness and associations with COVID-19 incidence and mortality in the United States, Environmental Research, Volume 199, 2021,111331, ISSN 0013-9351.

POLICY

In a PCORI-funded supplement to the Asthma in Families Facing Out-of-pocket Requirements with Deductibles (AFFORD) project, which evaluates the impact of high-deductible health plans and preventive drug lists on medication use and clinical outcomes for adults and children with asthma, **Alison Galbraith** and her study team are testing a navigation intervention for people with asthma who lose their jobs and coverage during the COVID-19 pandemic to help them find coverage and manage the costs of asthma care.

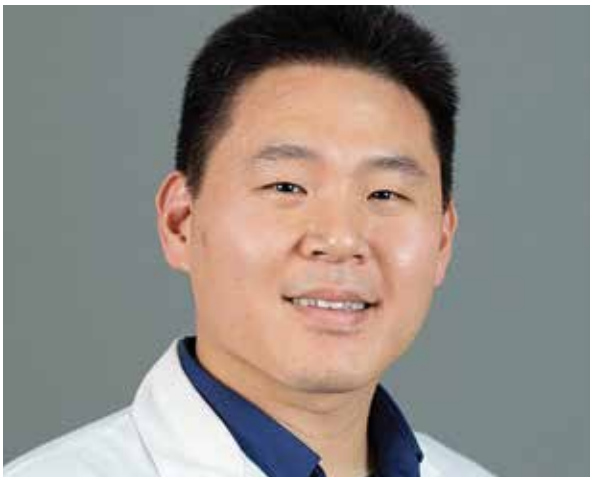
PREVENTION

A new Project Viva study[2] led by **Marie-France Hivert, Emily Oken, and Joanne Sordillo** examined DNA methylation of the *ACE2* gene in nasal cells among adolescent participants. SARS-CoV-2 is believed to enter the body through the *ACE2* gene receptors, which are highly expressed in the lining of the nasal cavity. Because different amounts of methylation can affect gene expression, and *ACE2* expression has been shown to increase after exposure to air pollution, cigarette smoke, and allergens, the team hypothesized that differences in *ACE2* DNAm could contribute to our understanding of COVID-19 severity and disparities reflecting upstream environmental and social factors. Study results suggest that *ACE2* hypomethylation in nasal epithelium among Black males could lead to increased SARS-CoV-2 infectivity and COVID-19 severity via greater abundance of *ACE2* receptors. See page 17 for more detail on Project Viva.

SURVEILLANCE AND PUBLIC HEALTH

The U.S. Food and Drug Administration (FDA) Sentinel Operations Center, based in the Harvard Pilgrim Health Care Institute and led by **Richard Platt,** is a national program that allows FDA to monitor the safety and effectiveness of marketed medical products. Sentinel was actively involved in FDA's response to COVID-19, providing data on natural history and management of the disease. The Sentinel COVID response team, led by

2 Cardenas A, **Rifas-Shiman SL, Sordillo JE,** DeMeo DL, Baccarelli AA, **Hivert MF**, Gold DR, **Oken E.** DNA methylation architecture of the ACE2 gene in nasal cells of children. Sci Rep. 2021 Mar 29;11(1):7107.



In addition to their Institute research roles, faculty members Meghan Baker, Chanu Rhee, and Michael Klompas lead the Infection Control Program at Brigham and Women's Hospital and the Dana Farber Cancer Institute.

COVID RESEARCH/MEDIA STATISTICS

30
PUBLICATIONS
in the medical literature

13
BLOG POSTS WRITTEN

135
NEWS ARTICLES

22
RADIO APPEARANCES

9
PODCASTS

7
TELEVISION APPEARANCES

9
OPINION PIECES

MORE AT
www.populationmedicine.org/COVID

Noelle Cocoros, Candace Fuller, and Judy Maro, has created a longitudinal dataset with over 130,000 COVID cases. This work allows monitoring the use of drugs, description of the course of illness among hospitalized patients, and the evaluation of the treatment impact of therapies actively being used under real-world conditions. The Sentinel team also modified the MyStudies mobile app that it developed to enable eConsent for COVID-19 clinical trials. See page 18 for more detail on Sentinel.

Institute researchers have a longstanding partnership with the Massachusetts Department of Public Health (MDPH) to build and maintain a distributed data network called MDPHnet that performs ongoing surveillance for outcomes of public health interest using electronic health record data. In 2020, the team, led by Institute members **Michael Klompas with Noelle Cocoros, Aileen Ochoa, and Sarah Willis,** modified the program to track COVID-19. MDPHnet identifies potential COVID-19 cases using diagnostic codes, vital signs, and laboratory tests, and creates weekly reports for MDPH with aggregate case counts by gender, race/ethnicity, age, and zip code. See page 16 for more detail on MDPHNet.

Katherine Yih is leading a project within the CDC-funded Vaccine Safety Datalink (VSD) to use a data-mining method to detect unanticipated adverse events after COVID-19 vaccination in the VSD population of approximately 12 million Americans. The method differs from traditional safety study methods in that it does not require pre-specifying a health outcome of interest or a post-exposure period of potentially increased risk. If any statistically unusual clusters are found, they will be investigated as possible indications of a safety problem.

Jeffrey Brown is collaborating with several COVID-19 vaccine manufacturers on the development of post-approval vaccine safety surveillance protocols and studies. Dr. Brown is also working with national policymakers to promote improved data infrastructure for COVID-19 vaccine safety surveillance.

AN INCREASED FOCUS ON HEALTH EQUITY

The increased focus on equity may be the enduring legacy of this time. The challenges presented by COVID-19 paired with the national awakening to the consequences of structural racism has underscored that addressing health equity is central to solving many of our greatest issues. The Institute's cross-cutting research examines equity and disparities across the lifespan, and the events of 2020 have further strengthened this important dimension of our research. We are committed to continuing to build an Institute where trainees and faculty are immersed in best practices for addressing equity issues in research and to expand our portfolio of work in health equity and disparities.

POLICY

The COVID-19 pandemic has caused severe morbidity and mortality among infected patients, disruptions in commercial health insurance coverage, and major changes in health care access. In a unique collaboration with Harvard Pilgrim Health Care (HPHC) operational leaders, **Alison Galbraith and Frank Wharam** are leading a team of Institute investigators **(Laura Garabedian, Mei-Sing Ong, Alon Peltz, Anita Wagner, Hefei Wen, and Hao Yu)** assessing the impact of the COVID-19 pandemic on commercial health insurance enrollment, health outcomes, and disparities among HPHC members. This program, titled RECOVER: Understanding COVID-19 Impacts on Health Outcomes and Equity in the New England Region, focuses especially on elucidating differential impact on health plan members from racial and ethnic minority groups.

