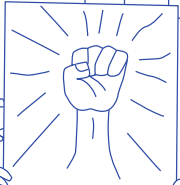




SOCIAL DISTANCING  
STAND HERE

END  
RACISM



ELECTRO  
ELECTRO

  
**pair**

**Palliative and Advanced  
Illness Research Center**

**Annual Report  
2020 - 2021**

2020 and 2021 arrested us in many ways. I could not be more proud of how the Palliative and Advanced Illness Research (PAIR) Center rose to meet the many challenges of the past two years, both personally and professionally. This 2020-2021 report is a time to reflect, learn, and grow.

Confronted with a global health crisis that moved at unimaginable speed, PAIR faculty and staff led early and swiftly from the front. Throughout 2020, we engaged with individuals at every level of the healthcare system, from C-suite members of health systems, to clinicians commanding

ICUs, to leaders and everyday patient heroes in West Philadelphia and throughout the country. Our collective efforts addressed hospital



capacity strain and operations and produced innovations to promote patient-centered care under unique circumstances. Our faculty are not just researchers but frontline clinicians caring for the most critically ill patients in the hospital. Of course, they are also moms and dads and caregivers of loved ones at home. COVID-19 also profoundly affected our staff, forcing our team away from campus for most of two years. Yet staff remained unwavering in their commitment to high-quality work, and we welcomed new team members virtually, as our staff grew by almost 50% since the pandemic began.

The virus and its many reverberating effects hit Black Americans and other underserved groups particularly hard, further exposing and intensifying racial health disparities, including the diagnoses and treatment of serious and critical illnesses. We challenged ourselves to interrogate and reimagine many of our practices, internally and externally. As a result, 2021 provided much-needed time for reflection, renewed commitments, and greater intentionality in promoting justice through our work. We spent much of the year looking inward and reconsidering how we support and relate to the communities we serve, then implementing new initiatives to more clearly reveal our values.

From the way COVID-19 upended society, to the resistance movement for Black lives that played out in streets from Philadelphia to Paris, 2020 and 2021 were landmark years that will affect us for years to come. As we continued to produce rigorous, real-world scholarship to improve the care and treatment of seriously ill patients, our Center became clearly established as a critical resource for healthcare leaders, the media, and the public, at large. We developed and shared new resources to help hospitals cope, and we grew our focus on race-based inequities in health. Through these efforts, we signaled the durable impact we aim to produce.

As we continue to rise as a Center, stronger and more resilient together, we look forward to building on our successes during the past two years. We will continue growing and diversifying our faculty, trainees, and staff, while deepening our expertise in pragmatic trials, data science, qualitative research methods, and other cutting-edge domains. We recognize the numerous and growing challenges in serious illness care that require creative, real-world solutions, and we stand ready to address them.

A handwritten signature in black ink that reads "Scott Halpern".

Scott Halpern, MD, PhD

We generate high-quality evidence to advance healthcare policies and practices with the goals of improving the lives of all people affected by serious illness and removing the barriers to health equity that seriously ill patients commonly face.



Dr. Chris Chesley led 2020's White Coats for Black Lives march to City Hall. Dr. Halpern and other PAIR team members surround him in support.



## Areas of Expertise

### Content Expertise



Serious illness communication and decision making



Palliative care delivery



Acute care delivery and outcomes



Innovation in research methods and ethics

### Methodological Expertise



Efficacy trials



Pragmatic trials



Decision science



Clinical informatics



Observational studies



Implementation science



Qualitative studies





Year Founded

2017

Publications

88 / 79  
2021 / 2020

New Awards (grants)

