

Annual Report  
2017



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Palliative and Advanced  
Illness Research Center





# Letter from the Director

It is my privilege to share with you the Palliative and Advanced Illness Research (PAIR) Center's annual report for 2017 – the Center's inaugural year. The PAIR Center comprises investigators united by the belief that rigorous research can lead to the development and implementation of new ways to deliver care that maximizes both the duration and quality of the lives of acutely and seriously ill adults. We are grateful for the support we've received from Penn Medicine, particularly the Department of Medicine, as well as several governmental agencies and foundations to conduct this important work.

The PAIR Center's first year was an exciting one. One of our first priorities was to establish a leadership team to help guide decision-making for the Center. I am fortunate to be joined by generous and dedicated colleagues on the PAIR Center Steering Committee; you can learn more about them in the following pages. PAIR investigators published 74 articles, many of them in high-impact publications like *The Journal of the American Medical Association* and *The New England Journal of Medicine*. We've continued to cultivate strong relationships with a growing roster of research partners, including Ascension, Kaiser Permanente, and Carolinas HealthCare System. The end of 2017 was particularly momentous: December marked our move to the PAIR Center's new home on the 3rd floor of Blockley Hall, as well as the first meeting of our External Advisory Board, which includes national thought leaders from academic medicine, healthcare systems, payers, and governmental agencies.

Perhaps the accomplishment in the last year of which I am most proud is that four of my mentees, Drs. Michael Harhay, Joanna Hart, Gary Weissman, and Kate Courtright, received career development awards. The Center looks forward to nurturing their work, as well as other innovative projects and programs, in the years ahead as we strive to produce evidence on how best to "PAIR" palliative and restorative care for patients with serious illness.

Sincerely,

Scott D. Halpern, MD, PhD







## *Our* **Mission:**

The PAIR Center's mission is to generate high-quality evidence to advance healthcare policies and practices that improve the lives of all people affected by serious illness.

## *Our* **Vision:**

A future healthcare system in which:

Scarce healthcare resources (e.g., ICU beds and physicians, transplantable organs, palliative care clinicians) are more efficiently delivered to patients and families who benefit the most

More patients pursuing aggressive and experimental care will be prepared for the "what-ifs"

More patients with advanced illnesses spend more of their time pursuing their life goals outside of healthcare facilities



# New Projects Launched in 2017

## Outlook, Actions, and Symptoms among Individuals with Smoking-Associated Lung Disease (OASIS)

In this study among 207 University of Pennsylvania Health System (UPHS) patients, PAIR researchers ask patients with severe Chronic Obstructive Pulmonary Disease (COPD) to make predictions of their own future physical and emotional symptom burden and lifespan. The team will then examine the accuracy of these predictions over the course of the two-year study period using mixed methods. Led by Core Faculty Member Dr. Joanna Hart, and with funding from the National Heart, Lung, and Blood Institute, the goal of the research is to understand how patients form predictions of their future well-being, and assess whether predictive errors contribute to patients' quality of life.



*"OASIS delves deeply into how patients with COPD think about the future. Our patient participants have been enthusiastic partners as we learn from them how their own predictions impact how they cope with their illness and manage their health."* -Joanna Hart, MD, MSHP

## Prognosticating Outcomes and Nudging Decisions with Electronic Records in the ICU (PONDER-ICU)

Led by Core Faculty Member Dr. Kate Courtright, with funding from the Donaghue Foundation, PAIR researchers are testing the effectiveness of two electronic health record (EHR) interventions in a pragmatic, stepped-wedge, cluster randomized trial. Conducted within 19 ICUs of 10 electronically integrated hospitals within the Carolinas HealthCare System (CHS), the study will enroll more than 4,500 adults with chronic life-limiting illnesses who are newly requiring life support. One intervention requires physicians to make prognostic estimates for patients identified through the EHR, and the other requires physicians to provide justification in the EHR if they choose not to offer these seriously ill patients the option of care focused on comfort.