Alon Peltz is leading two new studies examining health disparities. In a new mixed methods evaluation with funding from the Massachusetts Association of Health Plans, Dr. Peltz is examining equity in use of telehealth services during the COVID-19 pandemic, focusing on several health plans including HPHC. This study will examine whether there have been socioeconomic, racial, and ethnic inequities in telehealth usage in Massachusetts since the onset of the COVID-19

Alon Peltz is leading two new studies examining health disparities.

pandemic and will help identify solutions that can apply across the entire health care sector in the Commonwealth to promote and sustain equitable access. In a separate mixed-methods study in the health plan setting, he will examine risk-prediction algorithms and inclusion of race and ethnicity information that are currently used. He will develop a framework for use of risk-prediction algorithms and for monitoring social, racial, and ethnic inequities.

Hao Yu is leading several studies examining health disparities and equity. An Agency for Healthcare Research and Quality (AHRQ) funded project will examine whether the Medicaid expansion under the Affordable Care Act has attracted more physicians to practice in the expansion states, especially in disadvantaged areas in those states. He is also leading a National Institutes of Health (NIH) funded study investigating whether the recent expansion of the National Health Service Corps clinician workforce in health professional shortage areas reduces disparities in health care and health across geographic areas. For another NIH-funded project, he is examining the supply and distribution of mental health workforce and health care for children with autism overall, and especially for those who live in under served areas, such as rural, low-income, and minority communities.

Davene Wright's work focuses on improving the supply of and demand for efficient health care that can improve the management of pediatric chronic diseases, with a focus on childhood obesity.

Alison Galbraith and former faculty Melissa Gilkey lead a Robert Wood Johnson Foundation project to test a clinic-based intervention to promote discussion about costs with parents of children with asthma to help reduce financial burden. This project offers potential strategies that can help lower-income patients as well as Black patients, who are disproportionately affected by asthma.

As part of the Natural Experiments in Translation for Diabetes (NEXT-D) consortium, **Laura Garabedian, Dennis Ross-Degnan, Stephen Soumerai, and Frank Wharam** are leading a series of studies examining the impact of patient cost sharing on adherence to medications for management of diabetes and related cardiometabolic disorders. Recent work has focused on cost burden due to longitudinal increases in patient cost sharing for insulin and on the impacts of reductions in cost sharing due to employer adoption of Preventive Drug Lists for employees in high deductible health plans. They found[3] that the switch to a Preventive Drug List that covers classes of medication to manage diabetes and cardiovascular conditions is associated with not only substantial out-of-pocket savings, but increased utilization, especially for low-income patients. See page 16 for more detail on NEXT-D.

Children enrolled in the Supplemental Nutrition Assistance Program (SNAP) are at a higher risk of poor diet, including higher sugar-sweetened beverage

3 **Ross-Degnan D,** Wallace J, **Zhang F, Soumerai SB, Garabedian L, Wharam JF.** Reduced Cost-sharing for Preventive Drugs Preferentially Benefits Low-income Patients With Diabetes in High Deductible Health Plans With Health Savings Accounts. Med Care. 2020 Jun;58 Suppl 6 Suppl 1(Suppl 6 1):S4-S13.

Julia Marcus's research focuses on improving the implementation of preexposure prophylaxis (PrEP) to prevent new HIV infections. In addition to her research, Dr. Marcus has written essays on public health, including a series of articles in *The Atlantic* during the COVID-19 pandemic.

consumption compared to non-SNAP participants. Consumption of sugar-sweetened beverages have been linked to health impacts like increased risk of childhood dental caries and obesity. **Davene Wright** contributed to the first study[4] to explore the impact of restricting sugar-sweetened beverage purchase with SNAP benefits on these health impacts. The team found that restricting sugar-sweetened beverages in SNAP could lower their intake by almost one quart per week on average and impact other food consumption, suggesting that implementing sugar-sweetened beverage restrictions could promote healthier diet and lower the prevalence of dental caries — one of the most common chronic diseases of childhood in the U.S.

4 Choi SE, **Wright DR**, Bleich SN. "Modeling the Impact of Restricting Sugar-Sweetened Beverages from SNAP Purchases on Calorie Intake, Dental Caries and Obesity Risk in Children." American Journal of Preventive Medicine. 2021 Feb;60(2):276-284.

COVID Thought Leadership

As authorities in their areas of research, faculty often pen think pieces on timely, relevant topics in health care and medicine in high-impact journals and media. In 2020, their focus pivoted quickly to contributing to the public health response to COVID-19.

UNIVERSAL MASKING IN HOSPITALS IN THE COVID-19 ERA

A *New England Journal of Medicine Perspective*[5], first-authored by **Michael Klompas** early in the pandemic, was an important contributor to the adoption of universal masking by health care workers. The piece generated one of the highest media attention scores documented by research tracking firm Altmetric.

ADVOCATING FOR A PANDEMIC PUBLIC HEALTH MANUAL FOR AMERICANS

Julia Marcus has contributed a series of essays[6] in *The Atlantic*, completed more than 100 media interviews, and is active on social media to address the importance of adopting a harm reduction framework for control of COVID-19.

SCHOOLS NEED TO ASSUME KIDS CAN GET AND SPREAD COVID, AND OPERATE SAFELY FOR ALL AGES

Laura Garabedian, along with former Institute fellow Rebecca Haffajee, wrote an op-ed[7] in *USA Today* advocating for leaders in education to take scientific evidence and the limitations of epidemiological studies into account when creating guidelines and strategies to operating safely during the pandemic.

USING NEW EVIDENCE TO TAILOR PUBLIC HEALTH POLICIES TO PREVENT COVID-19 TRANSMISSION

In a *Boston Globe* opinion piece[8] **Sanjat Kanjilal** and colleagues discuss the unique problems quarantine and testing mandates posed for travelers and for nursing homes, advocating for the leverage of knowledge gained over the first few months of the pandemic to create evidence-based policies to help prevent the disease from getting out of control.