\$4,359,683 / \$3,631,070  
2021 / 2020

Core Faculty

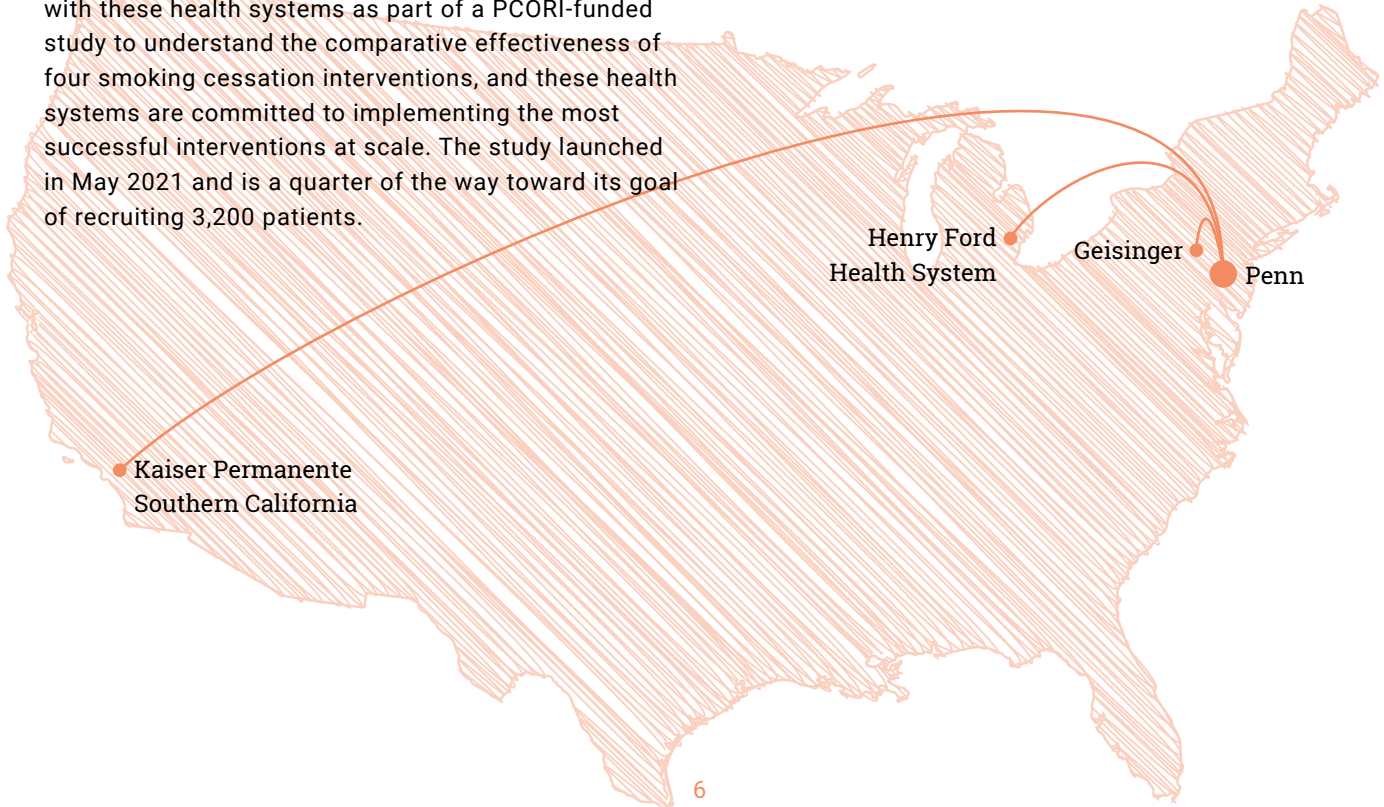
9 / 9  
2021 / 2020

Staff

34 / 25  
2021 / 2020

## Healthy Lungs

The PAIR Center continues to partner with health systems across the nation to conduct serious illness research in the real world. One major initiative is the Healthy Lungs study, designed to help people from underserved backgrounds quit smoking around the time of lung cancer screening. Healthy Lungs operates in the outpatient setting within four health systems: University of Pennsylvania Health System, Geisinger Health System, Kaiser Permanente Southern California, and Henry Ford Health System. These health systems serve many underserved patients, including those who are Black, Hispanic, of low socio-economic status, or from rural residences. We have partnered with these health systems as part of a PCORI-funded study to understand the comparative effectiveness of four smoking cessation interventions, and these health systems are committed to implementing the most successful interventions at scale. The study launched in May 2021 and is a quarter of the way toward its goal of recruiting 3,200 patients.



## Elimination of Race in Kidney Testing

The estimated glomerular filtration rate, or eGFR, is commonly used to gauge kidney function. It has been calculated based on four factors: age, gender, race, and levels of creatinine. Patient race is bucketed into two groups - Black or not Black – despite human genome studies showing no inherent biological differences between races. Patients' eGFR informs many clinical decisions, as guidelines recommend placement on a transplant list for scores less than 20 and referral to a kidney specialist for scores less than 30. Dr. Amaka Eneanya states, "If we correct Black patients' scores, we refer them for care too late. This is a big deal, because Black people are disproportionately affected with more advanced stages of kidney disease. They are also known to progress more quickly than others to needing dialysis and transplant."

In 2020, Dr. Eneanya helped lead the national change in eGFR reporting. Due in part to her efforts, the National Kidney Foundation and the American Society of Nephrology convened a task force to evaluate the use of race in kidney testing. Her research was also featured in high-impact academic journals, such as the *New England Journal of Medicine*, *JAMA*, and the *American Journal of Kidney Disease*.





## COVID Expertise: News Coverage

At height of the COVID-19 pandemic, news media coverage was vital amid increasing misinformation and disinformation. The climate of uncertainty made it essential for expert clinicians to communicate effectively about the health risks that COVID-19 posed and effective strategies to prevent transmission. Dr. Scott Halpern and other PAIR faculty members responded early and consistently as experts in hospital capacity strain, crisis standards of care, advance care planning, and palliative care. PAIR faculty appeared in numerous global, national, and local publications.



