We conduct policy-relevant research to **improve** the **lives** of rural residents and families, to **advance** health **equity**, and to **enhance** the **vitality** of rural communities.

rhrc.umn.edu
We were honored to take on the roles of Director and Deputy Director of the University of Minnesota’s Rural Health Research Center in February of 2018. Building off a strong foundation established under the leadership of Ira Moscovice and Michelle Casey, who have been in these roles for 25 years, we come into these leadership roles with gratitude to Ira and Michelle for the many contributions they have made to the field of rural health and the support they’ve provided us personally. Ira Moscovice is a nationally-known expert in rural health, whose contributions on a wide range of topics have influenced health care delivery, access and outcomes in rural communities for decades. In particular, Ira and Michelle’s leadership in developing rural-relevant metrics for evaluating the quality of care has provided the necessary foundation for the integration of rural health care delivery systems into value-based models of care. We are truly humbled to have the opportunity to continue their legacy of excellence in rural health research. Ira continues to work with us as a Senior Advisor, and while Michelle Casey retired in February of 2018, she has continued to work with us to bring her expertise to bear on topics about which she is passionate.

We are looking forward to the year ahead, with the University of Minnesota’s Rural Health Research Center leading projects that address some of the most urgent issues in rural communities, from access to safe care during childbirth to accessing care in later life, and from primary care to preventive services. We are committed to both generating high-quality research and to communicating our findings to stakeholders in rural communities and in the halls of Congress. Over the past year, we have had the chance to do just that – from phone calls to rural hospitals to assess capacity for pulmonary rehabilitation to conversations with rural community leaders combating social isolation to addressing a Senate briefing on rural maternity care access. We are proud of the impact we’ve had on policy discussions and in bringing rural voices to the forefront of health care and public health discussions nationally.

Katy B Kozhimannil, Ph.D., M.P.A.
Carrie Henning-Smith, Ph.D., M.S.W., M.P.H.
Background

The University of Minnesota Rural Health Research Center is a Federally-funded cooperative agreement between Division of Health Policy and Management within the University of Minnesota School of Public Health and the Federal Office of Rural Health Policy, a division of the Health Resources and Services Administration within the U.S. Department of Health and Human Services.

VISION

Our dedicated team of experts at the University of Minnesota Rural Health Research Center (RHRC) conducts research to advance equity and improve health and well-being among those who are frequently absent from policy discussions, but whose lives are deeply impacted by policy decisions. Our work is informed by the lived experiences of people, families, and communities that experience disproportionate vulnerability and exhibit disproportionate resilience.

We study access to and quality of health care and population health outcomes in order to build the evidence base for policymaking. Our work maintains a focus on eliminating inequities based on geography, race, gender, nationality, age, and ability. We are committed to the highest standards of excellence in research and to communicating results to academic and policy audiences as well as to the people and communities to which our research pertains.

CORE PRINCIPLES

1. We conduct research to inform the development, implementation, and evaluation of health policy that impacts rural residents and communities.

2. We study the impacts of institutional and governmental policies that affect health care access and quality and population health outcomes across the lifespan, answering questions voiced by rural residents and communities.

3. We focus on groups that experience disproportionate vulnerability and resilience, including communities of color, women and girls, older adults, and low-income people in rural communities.

4. We educate policymakers about the consequences of their decisions for the communities and population groups we study.
JOURNAL ARTICLES, 2017-18

• A National Examination of Caregiver Use of and Preferences for Support Services: Does Rurality Matter? *Journal of Aging & Health*, July 2018

• Rural-Urban Difference in Workplace Supports and Impacts for Employed Caregivers. *Journal of Rural Health*, June 2018

• Association Between Loss of Hospital-Based Obstetric Services and Birth Outcomes in Rural Counties in the United States. *JAMA*, March 2018

• Beyond Clinical Complexity: Nonmedical Barriers to Nursing Home Care for Rural Residents. *Journal of Aging & Social Policy*, March 2018

• Rural Hospital Employment of Physicians and Use of Cesarians and Non-Indicated Labor Induction. *Journal of Rural Health*, February 2018

• Barriers to Nursing Home Care for Nonelderly Rural Residents. *Journal of Applied Gerontology*, December 2017

• Geographic Variation in Transportation Concerns and Adaptations to Travel-Limiting Health Conditions in the United States. *Journal of Transport & Health*, November 2017