5 **Klompas M**, Morris CA, Sinclair J, Pearson M, Shenoy ES. Universal masking in hospitals in the Covid-19 era. N Engl J Med 2020;382:e63.
6 https://www.theatlantic.com/author/julia-marcus/
7 https://www.usatoday.com/story/opinion/2020/08/28/coronavirus-child-studies-inconclusive-schools-precautions-column/3434655001/
8 https://www.bostonglobe.com/2020/08/04/opinion/coronavirus-quarantine-problem-travelers-nursing-homes/

ADDITIONAL 2020 RESEARCH HIGHLIGHTS

COMPARATIVE EFFECTIVENESS

Institute investigators lead research focused on improving outcomes for asthma, the most common chronic disease of childhood. Studies led by **Sharon Lutz, Joanne Sordillo, and Ann Wu** in 2020 examine age-related genetic factors on asthma medication response. In one study[9], the team found that gene expression signatures associated with asthma control varied by age. In another study[10], the team identified novel, age-dependent genetic polymorphisms associated with response to inhaled corticosteroids in adult and pediatric asthma patients. Findings from another study[11] suggest that plasmologens may contribute to age-related asthma phenotypes and may also serve as a potential pharmacologic target for enhancement of lung function in individuals with asthma.

9 McGeachie, M.J., **Sordillo, J.E.**, Dahlin, A, Wang AL, **Lutz SM**...**Wu AC.** Expression of SMARCD1 interacts with age in association with asthma control on inhaled corticosteroid therapy. Respir Res 21, 31 (2020).

10 Dahlin A, Sordillo JE, McGeachie M, Kelly RS, Tantisira KG, **Lutz SM**, Lasky-Su J, **Wu AC**. (2020) Genome-wide interaction study reveals age-dependent determinants of responsiveness to inhaled corticosteroids in individuals with asthma. PLOS ONE 15(3): e0229241.

Jenna Wong's research focuses on predictive modelling applications in epidemiology using electronic and linked administrative health data.

INFECTIOUS DISEASE EPIDEMIOLOGY

The rise of antibiotic resistance is a major threat to the practice of medicine and is driven in large part by overuse of antibiotics. While efforts to curb antibiotic use largely focus on inpatient settings, up to 70% of all antibiotics for humans are actually prescribed in outpatient clinics. In a study[12] published in *Science Translational Medicine*, **Sanjat Kanjilal** and team showed how large-scale machine learning models can be applied to observational electronic health record data to predict antibiotic resistance, make treatment recommendations, and build patient-level and public health models to aid in decision support.

Antiretroviral therapy has improved life expectancy for individuals with HIV infection, but recent data comparing life span and comorbidity-free years by HIV status are lacking. A study[13] led by **Julia Marcus** quantified the gap in life span and comorbidity-free years by HIV status among adults with access to care. The cohort study of 39,000 adults with HIV infection and 387,785 adults without HIV infection in the US, showed that individuals with HIV infection lived 6.8 fewer years overall and 9.5 fewer years without major chronic comorbidities, even after initiation of antiretroviral therapy at high CD4 cell counts. The results suggest that although life

11 **Sordillo JE, Lutz SM,** Kelly RS, McGeachie MJ, Dahlin A, Tantisira K, Clish C, Laskey-Su J, **Wu AC**. Plasmalogens Mediate the Effect of Age on Bronchodilator Response in Individuals With Asthma. Front Med (Lausanne). 2020;7:38. Published 2020 Feb 14.

12 **Kanjilal S**, Oberst M, Boominathan S, Zhou H, Hooper DC, Sontag D. A decision algorithm to promote outpatient antimicrobial stewardship for uncomplicated urinary tract infection. Sci Transl Med. 2020 Nov 4;12(568):eaay5067.

13 **Marcus JL**, Leyden WA, Alexeeff SE, Anderson AN, Hechter RC, Hu H, Lam JO, Towner WJ, Yuan Q, Horberg MA, Silverberg MJ. Comparison of Overall and Comorbidity-Free Life Expectancy Between Insured Adults With and Without HIV Infection, 2000-2016. JAMA Netw Open. 2020 Jun 1;3(6):e207954.

expectancy of adults with HIV infection is approaching that of life expectancy of individuals without, greater attention is needed to prevention of comorbidities among individuals with HIV infection.

POLICY

Additional asthma-centered work at the Institute has focused on understanding disparities in asthma incidence, treatment, and outcomes and improving adherence to needed medications. Work[14] led by **Alison Galbraith** suggests that enrollment in a high-deductible health plan (HDHP) may not be associated with reductions in asthma medication use or an increase in asthma exacerbations when medications are exempt from the deductible. The findings highlight the potential protective effect of value-based designs and other policies exempting important medications for asthma and other chronic conditions — which might prevent adverse clinical outcomes — from the deductible. Another study[15] examined the impact of HDHPs on asthma controller medication use and exacerbations for families with multiple members with asthma. Contrary to previous studies suggesting that those with high out-of-pocket costs make health care trade-offs when faced with financial strain, results showed that having more than one family member with asthma was not associated with increased risk of underuse of controller medications or exacerbations.

As health systems implement new methods of improving health care delivery, the needs increase for continuous evaluation to fully understand impact on patient outcomes and pinpoint areas for improvement. **Laura Garabedian** is evaluating the impact of Benevera Health, a novel payer-provider joint venture between HPHC and provider groups that aims to improve health care value. The project will examine the short and longer-term impact of Benevera Health on health care utilization, quality, and costs. This Donaghue Foundation-funded project is the first study to evaluate the impact of a payer-provider joint venture, a model being implemented in various forms across the United States. It will provide actionable information for the partnering organizations.

Sanjat Kanjilal's research harnesses observational and experimental data to improve the diagnosis and management of infectious diseases.

THERAPEUTICS

A study[16] led by **Darren Toh and Jenna Wong** measured recent trends (2011-2018) in the dispensing of the two most commonly used medications for insomnia: zolpidem and low-dose trazodone. Though a 2017 U.S. clinical guideline recommended clinicians not prescribe trazodone for insomnia due to a lack of evidence of its efficacy and safety for that indication, the team found that off-label dispensing increased steadily. In contrast, they found that on-label dispensing of zolpidem decreased steadily since 2011, but it was still more commonly dispensed. The study showed that the gap between these drugs has narrowed over time, highlighting the need for more studies evaluating the efficacy and safety of trazodone use for insomnia to support current prescribing practices.

14 **Galbraith AA, Ross-Degnan D, Zhang F, Wu AC**, Sinaiko A, **Peltz A**, Xu X, Wallace J, **Wharam JF**. Controller Medication Use and Exacerbations for Children and Adults With Asthma in High-Deductible Health Plans. JAMA Pediatr. 2021 May 10:e210747.