Dr. Scott Halpern is interviewed by CBS This Morning.

**The New York Times**

**WIRED**

**SCIENTIFIC  
AMERICAN**

**The Philadelphia Inquirer**

**The Washington Post**

**Chicago Tribune**



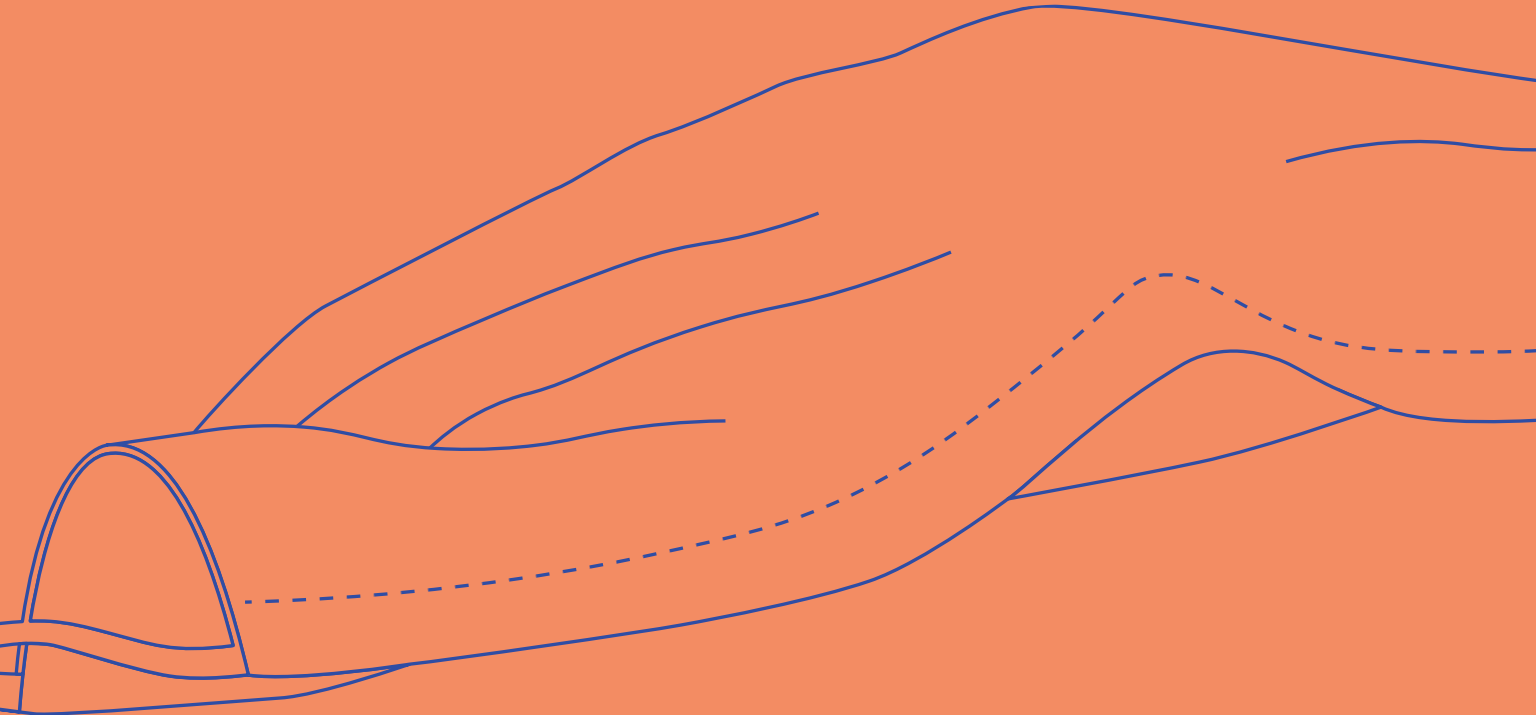
**TIME**

**BGR**



READY FOR 2020

# Tackling Health System Challenges with Urgency and Preparedness



## Tackling Health System Challenges with Urgency and Preparedness

From the outset of the COVID-19 pandemic, public health leaders warned about a particular worst-case scenario: coronavirus patients exceeding the capacity of hospitals to care for them. Faced with this onslaught, physicians and nurses would scramble to set up beds in hallways, reduce time spent with patients, and even reconsider who can be admitted to intensive

care units (ICUs). As this worst-case scenario became increasingly plausible in early 2020, numerous PAIR investigators rose to the challenge. Indeed, they were unusually equipped to do so, as they had coined the term “capacity strain” a decade earlier and led much of the world’s scholarship in this area since.