*"PONDER-ICU combines the potential power of gently nudging clinicians with the scalability of the electronic medical record. We are excited to be partnering with CHS on this innovative multi-center pragmatic trial to improve patient-centered outcomes for critically ill patients and their families."* -Kate Courtright, MD, MS



## Benefits of ICU Admission for Patients with Acute Respiratory Failure or Sepsis: A Mixed-methods Study Across 26 Hospitals (ICU Net Benefits)

The goal of this mixed-methods study in 26 hospitals across the Penn and Kaiser Permanente of Northern California health systems is to determine which patients with acute respiratory failure and/or sepsis benefit from ICU admission, and which emergency department, ward, and ICU characteristics and processes of care contribute to such net ICU benefits. Led by Drs. George Anesi and Scott Halpern with funding from the National Heart, Lung, and Blood Institute, PAIR researchers are combining several methodological approaches, including electronic health record data mining, instrumental variable analyses, and ethnography, to understand exactly which patients truly benefit from ICU admission, thereby paving the way to right-sizing this growing sector of the healthcare system.



*"ICU Net Benefits seeks to answer a fundamental - and to-date unanswered - question: Which patients truly benefit from being admitted to the intensive care unit? The results have the potential to improve triage decisions, healthcare spending, and access to the ICU for patients who need it most."* -George Anesi, MD, MBE





## Steering Committee

**Michael Cella**

*Associate Chief Operating Officer, Department of Medicine*

**Elizabeth Cooney, MPH**

*Director of Research Operations, PAIR Center*

**Scott Halpern, MD, PhD**

*Director, PAIR Center*

**Vanessa Madden**

*Assistant Director for Project Management, PAIR Center*

**Mark Mikkelsen, MD, MSCE**

*Chief, Section of Critical Care Medicine, Pulmonary, Allergy, & Critical Care*

**Mark Neuman, MD, MSc**

*Director, Penn Center for Perioperative Outcomes Research and Transformation*

**Nina O'Connor, MD**

*Director of Palliative Care, UPHS*



## Internal Advisory Board

**Patrick J. Brennan, MD**

*Senior VP and Chief Medical Officer, UPHS*

**Regina Cunningham, PhD, RN, FAAN**

*Chief Executive Officer, HUP*

**Keith Kasper, MBA**

*Senior VP and Chief Financial Officer, UPHS*

**Kevin Mahoney, MBA**

*Executive VP and Chief Administrative Officer, UPHS*

**Ralph Muller, MA**

*Chief Executive Officer, UPHS*

**Mary D. Naylor, PhD, RN, FAAN**

*Director, NewCourtland Center for Transitions and Health*

**Michael Parmacek, MD**

*Chair of Department of Medicine, University of Pennsylvania*

**Lynn Schuchter, MD**

*Chief of Division of Hematology-Oncology, University of Pennsylvania*



## External Advisory Board

**Susan Block, MD**

*Director, Serious Illness Care Program, Ariadne Labs*

*Co-Director, Harvard Medical School Center for Palliative Care*

**Ziad Haydar, MD, MBA**

*Senior VP and Chief Clinical Officer, Ascension Healthcare*

**Maureen Henry, JD, PhD**

*Research Scientist, National Committee for Quality Assurance*

**Shari Ling, MD**

*Deputy Chief Medical Officer, Centers for Medicare and Medicaid Services*

**Diane Meier, MD**

*Director, Center to Advance Palliative Care*

**Bruce Miller, MD**

*Palliative Care, University of California, San Francisco*

**Arnold Milstein, MD, MPH**

*Director, Stanford Clinical Excellence Research Center*

**Barry Ostrowsky, JD**

*President and Chief Executive Officer, RWJBarnabas Health*

**Richard Snyder, MD**

*Senior VP and Chief Medical Officer, Independence Blue Cross*

**B. Vindell Washington, MD, MHCM**

*Senior VP and Chief Medical Officer, Blue Cross and Blue Shield of Louisiana*

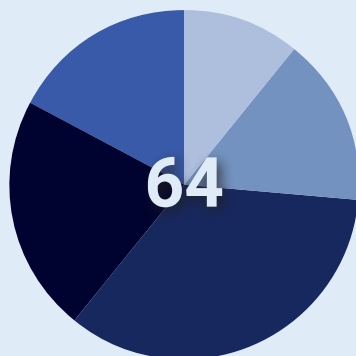


# 2017 at a Glance

## By the numbers

### People

- Leadership
- Core faculty
- Affiliated faculty
- Trainees
- Staff



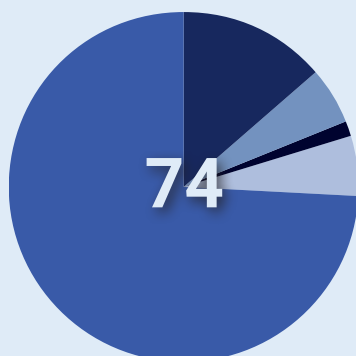
### Grants\*

- Internal
- Foundation
- Government



### Publications

- Review
- Opinion
- Empirical
- Editorial
- Response



## Awards + Recognition

Cambia Health Foundation counts **The PAIR Center** as 1 of 4 *pioneers* in the US transforming the palliative care delivery system