15 **Galbraith AA, Ross-Degnan D, Zhang F, Wu AC,** Sinaiko A, **LeCates RF**, Wallace J, **Peltz A**, **Wharam JF.** Association of Controller Use and Exacerbations for High-Deductible Plan Enrollees with and without Family Members with Asthma. Ann Am Thorac Soc. 2021 Feb 2.

16 **Wong J**, Murray Horwitz M, Bertisch SM, Herzig SJ, Buysse DJ, **Toh S.** Trends in Dispensing of Zolpidem and Low-Dose Trazodone Among Commercially Insured Adults in the United States, 2011-2018. JAMA. 2020;324(21):2211–2213.

The Project Viva team at an apple picking event.

MAJOR INSTITUTE PROGRAMS

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.

The network covers approximately 50% of the Massachusetts population. Faculty member **Michael Klompas** leads this work along with **Noelle Cocoros, Aileen Ochoa, and Sarah Willis.** In 2020, Institute researchers worked closely with MDPH in enabling electronic case reporting at multiple new sites, including Baystate Health, the first site located in western Massachusetts. Thirteen sites now report cases of notifiable diseases to MDPH via this system. In addition, Institute researchers collaborated with MDPH to implement syndromic surveillance for COVID-19 like illness and efforts are underway to develop a COVID-19 case reporting algorithm for participating sites. See page 10 for more detail. Institute researchers continue working with chronic disease epidemiologists at MDPH to conduct population-level analyses, with recent work focused on stroke, diabetes, and telehealth visits during 2020. Finally, a project is underway, led by **Douglas Krakower, Julia Marcus, and Jessica Young,** to use data from four sites to estimate the HIV pre-exposure prophylaxis use needed to reduce HIV incidence to targeted levels among men who have sex with men.

NEXT-D

As part of the Natural Experiments in Translation for Diabetes (NEXT-D) consortium, **Laura Garabedian, Christine Lu, Dennis Ross-Degnan, Anita Wagner, and Frank Wharam** are leading a series of studies examining the impact of changes in patient cost sharing on diabetes care and adherence to medications for management of diabetes and related cardiometabolic disorders. NEXT-D consortia has been funded by the CDC, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), and PCORI since 2010. In 2020, the team was awarded its third five-year grant to examine the long-term effects of efforts by a growing number of employers to reduce cost sharing for medicines and insurance deductibles. Dr. Wharam was elected to chair the overall consortium and Dr. Ross-Degnan to lead the Methods Committee.

2020 NEXT-D highlights include:

Media reports in recent years have highlighted rapidly increasing prices of insulin and the challenge for low income patients with diabetes to afford this life-saving drug. Work led by Institute fellow **Amir Meiri** published in a research letter in *JAMA Internal Medicine*[17] found that despite the increasing insulin prices paid by insurers, insulin out-of-pocket costs remained relatively flat from 2006 to 2017 among privately-insured diabetes patients. Monthly out-of-pocket payments were higher in certain types of high-deductible health plans (HDHPs) that require paying the full cost of medicines until the annual deductible is met, but began decreasing in 2014.

To encourage use of high value care, many employers have begun to offer value-based insurance designs that reduce or eliminate cost-sharing for key services. A paper led by Dr. Ross-Degnan published in *Medical Care*[18] examined the impact of a broad Preventive Drug List that exempts key classes of medications to manage diabetes and cardiovascular conditions from cost-sharing. See page 12 for more information.

Although several studies have examined the short-term effects of switching to HDHPs on use of health services, little is known about the long-term effects of HDHPs on control of diabetes and other cardiometabolic conditions. Dr. Wharam led a study published in *JAMA Network Open*[19] which demonstrated that the first occurrence of major adverse cardiovascular events among HDHP members did not differ relative to controls in traditional low deductible plans over a four-year follow-up period. The finding was similar for subgroups of patients with diabetes or other cardiovascular risk factors. The authors concluded that enrollment in HDHPs with typical value-based features was not associated with increased risk of major adverse cardiovascular events.

17 **Meiri A, Zhang F, Ross-Degnan D, Wharam JF.** Trends in Insulin Out-of-Pocket Costs and Reimbursement Price Among US Patients with Private Health Insurance, 2006-2017. JAMA Intern Med. Published online June 01, 2020.

18 **Ross-Degnan D**, Wallace J, **Zhang F, Soumerai SB, Garabedian L, Wharam JF.** Reduced Cost-Sharing for Preventive Drugs Preferentially Benefits Low-Income Patients with Diabetes in High Deductible Health Plans with Health Savings Accounts. Medical Care. 2020 Jun;58 Suppl 6 Suppl 1:S4-S13.

19 **Wharam JF**, Wallace J, **Zhang F, Xu X, Lu CY,** Hernandez A, **Ross-Degnan D,** Newhouse JP. Association Between Switching to a High-deductible Health Plan and Major Cardiovascular Outcomes. JAMA Network Open. 2020;3(7):e208939.

PROJECT VIVA

Led 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.**

Dennis Ross-Degnan serves as the Site Principal Investigator for the Natural Experiments in Translation for Diabetes (NEXT-D) consortium.

2020 Project Viva highlights include:

Viva investigators were awarded one new grant, a 5-year R01 award from National Institute of Environmental Health Sciences (NIEHS) titled "Per- and polyfluoroalkyl substances mixtures and maternal cardiovascular disease risk across the reproductive life course".

22 publications bring the total for Project Viva to 302. Many papers garnered press attention including the following:

- A Viva publication[20] on PFAS, synthetic chemicals nicknamed "forever chemicals" because of their persistence in humans and the environment, was named[21] "NIEHS Extramural Paper of the month".
- Another Project Viva paper[22] found that early life risk factors in the first 1000 days cumulatively predict higher obesity and cardiometabolic risk in early adolescence[23].
- Viva researchers also found[24] that maternal nutrition during pregnancy may have a long-term impact on children's weight trajectories[25].

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

The FDA Sentinel System is a national program that allows the FDA to monitor the safety and effectiveness of marketed medical products. Sentinel uses a distributed data network, in which the data remains with the participating organizations, to provide the privacy and security of patients' health information. The Harvard Pilgrim Health Care Institute leads the Sentinel Operations Center, which uses curated electronic health data from health plans and delivery systems to conduct safety analyses of the tens of billions of hospital stays, outpatient visits, and pharmacy dispensings included in the Sentinel System. Sentinel has performed more than 600 queries for FDA in support of its regulatory decision-making responsibilities, including 102 active query requests in 2020. Institute investigators were authors of 59 Sentinel presentations and publications in 2020.