**E**arly in the learning curve of the pandemic, Dr. George L. Anesi introduced real-time responses to pressing clinical challenges. He led the development of surge plans to rapidly increase, equip, and staff hospital beds, and he swiftly adapted practice and treatment guidelines based on clinical trials and new data. Dr. Anesi had served as director of the Medical Critical Care Bioresponse Program since it was founded during the 2014 Ebola epidemic. Thus, he was well-positioned to help lead Penn Medicine’s initial response to COVID, as recognized by his being appointed co-chair of the Penn Medicine Critical Care Alliance COVID-19 and Pandemic Preparedness Committee.



I view capacity strain—the focus of my work—as existing along a spectrum running from dynamic to static strain, i.e., acute surge events (pandemic) to routine/seasonal variation (influenza season) to persistent shortage (critical care in resource-limited settings).

Dr. George Anesi





## Tackling Health System Challenges with Urgency and Preparedness

Complementing Dr. George L. Anesi's work on capacity planning during the early phase of the pandemic, Dr. Gary Weisman produced the sentinel evaluation of the COVID-19 Hospital Impact Model for Epidemics (CHIME), developed by the Penn Predictive Healthcare Team. This first-of-its-kind preparedness application helped hospitals anticipate and plan for patient surges and was built with input from data science and clinical teams, hospital operations leaders, and epidemiologists. With input regarding local circumstances from health system leaders, best- and worst-case scenarios were issued for capacity planning, including needs to supply and allocate PPE, ventilators, beds, and safety measures for uninfected patients.



There was a lot of uncertainty at a lot of levels. The result was a very wide range of potential outcomes, with the vast majority relying on non-pharmacological interventions, such as lockdowns and physical distancing, which were variably employed and adhered to. The worst-case scenario, if it had occurred, would have been very, very bad. Thankfully, it didn't get that bad here in Philadelphia.

Dr. Gary Weisman



## Tackling Health System Challenges with Urgency and Preparedness



**P**AIR's longstanding commitment to developing practical solutions to improve care for seriously and critically ill patients, as reflected in Dr. Meeta Prasad Kerlin's robust research on improving outcomes of mechanically ventilated patients, also played a key role throughout the pandemic. Dr. Kerlin and her team quickly developed and tested strategies to improve access to prone positioning, a low-cost treatment that clearly saves lives among patients with acute respiratory distress syndrome (ARDS), the most severe consequence of COVID-19. Bringing together key stakeholders' perspectives and clinical leaders, Dr. Kerlin's team used an evidence-based approach to develop several implementation strategies designed to increase the appropriate use of prone positioning. Clinical leaders across Penn Medicine hospitals directly implemented several of these strategies early in the COVID-19 pandemic to successfully care for hundreds of patients with respiratory failure, directly contributing to Penn's having the lowest mortality rates in the region and among the lowest in the country.



Seeing our work integrated into our health system's effort to quite literally save lives during a pandemic was a dream come true for our team.

**Dr. Meeta Prasad Kerlin**



## Tackling Health System Challenges with Urgency and Preparedness

**D**r. Joanna Hart pioneered efforts to support and improve family communication during the peak of visitation prohibitions across Penn Medicine. Specifically, the Leonard Davis Institute funded her research investigating the content and impact of COVID-era visitation policies that restricted family access to inpatients. Dr. Hart worked closely with PAIR faculty member, Dr. Kate Courtright, and palliative care colleagues across Penn Medicine to design, coordinate, and implement new guidelines and EHR-based tools to strengthen family engagement despite these restrictive policies. They disseminated all these resources on the PAIR website and through peer-reviewed publications. Further, in collaboration with the Penn School of Medicine and former PAIR trainee Dr. Aaron Tannenbaum, Dr. Hart developed a program that leveraged furloughed medical students

to establish supportive relationships with family members of hospitalized patients while providing students with a complementary didactic curriculum on coping, communication, and family engagement. This effort touched hundreds of families between March and September 2020 and demonstrated the power of communication and connection to the participating medical students.



The pandemic was and remains a challenge to me as an intensivist, a pulmonologist, a researcher, and a parent. Yet the pandemic highlighted the essential nature of the work of the PAIR Center. The expertise and across-campus collaborations I have gained as a PAIR faculty member positioned me well to quickly provide tangible improvements to the serious-illness experience for patients and their families in a changing environment. This rapid response funding opportunity during the pandemic was a critical tool to connect my administrative and clinical work—which greatly expanded during the pandemic—to my research.

**Dr. Joanna Hart**





## Tackling Health System Challenges with Urgency and Preparedness

**C** COVID-19 spurred rapid escalation in the use of telemedicine, including for palliative care. Telemedicine palliative care consultations were highly utilized in acute care hospitals, but less so in long-term care (LTC) facilities. Dr. Kate Courtright and team, including PAIR researchers Dr. Tamar Klaiman and Corinne Merlino, sought to understand why. The team interviewed 28 stakeholders from diverse LTC facilities, convened a stakeholder taskforce to map barriers/facilitators, and developed targeted implementation strategies to improve the uptake of telemedicine palliative care in LTC facilities for persons with dementia and other serious illnesses.