### Kate Courtright, MD, MS

National Palliative Care Research Center Junior Faculty Career Development Award

### Scott Halpern, MD, PhD

American Federation for Medical Research 2017 Outstanding Investigator Award

Association for Clinical and Translational Science 2017 Distinguished Investigator Award

### Michael Harhay, PhD

Received fundable score on K99/R00 from NHLBI

### Joanna Hart, MD, MSHP

Top-Abstract Award, 2017 Society for Medical Decision Making conference

K23 Career Development grant from NHLBI

### Meeta Prasad Kerlin, MD, MSCE

American Thoracic Society Foundation unrestricted grant in Critical Care

### Rachel Kohn, MD, MS

F32 National Research Service Award from NHLBI

### Meghan Lane-Fall, MD, MSHP

UPHS Award for Quality Improvement and Patient Safety

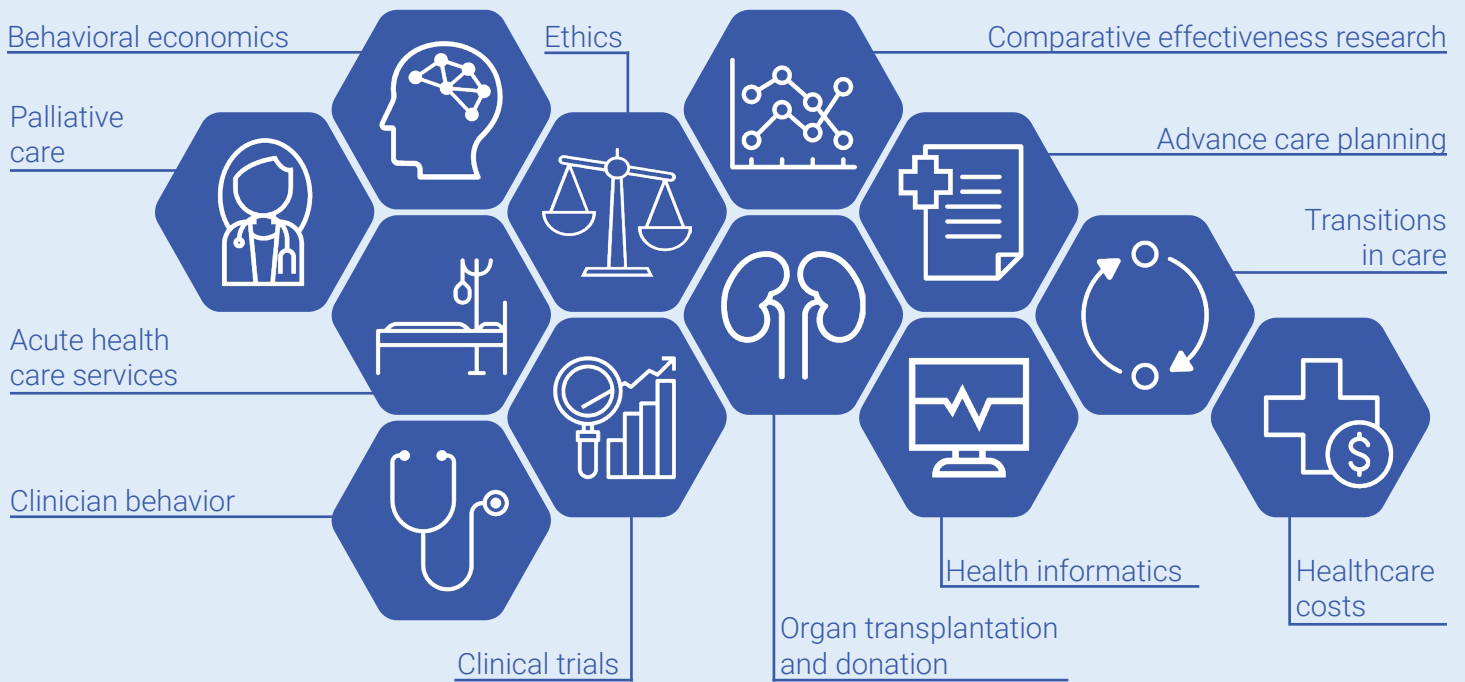
### Gary Weissman, MD, MS

Received fundable score on K23 Development grant from NHLBI

\*direct costs



# Core research areas



# Trending publications

## JAMA

Detsky ME, Harhay MO, Bayard DF, Delman AM, Buehler AE, Kent SA, Ciuffetelli IV, Cooney E, Gabler NB, Ratcliffe SJ, Mikkelsen ME, Halpern SD. Discriminative Accuracy of Physician and Nurse Predictions for Survival and Functional Outcomes 6 Months After an ICU Admission

## New England Journal of Medicine

Rolnick JA, Asch DA, Halpern SD. Delegalizing Advance Directives - Facilitating Advance Care Planning

## Journal of General Internal Medicine

Hart JL, Gabler NB, Cooney E, Bayes B, Yadav KN, Bryce C, Halpern SD. Are Demographic Characteristics Associated with Advance Directive Completion? A Secondary Analysis of Two Randomized Trials

## Annals of Internal Medicine

Courtright KR, Cassel JB, Halpern SD. A Research Agenda for High-Value Palliative Care

## Health Affairs

Yadav KN, Gabler NB, Cooney E, Kent S, Kim J, Herbst N, Mante A, Halpern SD, Courtright KR. Approximately One In Three US Adults Completes Any Type Of Advance Directive For End-Of-Life Care

**DID YOU KNOW?** This article is among the top 10 most shared Health Affairs articles of 2017



# Key Initiatives

## Palliative Care

The **PAIR Center** and **UPHS Palliative Care Program** have formed numerous collaborations that underscore their shared goals of building, testing, and implementing scalable interventions that address some of the field's most pressing challenges. As demand for palliative services and burnout among frontline clinicians rise, so too does the importance of being able to optimally deploy these scarce resources to patients for whom they are most beneficial.