• Rural-Urban Differences in the Impact of Risk-Adjustment on Quality Measures for Medicare Beneficiaries. *Medical Care*, September 2017

• Rural-Urban Differences in Medicare Quality Scores Persist after Adjusting for Sociodemographic and Environmental Characteristics. *Journal of Rural Health*, September 2017

• Access to Obstetric Services in Rural Areas Still Declining, with 9 Percent Losing Services, 2004-14. *Health Affairs*, September 2017
PRESENTATIONS, 2017-18

• National Rural Health Association Rural Hospitals Interest Group Meeting, January 2018, in Washington DC:
  “Maternity Care Access in Rural America” (Carrie Henning-Smith)

• Congressional (U.S. Senate 783) briefing: March 2018, in Washington DC:
  “Improving access to maternity care in the United States” (Carrie Henning-Smith)

• American Hospital Association’s Allied Association for Rural, March 2018, via webinar:
  “Maternity Care in Rural America” (Carrie Henning-Smith)

• National Institutes of Health Summit: “COPD & Rural Health,” March 2018, in Bethesda MD:
  Attended & participated (Alex Evenson)

• Texas A&M School of Public Health, April 2018, in College Station TX:
  “Relevant Rural Health Quality Measurement Issues” (Ira Moscovice)

• Webinar presentation, Rural Health Research Gateway, April 2018:
  “Diminishing Access to Rural Maternity Care and Associated Changes in Birth Location and Outcomes” (Carrie Henning-Smith)

• Grantmakers in Aging Summit, “Beyond Here and There: Transforming Mobility in Rural America Through New Technology,” May 2018, in Berkeley CA:
  “Transportation as a Social Determinant of Rural Health” (Amanda Corbett)

• National Rural Health Association Annual Meeting, May 2018, in New Orleans LA:
  “Effects of the Opioid Epidemic in for Rural Women and Families” (Katy Kozhimannil)
  “Quality Measures for CAH Swing Bed Patients” (Ira Moscovice)
  “Rural Transportation: Challenges and Opportunities” (Alex Evenson)

• Rural Health Leadership Radio (Podcast), May 2018:
  “A Conversation with Carrie Henning-Smith”

• AcademyHealth Annual Research Meeting, June 2018, in Seattle WA:
  “Maternal Opioid Use Disorder Among Rural Residents” (Katy Kozhimannil)

• Public-Private Collaborations in Rural Health Meeting, June 2018, in Washington, DC:
  “Loss of Rural Obstetric Services and Changes in Birth Location and Outcomes.” (Carrie Henning-Smith)

• Federal Office of Rural Health Policy Summit: “Rural Response to COPD Action Plan,” June 2018, in Rockville MD:
  Attended & participated (Alex Evenson)

• Federal Office of Rural Health Policy Flex Program Reverse Site Visit, July 2018, in Washington DC:
  “Quality Measures for CAH Swing Bed Patients” (Ira Moscovice)
Staff, Students, and Affiliates, 2017-18
**Leadership**

**KATY KOZHIMANNIL, PH.D., DIRECTOR**

Dr. Kozhimannil is the Director of the University of Minnesota Rural Health Research Center and an Associate Professor in the Division of Health Policy and Management, University of Minnesota School of Public Health.

Dr. Kozhimannil conducts research to inform the development, implementation, and evaluation of health policy that impacts health care delivery, quality, and outcomes during critical times in the lifecourse, including pregnancy and childbirth. The goal of her scholarly work is to contribute to the evidence base for clinical and policy strategies to advance racial, gender, and geographic equity and to collaborate with stakeholders in making policy change to address social determinants and structural injustice in order to facilitate improved health and well-being.

Her research, published in major journals such as *Science*, the *New England Journal of Medicine*, *JAMA*, *Health Affairs*, *American Journal of Public Health*, *Medical Care*, and the *American Journal of Managed Care*, has been widely cited. Media coverage of her research, including feature stories by the *New York Times*, *Washington Post*, *National Public Radio*, *Wall Street Journal*, *US News & World Report*, and the *Huffington Post*, has generated dialogue, interest, and policy action at local, state, and national levels. In addition to conducting research, Dr. Kozhimannil teaches courses that build skills for effective engagement in the policy process, and works extensively with community organizations and state and federal policy makers on efforts to improve the health and well-being of individuals, families, and communities, starting at birth.