Though it took a pandemic to really shine a bright light on the long-standing palliative care delivery challenges in long-term care facilities, it is clear the problems will persist well beyond the pandemic unless innovative solutions are rapidly implemented and tested.

**Dr. Kate Courtright**



## Tackling Health System Challenges with Urgency and Preparedness

Other PAIR faculty members launched impactful initiatives that promise to improve care for patients with and without COVID.

Dr. Michael Harhay and Rachel Kohn, collaborating with colleagues at Kings College London (KCL), received a grant to merge the two institutions' active research programs and extend complementary expertise in acute care, immunologic profiling, and long-term recovery from COVID-19 critical illness. The overarching goal of the study is to characterize COVID-19 survivors' long-term health trajectories and complications (termed "Long-COVID") and to identify unique immune profiles associated with long-term health complications, morbidity, and disability.



Randomized trials represent one of the most expensive, time-consuming, and informative data sources for improving patient care. My research portfolio aims to make sure that the data from trials is maximally used to inform the use of interventions at both the population and individual levels.

Dr. Michael Harhay



#BLACKLIVESMATTER

# Confronting Issues of Racial Equity in Serious Illness





## Confronting Issues of Racial Equity in Serious Illness

According to the NAACP, systemic racism is “the long-running pandemic within the pandemic,” and Black and Brown communities were devastated by COVID-19 in ways most could not imagine. Consider that Blacks are more likely to lack health insurance and to work as essential workers who are at greater risk for COVID exposure. Based on this and other inequities in 2020, it is not surprising that Blacks composed approximately 30% of COVID-19 cases, though they are just 13% of the U.S. population. Blacks are also more likely to have worse outcomes from serious illness, including COVID, and less access to palliative care and end-of-life planning.

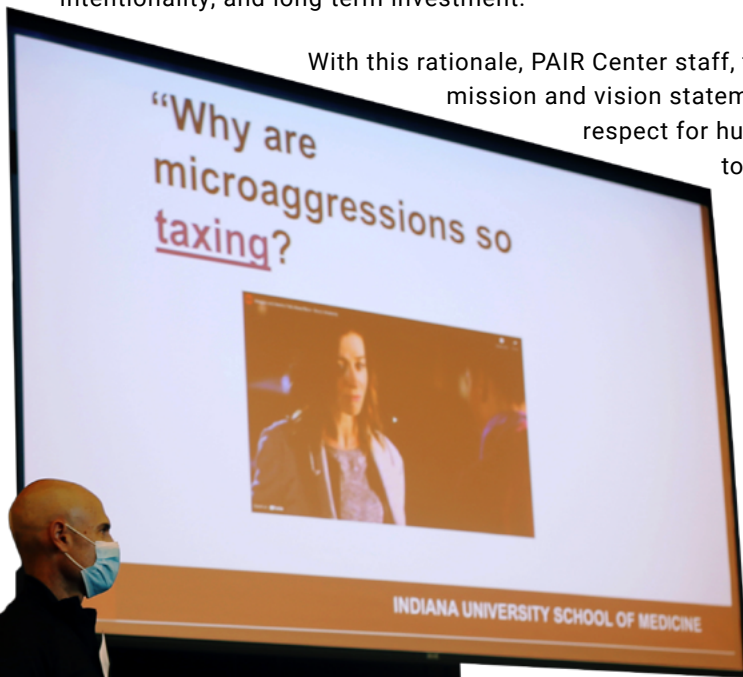
**E**arly in 2020, Center leadership doubled down on the belief that patchwork actions and knee-jerk responses to systemic racism would not suffice. Rather, lasting racial justice required deep thought, reflection, intentionality, and long-term investment.

With this rationale, PAIR Center staff, trainees, and faculty made important updates to its mission and vision statements. These revised statements reiterate the Center’s respect for human dignity and establish a lasting commitment

to being a more diverse, inclusive, and anti-racist environment. For example, the development of a Joint Research Practices (JRP) Working Group with the Center for Health Incentives and Behavioral Economics focused on more equitable practices in recruitment and research planning, and other initiatives related to workplace culture, Center diversity, and community advocacy.

Beyond these internal shifts, PAIR Center faculty produced rigorous scholarship that sought to improve clinical care for underserved patients throughout the country.