In collaboration with partners at Brigham and Women's Hospital, the Harvard Pilgrim Health Care Institute also co-leads the Sentinel Innovation Center, which is building a new, complementary data system that contains electronic health records from 10 million lives and developing cutting-edge methods and analysis tools to query structured and unstructured electronic health data. Guided by the Sentinel System Five-Year Strategy Plan laid out by FDA, the Operations and Innovation Centers, together with a Community Building and Outreach Center are developing and implementing plans to increase the efficiency and responsiveness of the Sentinel System, develop new data sources and more sophisticated methods, broaden the community of users, and extend Sentinel capabilities to allow multi-national collaboration to support assessment of the safety and effectiveness of marketed medical products.

In 2020, FDA initiated numerous activities within the Sentinel System to protect and promote public health during the COVID-19 pandemic. See page 9 for more detail.

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

20 Mitro SD, Sagiv SK, Fleisch AF, Jaacks LM, Williams PL, **Rifas-Shiman SL**, Calafat AM, **Hivert MF, Oken E**, James-Todd TM. Pregnancy Per- and Polyfluoroalkyl Substance Concentrations and Postpartum Health in Project Viva: A Prospective Cohort. J Clin Endocrinol Metab. 2020 Sep 1;105(9):e3415–26.

21 https://factor.niehs.nih.gov/2020/11/papers/dert/index.htm

22 Hu J, **Aris IM, Lin PD**, Perng W, Woo Baidal JA, Wen D, **Oken E.** Longitudinal associations of modifiable risk factors in the first 1000 days with weight status and metabolic risk in early adolescence. American Journal of Clinical Nutrition 2020 Nov 12;113(1):113-122.

22 https://www.news-medical.net/news/20201116/Modifiable-risk-factors-in-the-first-1000-days-of-life-predict-higher-adiposity-and-cardiometabolic-risk.aspx

23 Monthé-Drèze C, **Rifas-Shiman SL, Aris IM**, Shivappa N, Hebert JR, Sen S, **Oken E.** Maternal diet in pregnancy is associated with differences in child body mass index trajectories from birth to adolescence. Am J Clin Nutr. 2021 Apr 6;113(4):895-904.

24 https://www.healio.com/news/primary-care/20210512/maternal-eating-habits-may-affect-childrens-weight-later-in-life.

Transitioning to Remote Work

In March 2020, we were able to smoothly transition to a fully remote workforce in the wake of the pandemic. In addition to keeping original work on track, we developed many critically important COVID-specific projects (for more on those, see page 8). We maintained operations and onboarded 38 new employees after the shutdown, while remaining fully engaged and connected using video conferencing platforms. To boost and maintain morale during this challenging time, the Institute also:

Established Wellness Days to encourage taking breaks from the home office

Held regular Institute-wide Town Hall meetings to share updates on research, teaching, and policy

Held a virtual Memorial Day 5k race with prizes of gift cards to the winners' local restaurant of choice

Encouraged themed photo submissions to maintain community, including "Show us Your Home Office", seasonal photos, and home projects, hobbies, and creations

Updated a COVID-19 Resources intranet page

By row, left to right, photos submitted by: Catherine Rogers-Murray, Ryan Schoeplein, Lauren Cripps, Szilvia Szegedi, Kurt Christensen, Andrew Petrone, Vickie Pagliuca, Megha Bhattarai, Micaela Coady, Pi-I Debby Lin, Maya Dutta-Linn, Laura Garabedian, Kathleen Lynch, Natalie Zahniser-Word, Ann Thomas, Chamaine Washington, and Robin Hoey.

















TEACHING

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.

In 2020, our faculty expanded on the Institute's longstanding tradition of training medical students by taking on the challenges of remote medical education and developing new ways of teaching. When the pandemic threatened to disrupt medical education completely, our faculty quickly — sometimes within days — adapted courses to remote learning environments. Within the challenge of converting curricula that depended on face-to-face interaction and hands-on activities, they found opportunities to innovate creative, interactive sessions that garnered positive feedback from students. While a return to in-person instruction is inevitable, our faculty have shown the value of the virtual classroom in training future clinicians, researchers, and health system leaders to bridge the gap between patient care and population health.

CLASSROOM TEACHING

HARVARD MEDICAL SCHOOL

Clinical Epidemiology and Population Health

Institute faculty have led the clinical epidemiology curriculum at Harvard Medical School (HMS) since 1996. This curriculum spans three required courses: Essentials of the Profession I, Essentials of the Profession II, and Transition to the Principal Clinical Experience.

Laura Garabedian is the Institute's Director of Teaching Programs.

These courses are led by faculty members **Jason Block, Laura Garabedian, 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. 14 faculty participated in teaching this course in 2020.

REMOTE LEARNING

The March 2020 Essentials of the Profession II course began as normal, but with the onset of the pandemic, course directors had three days' notice to adapt the course — already at its halfway point — to a virtual learning environment. Thanks to Zoom, instructors and students were able to seamlessly continue the course. Course topics pivoted to include the economic impacts of the pandemic, ethical principles to consider during public health crises, the latest epidemiology of the virus, mitigation strategies and treatment approaches, the importance of approaching this crisis with an equity lens, and strategies for global health care delivery. An additional, two-hour, multi-disciplinary COVID-19 session was added, offering students the chance to discuss epidemiology, mitigation strategies, and treatment evidence. This session was opened to all of HMS, drawing in an additional 61 participants on top of the 49 students enrolled in the course.

In response to the cancelation of clinical rotations, HMS asked course leads to launch an emergency offering of Essentials II in April 2020. New content included COVID-19 studies, a lecture by **Sanjat Kanjilal** on COVID-19 testing, a Journal Club article on the impact of social distancing, and topical debates.

Did the switch to remote learning impact the course? According to Dr. Garabedian, yes — but for good. "Students were really highly engaged," she said. Though the pandemic version was the fifth time running the course, it received its best student feedback to date. "I think this feedback reflects both our successful transition to the virtual learning environment and also the relevance of all the disciplines of Essentials 2 to the pandemic response." The Zoom platform also altered the faculty-student dynamic. "With the instructor in the same small box on screen as the students, I think this actually improved the dynamic. We really want the students to interact with each other, and they were also more apt to reach out to the instructors outside of the course as well," she said.