Prior to starting her academic career, Dr. Kozhimannil worked on HIV/AIDS prevention and policy as well as education and youth development both domestically and abroad. She served as a Peace Corps Volunteer in rural Mozambique and has worked for Ibis Reproductive Health, the World Bank, Population Services International, the American Red Cross, and the YMCA.

**CARRIE HENNING-SMITH, PH.D., DEPUTY DIRECTOR**

Dr. Henning-Smith is the Deputy Director of the University of Minnesota Rural Health Research Center and an Assistant Professor in the Division of Health Policy and Management, University of Minnesota School of Public Health. She has been with the RHRC since 2015.

Dr. Henning-Smith applies her interdisciplinary training in health services research, public health, social work, gerontology, and demography to study policy-relevant issues for rural populations. She has led multiple research projects at the Rural Health Research Center, with a wide range of topics including the social determinants of health, access to and quality of care, and aging and long-term care. She was chosen as a 2017 Rural Health Fellow by the National Rural Health Association and serves as a current editorial board member for the *Journal of Rural Health*. 
Staff

MICHELLE CASEY, M.S.
A Senior Research Fellow, Ms. Casey has been with the RHRC since 1994. She has led and contributed as a key investigator for numerous Rural Health Research Center projects involving primary data collection as well as statistical analyses of secondary data. Her research interests include quality of care, patient safety, critical access hospitals, access to care for underserved populations, and end-of-life care. She was the recipient of the National Rural Health Association’s Outstanding Rural Health Researcher award in 2006, and served as the Assistant Director of the Minnesota Office of Rural Health from 1992 to 1994.

AMANDA CORBETT, M.P.H.
Ms. Corbett, a qualitative researcher, joined the RHRC team in December 2015. She has contributed to research projects looking at transportation barriers in rural communities and work/life balance challenges faced by pregnant mothers and new families in rural communities. Her research interests include maternal and child health; social determinants of health; community engagement; health equity; and policy, systems, and environmental change.

ALEX EVENSON, M.A.
Mr. Evenson has managed RHRC communications, dissemination, and website resources since February 2013. Over that time, he has also contributed to research projects focused on health insurance recruitment and education in rural communities, reducing health care-associated infections in Critical Access Hospitals (CAHs), measuring quality performance in CAHs, identifying barriers to transportation among rural residents, and improving access to care for rural patients with COPD.

MEGAN LAHR, M.P.H.
Ms. Lahr is a Research Fellow and Project Manager at the RHRC, hired in September of 2017. During her time, she has contributed to research projects focused on caregiving and social isolation in rural populations, and will continue to focus on access to care issues in rural communities in the coming year. In her role as Project Manager, she helps to manage the operations of all RHRC projects and grant-related activity.

IRA MOSCOVICE, PH.D.
Dr. Moscovice is the Mayo Professor in the Division of Health Policy and Management, School of Public Health. He was the director of the Rural Health Research Center from its inception in 1992 through 2018. He currently serves as Senior Advisor and is a full-time researcher. He has served as the principal investigator for numerous rural health projects funded by federal and state agencies and private foundations, including the Federal Office of Rural Health Policy, the Centers for Medicare and Medicaid, the Agency for Healthcare Research and Quality, the Robert Wood Johnson Foundation and the Northwest Area Foundation.

PAM SUNESON, B.A.
Ms. Suneson joined the RHRC staff in 2017 as our Administrative Specialist. She holds a Bachelor’s degree from the University of Minnesota and has previous experience within health care, printing, financial, education, and travel industries. She also provides administrative and finance support for the State Health Access Data Assistance Center, housed within the University of Minnesota’s School of Public Health, and has been employed there since 2015.
Affiliates

CRESTA JONES, M.D.

Dr. Jones is a maternal-fetal medicine physician and assistant professor at the University of Minnesota Medical School. She completed her medical degree at the Medical College of Wisconsin, and her OB/gyn residency and maternal-fetal medicine fellowship at the University of Vermont College of Medicine. Her clinical focus is opioid use disorders in pregnancy, and she currently serves as the physician lead in an inpatient substance use disorders in pregnancy program in the Minneapolis-St. Paul area.

SHAILENDRA PRASAD, M.D., M.P.H.