Scott Halpern, MD PhD speaks at the 2021 Roybal Retreat



## Confronting Issues of Racial Equity in Serious Illness

**D**r. Rachel Kohn is active within the Social Justice Committee of Penn's Division of Pulmonary, Allergy and Critical Care. In 2020, the group began two projects evaluating: (1) racial disparities in admission to the pulmonary primary service compared with general medicine services among patients with primary pulmonary diagnoses, and (2) racial differences between patients who receive pulmonary consults among those admitted to non-pulmonary services. Additionally, working with Dr. Meeta Prasad Kerlin and two internal medicine residents, she started a project examining racial disparities for evidence-based practices (including low tidal volume ventilation and prone positioning) among patients in Penn Medicine ICUs who were admitted with acute respiratory failure. Finally, collaborating with Drs. Kerlin and Joanna Hart and a pulmonary and critical care medicine fellow, Dr. Kohn helped conceptualize a project to evaluate if there are racial differences in ICU sedation practices across Penn Medicine ICUs.



This work was inspired by a young Black man I cared for in the ICU when I was an intern. He came back every few months, because he didn't have a place to sleep or bus tokens to get to the pharmacy to pick up his medications. His case highlighted to me that ensuring stable housing, access to medications, and timely access to primary care should be the priority investments with payoffs for both patients and healthcare systems.

Dr. Rachel Kohn



## Confronting Issues of Racial Equity in Serious Illness

Taking a closer look at disadvantages experienced by racial and ethnic minorities in healthcare, PAIR fellow Dr. Chris Chesley helped examine whether the SOFA (Sequential Organ Failure Assessment) score is equally good at predicting mortality among Black and white patients. Findings revealed that the SOFA score is “miscalibrated” and racially biased. Specifically, it overestimates mortality among Black patients and underestimates mortality among white patients. Also, using the SOFA score would lead us to believe Black patients are sicker or more likely to die than they are. Within the framework of crisis standards of care, patients who are most likely to die are last in line to receive scarce resources. Therefore, using the SOFA score could systematically and unfairly divert scarce critical care resources away from Black patients. Dr. Chesley worked with lead researcher and PAIR collaborator, Dr. Deep Ashana, on this important project.

Dr. Chesley is also a founding member of Penn’s Pulmonary, Allergy, and Critical Care Division’s Social Justice Committee which plans initiatives focused on identifying and eliminating disparities in clinical practices within the division, as well as promoting diversity, equity, and inclusion in patient facing communities. Dr. Chesley is also a lead clinician on the joint PAIR-CHIBE Committee on Anti-Racism and Social Change.



As an undergrad student shadowing a mentor, I noticed that Black patient families were not encouraged to listen in on rounds; this was not the case for White patient families. Understanding why this difference existed, what it meant for the care of minority patients, and why I was the only person who noticed it became splinters in my mind.

Dr. Chris Chesley



# Signature Programs





At PAIR, we provide a global platform for clinicians and scholars, as well as health system and thought leaders, to share scholarship and work on the leading edge of advanced illness research and care.

# The PAIR Center Series 2020-2021 Speakers

Until further notice all meetings will be held virtually via Zoom  
8:00 - 9:00 AM

<p><b>October 20 2020</b></p>  <p><b>Manali Patel, MD, MS</b> Assistant Professor of Medicine (Oncology) Stanford University</p>	<p><b>April 20 2021</b></p>  <p><b>Alison Turnbull, PhD, MPH</b> Assistant Professor of Medicine (Critical Care) Johns Hopkins University</p>
<p><b>December 1 2020</b></p>  <p><b>Nneka Ufere, MD</b> Fellow, Hepatology/Gastroenterology Massachusetts General Hospital</p>	<p><b>May 4 2021</b></p>  <p><b>Matthew Gonzales, MD</b> Chief Medical Information Officer Providence St. Josephs Health</p>
<p><b>January 19 2021</b></p>  <p><b>Areej El-Jawahri, MD</b> Assistant Professor of Medicine (Oncology) Harvard Medical School</p>	<p><b>June 1 2021</b></p>  <p><b>Ann O'Hare, MD</b> Professor of Medicine (Nephrology) University of Washington</p>
<p><b>February 2 2021</b></p>  <p><b>George Demiris, PhD</b> Penn Integrates Knowledge Professor Behavioral Science, School of Nursing Bioinformatics, Perelman School of Medicine University of Pennsylvania</p>	



www.pair.upenn.edu



## PAIR Centerwide Series

In person, with streaming available

<p><b>Time</b> 8:00AM - 9:00AM</p> <p><b>Location</b> Flyers/76ers Theatre HUP</p> <p><b>Virtual</b> Bluejeans 629 845 597 593 119888451929</p>	<p><b>11.16.2021</b> Matthew W. Semler, MD Vanderbilt University</p> <p><b>12.14.2021</b> Michael Sjoding, MD University of Michigan</p> <p><b>1.25.2022</b> Lauren Ferrante, MD, MHS Yale University</p> <p><b>3.22.2022</b> Kathryn H. Bowles, PhD, RN FAAAN, FACHA University of Pennsylvania</p> <p><b>4.18.2022</b> Lee A. Fleisher, MD Centers for Medicare and Medicaid Services</p> <p><b>5.31.2022</b> Elie Azoulay, MD, PhD Paris Diderot University</p> <p><b>6.14.2022</b> Lisa Barnes, PhD Rush University</p>
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## PAIR with PAIR

PAIR with PAIR provides Penn clinicians – of any background, at any level – an opportunity to partner with a trained academic research team to advance serious illness care research. In 2021, projects focused on identifying barriers to palliative and end-of-life care for Huntington’s Disease patients and improving telehealth services for patients with end-stage renal disease.