> **"Students were really highly engaged. I think this feedback reflects both our successful transition to the virtual learning environment and also the relevance of all the disciplines of Essentials II to the pandemic response."**
>
> LAURA GARABEDIAN

Peter James's work focuses on estimating the influence of spatial factors, including exposure to nature, the built environment, the food environment, air pollution, light pollution, noise, and socioeconomic factors, on health behaviors, mental health, and chronic disease. He is pictured here with his daughter in Saguaro National Park in Arizona.

Advanced Integrated Science Course: Metabolism, Nutrition, and Lifestyle Medicine

Launched in 2019 and co-led by **Marie-France Hivert,** Metabolism, Nutrition, and Lifestyle Medicine leverages 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.

The second iteration of the course, beginning in April 2020, launched remotely via Zoom. With a schedule adapted to accommodate students temporarily shut out of clinical rotations and those residing in varying locations, the course enrolled 60 students — more than double 2019's enrollment. Creative virtual sessions replaced the routine in-person clinical portion of the course, including interactive journal clubs; invited speakers including patient testimonies; and guest lecturers including the Institute's **Peter James**. Students also participated in a culinary medicine workshop — rather than watch the guest instructor cook, they cooked along to learn more about the healing power of food.

Infectious Diseases

In Fall 2020, **Sanjat Kanjilal** revamped the clinico-pathologic-microbiology (CPM) exercises for Mechanisms of Microbial Pathogenesis, a core course for 2nd year Harvard-MIT Health Sciences and Technology MD students. This in-depth survey of the basic microbiology and pathophysiology of common pathogens also introduces students to cutting-edge research. Dr. Kanjilal adapted the exercises for remote learning, in turn also modernizing the clinical cases,

diversifying the small group discussants, and adding a new visual component focused on 21st century clinical diagnoses. Now the Director of the course, Dr. Kanjilal plans to improve the course structure, content, delivery, lecturer diversity, and sociocultural context for Fall 2021.

COURSE LEADERSHIP AND TEACHING AT THE HARVARD T.H. CHAN SCHOOL OF PUBLIC HEALTH

Institute faculty also bring their analytical and statistical methods expertise to lead several courses at the Harvard T.H. Chan School of Public Health (HSPH). They too pivoted to online instruction at the outset of the pandemic. While they faced initial challenges adapting some courses for online instruction — lack of a white board for one, difficulty maintaining discussions over Zoom another — they ultimately found creative means of engaging students.

Statistical Inference II

Rui Wang leads this advanced statistical course offered by the Department of Biostatistics. Geared toward doctoral students across the university, the course addresses 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, resampling methods, and nonparametric density estimation. Jessica Young serves as a guest lecturer, discussing causal inference.

Introduction to Statistical Genetics

Sharon Lutz co-leads this course in the Department of Biostatistics with Martin Aryee. Topics include the basic molecular biology underpinnings of genetics, principles from population genetics, family-based and population-based association testing, genome wide association studies, expression QTL analysis and epigenome-wide association studies.

Built Environment, Nature, and Health

Peter James developed this course in the Department of Environmental Health, in which students learn how to study the influence of built and natural environments on an array of health outcomes, critically assess the evidence behind associations observed in the literature, and explore the policy and decision making processes that facilitate built and natural environment changes. Jason Block guest lectured in this class on the relationship between the food environment (access and availability of food stores in neighborhoods) and diet and health, and research fellow Marcia Pescador Jimenez also guest lectured. The Fall 2020 edition enrolled 7 more students than 2019 - plus a few auditors. Students gave the course its highest ratings to date.

Analysis of Multivariate and Longitudinal Data

Tom Chen leads this course, offered by the Department of Biostatistics. The course presents classical and modern approaches to the analysis of multivariate observations, repeated measures, and longitudinal data.

FELLOWSHIPS AND MENTORING

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 2020:

JinSong Geng

Associate Professor, Department of Medical Informatics, Medical School of Nantong University, China

Véronique Gingras

Assistant Professor Nutrition Department, Université de Montréal

Ted Lee

Clinical Fellow, Department of Urology, Boston Children's Hospital

Institute Fellows practicing social distancing on Harvard Yard.

Amir Meiri

Hospitalist, Washington, DC VA Medical Center and Assistant Professor of Medicine, George Washington University

Mohammad Rahman

Staff Scientist, Division of Cancer Epidemiology and Genetics, National Cancer Institute

Di Shu

Assistant Professor, Biostatistics, University of Pennsylvania / Children's Hospital of Philadelphia Research Institute

Elizabeth Suarez

Research Fellow, Division of Pharmacoepidemiology and Pharmacoeconomics, Department of Medicine, Brigham and Women's Hospital & Harvard Medical School

Welcome to the Institute: Introducing New 2020 Fellows

HARVARD MEDICAL SCHOOL FELLOWSHIP IN GENERAL MEDICINE AND PRIMARY CARE

The Institute is one of six sites for HMS's Fellowship Program in General Medicine and Primary Care, one of the leading training programs in the nation. For over two decades, the Fellowship has provided research training and experience under the direction of highly qualified mentors. New 2020 fellows include:

John Merriman

Mentor: Jason Block
Focus: Obesity medicine, vulnerable populations, and barriers to care.

HARVARD-WIDE PEDIATRIC HEALTH SERVICES RESEARCH FELLOWSHIP

The Institute is one of three sites for the Harvard-wide Pediatric Health Services Research Fellowship, which trains superb pediatric generalists and subspecialists to address critical questions about how to improve the capacity of the U.S. health care system to meet the needs of children and families, including socioeconomically disadvantaged and minority populations. New 2020 fellows include:

Claire Abraham

Mentor: Alison Galbraith
Focus: Child health policy, immunizations, social determinants of health.

Diversity, Equity, and Inclusion (DEI)

Institute members have engaged in much-needed conversation about the legacy of racial injustice in the United States. Using recommendations and guidance from HPHC and HMS about diversity, inclusion, justice, and health equity, the Institute committed to addressing the systemic and structural racism and other causes of inequity that are so prevalent in our society.

We have expanded our portfolio of research focused on health equity (detailed on page 11) and have also relaunched an Institute-wide Diversity, Equity, and Inclusion Committee (formerly known as the Diversity and Inclusion Committee). Now comprising five subcommittees — Communications, Community Outreach and Mentoring, Recruitment and Retention, Research, and Training and Events — the Committee has a renewed focus on building and nurturing an inclusive professional environment. Activities to date include:

Adding the DEI mission statement on our website: www.populationmedicine.org/diversitystatement

Revising faculty and staff postings with more gender inclusive language

Broadcasting open positions beyond our existing networks

Establishing an anti-racist works discussion group

Founding an annual job shadowing event for underrepresented minority high school and college students

Closing the office in observance of Juneteenth to reflect on the need for continuing action against racism, injustice, and inequity

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.