Directed by **Dr. Nina O'Connor**, the Palliative Care Program's cadre of clinicians is uniquely equipped to collaborate with PAIR researchers across a number of innovative projects. In 2017, the PAIR Center and the Clinical Palliative Care Program collaborated on two successful grant submissions: the first-ever RCT to explore the effect of medical cannabis on quality of life in patients with stage III and IV solid malignancies funded by UPHS and **Dr. Pallavi Kumar's** pilot study, "A Randomized Trial of Advance Care Planning and Triggered Palliative Care for Cancer Patients Undergoing Stem Cell Transplantation" awarded by the Penn Medicine Abramson Cancer Center through funding made available from the American Cancer Society. PAIR investigators are leading both studies, and both will meet the Center's mission of testing ways of improving serious illness care for patients closest to home: those cared for here at Penn.

A third collaboration between the PAIR Center and Clinical Palliative Care Program, which also involves the Penn Medicine Data Science Team, is building a tool to identify UPHS patients who are mostly likely to benefit from a palliative care consultation, thereby providing evidence to guide the Palliative Care team's triage practices. Finally, the PAIR Center and the Clinical Palliative Care Program have been collaborating on efforts to recruit clinician researchers that will realize our shared vision of Penn being a learning health system in which the development of innovations in serious illness care becomes the norm.





## PAIR Data Core

As the PAIR Center expands its partnerships with leading health systems across the country, responsiveness to enterprise-level information systems, as well as the ever-increasing demand for granular electronic

health data to measure patient outcomes, will be paramount. The Data Core is a signature resource of the Center, using a rigorous, consultative approach on PAIR researchers' projects -- all the while serving

as a learning incubator as the Center continues to grow and respond to new challenges. In 2018, the Data Core will add new team members and apply its experience extracting inpatient data from diverse sources on several large projects, including the 26-hospital Penn-Kaiser Permanente collaboration, ICU Net Benefits.