Our second cycle was launched in January 2021. “Identifying Barriers to Palliative and End-of-Life Care in Huntington’s Disease,” led by Dr. Aaron Lasker, has nearly completed data collection. Our other Cycle II project, led by Dr. Niharika Ganta, is called the “Study of Home-Embedded Palliative care for Hemodialysis-dependent End-stage Renal Disease” (SHEPHERD). This study entails a new partnership between PAIR and the Penn Home Palliative Care program.



The amount of work in data transformation, collection, and feedback, and the sophistication of the analysis that comes from the PAIR Center is absolutely breathtaking. And I believe it is what is necessary to transform well-intentioned clinicians with great ideas into a learning health system that is extraordinarily effective clinically and also rigorous academically.

**Dr. Bill Schweickert**  
Cycle 1 awardee



DeBalko Photography LLC

### **Dr. Niharika Ganta**

Medical Director of the Penn Home Palliative Care (PHPC) program  
Physician in Geriatrics and Hospice and Palliative Medicine



### **Dr. Aaron Lasker**

Assistant Professor of Neurology  
Director of the Huntington’s Disease Center of Excellence

## Critical Care Health Policy Research Program

The Critical Care Health Policy Research Program trains physician-scientists to have successful academic careers as independent researchers who improve the quality, safety, equity, and costs of acute care medicine. The first trainees matriculated in 2010, and the program will soon enter its 13th year. During the first 12 years, 32 trainees matriculated. Of these, 25 have completed their training, and 7 remain in training. Among the 25 trainees who have completed the program, 3 are now Associate Professors at leading academic institutions in North America, 12 are Assistant Professors at similar institutions, and one is an Instructor who will become an Assistant Professor in 2022.



PAIR T32 trainees

## Roybal Symposium

The Penn Roybal Center on Palliative Care in Dementia is one of only four Roybal Centers studying dementia, and the only Center focused on palliative care for people living with dementia and their caregivers.

The Penn Roybal Center hosts a symposium that brings together leaders at the forefront of palliative care research.

Additional program events included:

### Advanced Dementia: The Evolution of Research Informing Practice

This Grand Rounds-type meeting series was widely promoted among the Penn Medicine community. This session led by nationally renowned dementia expert, Dr. Susan Mitchell, was attended by 66 in-person participants and many other online participants. In addition to presenting her research, Dr. Susan Mitchell met with several Roybal Center Steering Committee Members as well as junior faculty.

### Dementia: A Caregiver's Perspective

Dr. Jason Karlawish and the Penn Memory Center co-sponsored an interactive dialogue with a caregiver of a person with dementia.