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.

Our new 2020 fellow in both the Pyle and Health Policy fellowship programs is:

Jiebing Wen

Mentor: Hefei Wen
Focus: The association between the rapidity of opioid tapering and subsequent adverse health care events among chronic pain patients.

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.

Kaitlyn Cook

Mentor: Rui Wang
Focus: Methodological development for cluster-correlated and interval-censored data, with a particular emphasis on applications to cluster-randomized HIV prevention studies.

Sabrina Faleschini

Mentor: Marie-France Hivert
Focus: Mechanisms involved in behavioral and cognitive development of children and adolescents following exposure to prenatal maternal risk factors.

Nidhi Ghildyal

Mentor: Marie-France Hivert
Focus: Efficient interventions against infectious and chronic diseases; strategies that can benefit vulnerable populations.

Caitriona McGovern

Mentors*:* Izzuddin Aris and Emily Oken
Focus: Assessing associations of cow's milk consumption in early childhood with later adiposity and cardiometabolic risk.

Xiaoyan Nie

Mentor: Christine Lu
Focus: Precision medicine, rational drug use, and health technology assessment.

Mahnum Shahzad

Mentors: Christine Lu, Mei-Sing Ong, and Anita Wagner
Focus: Provider heterogeneity in decisions to de-adopt pharmaceutical products in the aftermath of negative information shocks.

Jenny Sun

Mentor: Jason Block
Focus: Use of health care databases to evaluate therapeutics, including the use and safety of medications in children and adolescents and the areas of mental health and obesity.

REMOTE FELLOWSHIP ACTIVITIES

During the pandemic, fellows found creative ways to maintain camaraderie, connectedness, and continuity of research.

- Speed friending
- Lighting talks to share work with one another
- Professional development events, including how to perfect CVs
- Sessions for senior fellows to give advice to junior fellows
- Zoom connections
- Leading a journal club for HMS students
- Writing Accountability Groups

Professional Development for Policy Makers and Health System Leaders

Institute faculty contribute to real-world, evidence-based decision making at the local, national, and international level through the education of policy makers and health system leaders. For example, Judy Maro gives quarterly trainings to the FDA on the use of standardized analytic tools to perform pharmacoepidemiology analyses. These trainings, which continued through the pandemic, include 40-80 people in the FDA Divisions of Epidemiology, Pharmacovigilance and Biostatistics who serve as frontline reviewers of post-marketing safety data for licensed medical products. Julia Marcus was invited by elected officials, including New York City Council member Mark Levine and New York State Senator Liz Krueger, to speak about coronavirus risk reduction at town halls for policy makers in New York in May/June 2020. She also presented to the National Governors Association on coronavirus risk reduction strategies for protests and continued this work into 2021 when she met with Surgeon General Vivek Murthy and his team about national public health communication strategies during the pandemic.

Judy Maro's work focuses on the optimal use of observational data for signal identification and safety surveillance and regulatory/policy decision analysis supported by systems science methodology.

HONORS/AWARDS

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. The annual Gordon Moore Award for Excellence in Mentoring 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.

Alison Galbraith, Associate Professor and **Chelsea Jenter, Director of Operations for the Division of Chronic Disease Research Across the Lifecourse**

Congratulations to the 2020 recipients of the Gordon Moore Excellence in Mentoring Award. Dr. Galbraith and Chelsea embody all qualities of outstanding mentors through developing others' talents, serving as role models, coaches, and supporters, and through advocating for work-life balance.

THE SUZANNE AND ROBERT FLETCHER PRIZE IN POPULATION MEDICINE

In 2020, the Institute awarded the third 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.

Alison Galbraith and Chelsea Jenter are the recipients of the 2020 Gordon Moore Award for Excellence in Mentoring.

Nicolas Trad, Harvard Medical School student
His winning submission "Recognizing Loneliness as a Core Determinant of Health", illustrating the adverse impact of loneliness, was later published[26] in *JAMA Health Forum*.

ROBERT H. EBERT CAREER DEVELOPMENT AWARDS

The Robert H. Ebert Career Development Award, named for the founder of Harvard Community Health Plan and former Dean of Harvard Medical School, supports the work of Institute faculty who demonstrate exceptional promise in the area of ambulatory care, primary care, or preventive medicine.

These awards provide resources to develop leading-edge programs in teaching and research and to pursue scientific and professional activities consistent with the Institute's mission. Congratulations to 2020's new awardee:

Hao Yu, Health Policy Researcher
Research Interests: Insurance expansion, workforce policies, and health care for children with autism. Dr. Yu will further integrate his research into the Institute and expand his research portfolio through new initiatives. This integration will enable him to further understand the unique data files that are available at the Institute and pursue new initiatives through collaborations with researchers at the Institute and throughout the Harvard community.

26 Trad NK, **Wharam JF**, Druss B. Addressing Loneliness in the Era of COVID-19. JAMA Health Forum. Published online June 1, 2020.

WILLIAM SILEN LIFETIME ACHIEVEMENT IN MENTORING AWARD, HARVARD MEDICAL SCHOOL | Gordon Moore

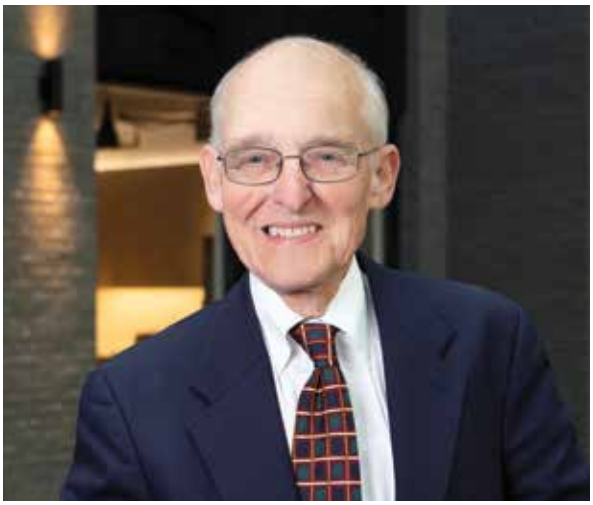
Established in 1997, the William Silen Lifetime Achievement in Mentoring Award, presented by the Office for Diversity, Inclusion & Community Partnership, honors and acknowledges the lifetime commitment Dr. Silen made to mentoring students, residents and faculty. Recipients of this award have contributed a minimum of 20 years of service in mentorship to support professional and personal development at all stages of career development.