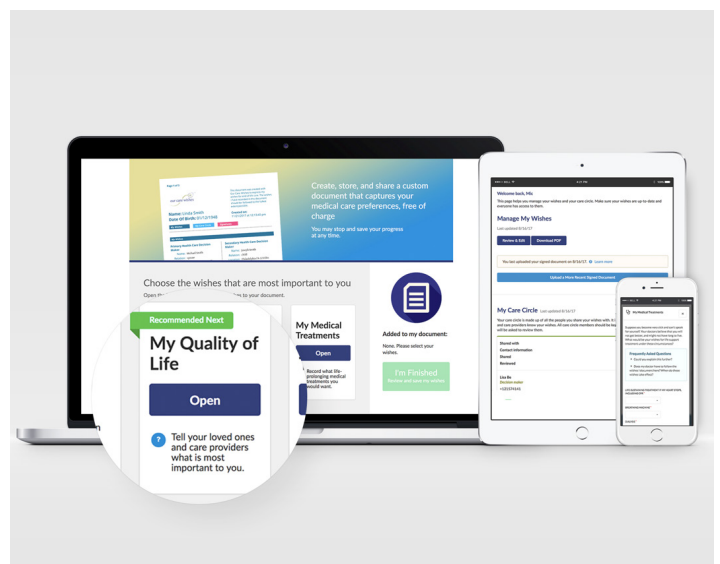


From L to R: Brian Bayes, MS, Data Manager; Steven Brooks, MPH, Statistical Analyst; Marzana Chowdhury, PhD, Statistical Analyst

## Our Care Wishes

During 2017, PAIR researchers worked to optimize content of OurCareWishes.org (OCW), a novel, Penn-developed web platform for advance directive completion. Headed up by a team of developers, user experience designers, palliative care providers, and researchers across the PAIR Center, the Penn Medicine Center for Health Care Innovation, and the Clinical Palliative Care Program, OCW is already the preferred platform for patients in the Penn Medicine health system due to its patient-centered functionality: Users can choose, share, and store their care preferences from anywhere, at any time, with anyone. The platform's turnkey research infrastructure enables PAIR to iteratively conduct rigorous user testing and comparative effectiveness research of different advance directive completion interventions. Several planned extramurally funded trials will feature OCW and allow PAIR researchers and colleagues to solidify the platform as the exemplar of online advance care planning modules in an understudied yet burgeoning space. In 2018, with ongoing

funds from UPHS, the PAIR Center, and the CHIBE Connected Health program, PAIR investigators and collaborators will further customize and disseminate the tool beyond Penn Medicine.



Pictured: OurCareWishes.com



# PAIR Center-Wide Monthly Meeting

The PAIR Center-Wide Monthly Meetings aim to optimize collaboration and discussion among health-care system leaders, clinicians, thought leaders, and scholars at the nexus of serious and advanced illness care. The meetings feature presentations by visiting professors, as well as discussions of findings from completed research by PAIR Center members and their impact on care at UPHS. The PAIR Center also uses the forum to present new PAIR Center initiatives.

Interested in attending a PAIR Center meeting? Contact Alyssa Lettman at [lettmana@upenn.edu](mailto:lettmana@upenn.edu)

Right: Bob Tedeschi, Senior Reporter at STAT News, speaks at a PAIR Center-Wide Monthly Meeting. Below: Core faculty member Dr. Meeta Prasad Kerlin presents at PAIR WIP



# PAIR Center Weekly Meetings

The PAIR Center continues to offer a forum for faculty, affiliated faculty, trainees, and staff to workshop ideas in an interactive environment through its weekly Work-in-Progress meetings. The WIP format provides opportunities for researchers to receive feedback on research protocols and key early-phase decisions in designing projects; problem-solve with the broad research team for issues that arise after studies begin with recruitment, data management, and analyses; and engage in discussions of how to interpret results and optimally present the data in manuscripts and at conferences. Meetings also feature learning seminars and methodology talks, as well as discussions about lessons learned from completed studies.

## Sister Centers

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NewCourtland Center  
for Transitions and Health

UNIVERSITY of PENNSYLVANIA  
SCHOOL of NURSING

## Our Partners

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Carolin HealthCare System








# The **pair** Center

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*The PAIR Center is in the Department of Medicine at the Perelman School of Medicine at the University of Pennsylvania*