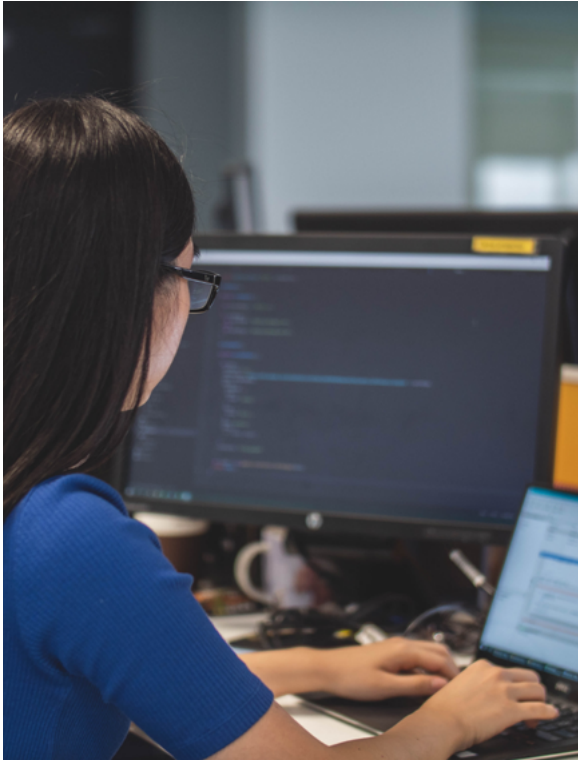


### Penn Roybal P30 Center on Palliative Care in Dementia Virtual Symposium

Agenda | Friday, March 19, 2021

2:00 pm - 2:10 pm	<b>Welcome and opening remarks</b> Scott Halpern, MD, PhD, Perelman School of Medicine at the University of Pennsylvania
2:10 pm - 2:40 pm	<b>Year 1 pilot grant awardee presentations</b> <b>Our Memory Care Wishes: Adapting digital advanced care planning for persons living with dementia in nursing homes</b> Nancy Hodgson, RN, PhD, FAAN, University of Pennsylvania School of Nursing <b>Identifying behavioral attributes of nursing home clinicians that lead to hospitalization risks</b> Gary Weissman, MD, MSHP, Perelman School of Medicine at the University of Pennsylvania
2:40 pm - 3:20 pm	<b>Keynote</b> <b>The hope, hype, promise, and peril of tech</b> Sonoo Thadaneys Israni, MBA, Stanford University
3:20 pm - 3:30 pm	<b>Break</b>
3:30 pm - 3:50 pm	<b>Opportunities for collaboration with NIA IMPACT Collaboratory</b> Susan Mitchell, MD, MPH, Harvard Medical School Vince Mor, PhD, Brown University
3:50 pm - 4:20 pm	<b>Year 2 pilot grant awardee presentations</b> <b>Promoting advance care planning using a prognosis and outcome information sheet among persons with advanced dementia in long-term services and support facilities</b> Donald Sullivan, MD, MA, MCR, Oregon Health & Science University <b>Improving uptake of tele-palliative care in long term care facilities during COVID-19</b> Katherine Courtright, MD, MSHP, Perelman School of Medicine at the University of Pennsylvania
4:20 pm - 5:00 pm	<b>Keynote</b> <b>Behavior change interventions to improve quality of life among persons with dementia</b> Sara Czaja, PhD, Weill Cornell Medicine
5:00 pm	<b>Closing reflections &amp; adjourn</b> Scott Halpern, MD, PhD, Perelman School of Medicine at the University of Pennsylvania





## Clinical Trials Methods and Outcomes Lab

The Clinical Trials Methods and Outcomes Lab, led by Dr. Michael Harhay, has two objectives: 1) innovate statistical and causal inference methods to analyze informatively missing or censored outcomes in individually and cluster-randomized trials, and 2) develop patient-centered outcome measures to improve the efficiency and patient-centeredness of randomized trials. The findings from this lab will directly inform the conduct and analysis of all PAIR Center trials and will have broad applications for the research community at large.



## AROHS

The Acute Care Research in Outcomes and Health Services (AROHS) group, led by Dr. Meeta Prasad Kerlin, brings together investigators, trainees, and statisticians interested in a broad array of questions relevant to critical care policy and delivery. The group, which grew out of a program Dr. Scott Halpern started in March 2010 as a small group of investigators working with the Project IMPACT dataset (a national sample of ICU data). It has not only expanded in membership but also in expertise. Investigators employ innovative methodologies to interrogate large data sets, and EPIC Clarity Data collected at Penn Medicine.

## 2020–2021 Awards

### Kate Courtright, MD

2021 AAHPM Early Career Investigator Award

### Amaka Eneanya, MD

2021 Department of Medicine's Radhika Srinivasan Award for Humanism & Professionalism in Medicine

2020 National Minority Quality Forum 40 Under 40 Leaders in Minority Health

Inaugural Division Director of Health Equity, Anti-Racism, and Community Engagement

### Scott Halpern, MD, PhD

2020 John M. Eisenberg Professor in Medicine

2020 Elected as a Fellow of the Hastings Center

### Michael Harhay, PhD

2021 ATS Assembly on Critical Care Early Career Achievement Award

Graduate Group in Epidemiology and Biostatistics Teaching Award

2020 Editorial Board of the *American Journal of Respiratory and Critical Care Medicine*

Master of Science in Clinical Epidemiology Teaching Award

### Joanna Hart, MD

2021 Editorial Board Member, *Annals American Thoracic Society*

### Meeta Prasad Kerlin, MD

2021 Robert L. Mayock-Alfred P. Fishman Teaching Award

2020 Marjorie Bowman New Investigator Award

John Hansen-Flaschen Mentoring Award

### Rachel Kohn, MD

2020 Don Martin Teaching Award

## External Advisory Board



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Professor, Department of Geriatrics and Palliative Medicine and Catherine Gaisman



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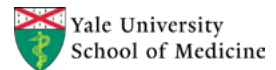
**Jennifer Temel, MD**  
Director, Cancer Outcomes Research and Education Program  
Professor of Medicine, Harvard Medical School



**B. Vindell Washington, MD, MHCM, FACEP**  
Chief Clinical Officer, Verily Health Platforms  
Chief Executive Officer, Onduo



Our Partners



Our Team





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