EBERT FELLOWSHIP, HARVARD MEDICAL SCHOOL ELEANOR AND MILES SHORE FACULTY DEVELOPMENT AWARD | Hefei Wen

BARBARA J. MCNEIL FACULTY AWARD, HARVARD MEDICAL SCHOOL | Maryam Asgari

HEDWIG VAN AMERINGEN EXECUTIVE LEADERSHIP IN ACADEMIC MEDICINE PROGRAM FOR WOMEN | Emily Oken

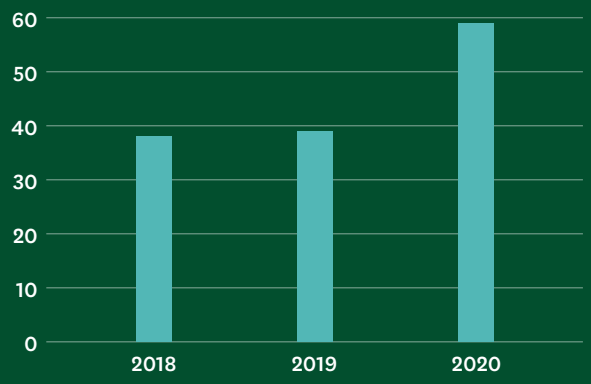
Hao Yu is the recipient of the 2020 Robert H. Ebert Career Development Award. He has more than 20 years of experience studying health care reform in both the U.S. and China.



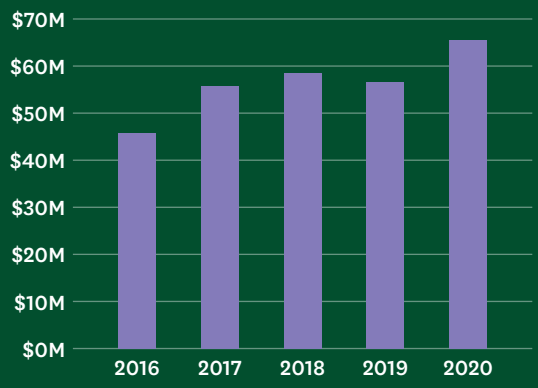
In 2020, Gordon Moore was recognized for his lifetime commitment to mentoring students, residents, and faculty.

2020 BY THE NUMBERS

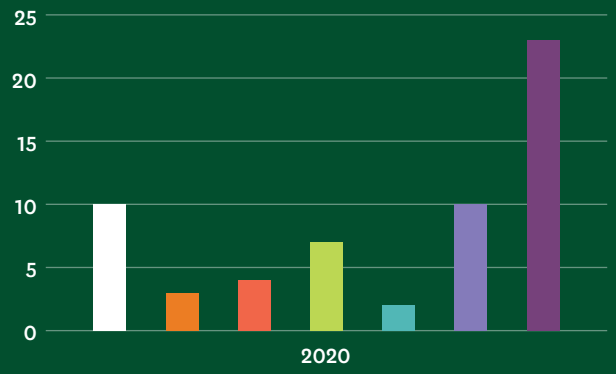
NEWLY FUNDED PROPOSALS (TOTAL #)



TOTAL RESEARCH INCOME (IN MILLIONS)

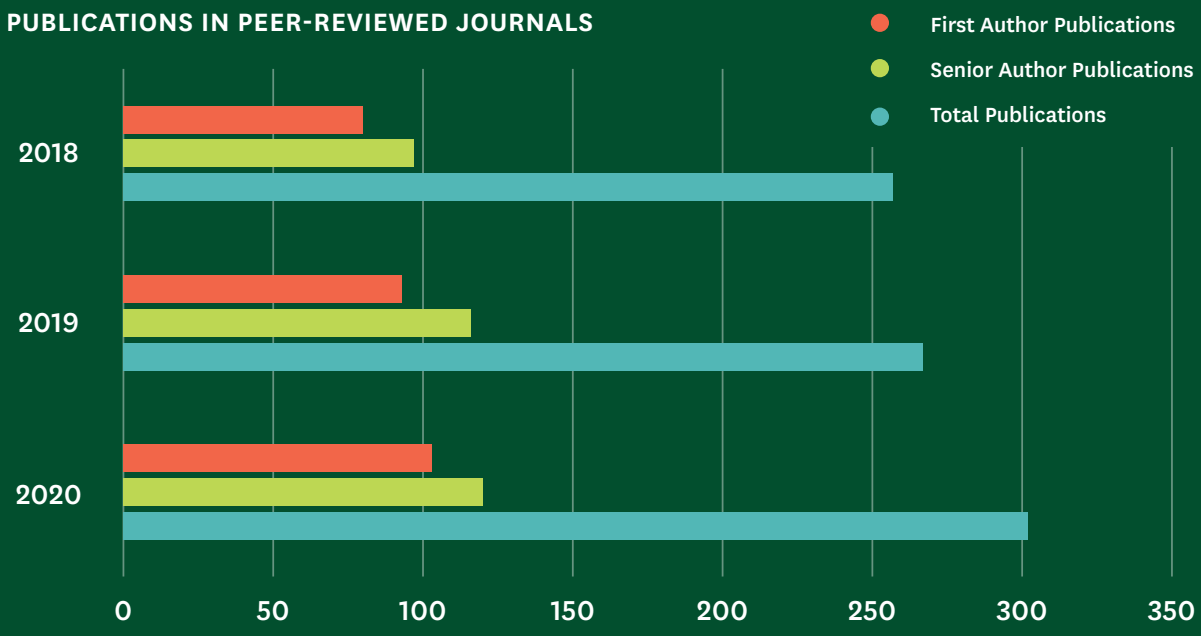


NUMBER OF NEW AWARDS (BY FUNDER)



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

PUBLICATIONS IN PEER-REVIEWED JOURNALS



AWARDS + GRANTS

154
ACTIVE GRANTS CONTRACTS

59
NEW AWARDS

60
NEW PROPOSALS SUBMITTED

302
PUBLICATIONS

$65.5M
IN GRANT/CONTRACT REVENUE

20

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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DEPARTMENT OF POPULATION MEDICINE
HARVARD MEDICAL SCHOOL
Harvard Pilgrim Health Care Institute