Dr. Prasad is an Associate Professor at the Department of Family Medicine and Community Health at the University of Minnesota and the Executive Director of the Center for Global Health and Social Responsibility at the University of Minnesota. He provides a clinical perspective on a wide range of RHRC projects. He practiced as a primary care physician for several years in rural southern Mississippi and in rural and tribal areas in South India before coming to the University of Minnesota. His current work focuses on quality of care, coordination of care, methods of care delivery, and appropriate resource utilization.

Student Research Assistants

TONGTAN CHANTARAT, M.P.H.

Mr. Chantarar is a Ph.D. student in Health Services Research, Policy, and Administration. He holds a M.P.H. in Epidemiology from Columbia University.

PEIYIN HUNG, PH.D.

Dr. Hung was a Ph.D. student in Health Services Research, Policy, and Administration during the 2017-18 academic year. She completed her Ph.D. in May 2018 and recently accepted a faculty position at the University of South Carolina.

HENRY STABLER, M.P.H.

Mr. Stabler is a Ph.D. student in Health Services Research, Policy, and Administration. He holds an M.P.H. in Health Management & Policy from the University of Michigan.

ZHENGTIAN WU, M.S.

Ms. Wu is pursuing a M.A. in Public Health Administration & Policy. She holds a M.S. in Agricultural and Resource Economics from the University of California, Davis.

Expert Work Group

TOM DEAN, M.D.
Family Physician, Wessington Springs, SD

JENNIFER LUNDBLAD, PH.D.
CEO, StratisHealth

CATHLEEN PFAFF, RN, BSN
Senior VP, Clinical Services, Cypress Healthcare

TIM SIZE, M.B.A.
Executive Director, Rural Wisconsin Health Cooperative

BROCK SLABACH, M.P.H.
Senior Vice President, National Rural Health Association

JOHN SUPPLITT, M.P.A., M.B.A.
Senior Director, American Hospital Association
Activity in 2017-18 on Projects Funded in 2016
Obstetric Unit and Hospital Closures and Maternal and Infant Health in Rural Communities

Year Funded: 2016

Project Lead: Katy Kozhimannil, Ph.D.

Project Staff: Carrie Henning-Smith, Ph.D.; Peiyin Hung, Ph.D.; Shailendra Prasad, Ph.D.; Michelle Casey, M.S.

This project examined the relationship between closure of an obstetric unit or hospital and maternity care and outcomes of childbirth in rural U.S. counties including prenatal care, distance to delivery hospital, out-of-hospital birth, and infant health outcomes.

Findings from this project have been published in major journals, engaged by major media outlets, and had substantial impact on policy dialogue. One manuscript was published in Health Affairs in September and a second manuscript was published in JAMA in March. Both received significant media attention, and JAMA accelerated the publication date to coincide with an invited Congressional briefing by Dr. Carrie Henning-Smith. Dr. Katy Kozhimannil co-authored an op-ed piece published in The Washington Post in November featuring findings from this project, and our research findings were cited in stories by The New York Times, NBC Nightly News, and Full Frontal with Samantha Bee.

Products:

- “Access to Obstetric Services in Rural Counties Still Declining, with 9 Percent Losing Services, 2004–14” published in Health Affairs. (Sep 2017)
- “Association between Loss of Hospital-Based Obstetric Services and Birth Outcomes in Rural Counties in the United States” published in JAMA. (Mar 2018)
- Dr. Kozhimannil co-authored an op/ed in the Washington Post, “Rural America’s Disappearing Maternity Care.” (Nov 2017)
- Dr. Henning-Smith presented “Maternity Care Access in Rural America” at the NRHA Rural Hospitals Interest Group Meeting in Washington, DC. (Jan 2018)
- Dr. Henning-Smith gave invited Congressional testimony at a lunch briefing. (Mar 2018)
- Dr. Henning-Smith featured this project’s research findings in a webinar hosted by the Rural Health Research Gateway, “Diminishing Access to Rural Maternity Care and Associated Changes in Birth Location and Outcomes.” (Apr 2018)
Paving the Way: Addressing Transportation as a Social Determinant of Health for Rural Residents

Year Funded: 2016

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Amanda Corbett, M.P.H.; Alex Evenson, M.A.

Rural areas face unique challenges related to transportation, including distance to health care and other services, the impact of adverse weather on travel conditions, and limited availability of public and private transportation services. Rural residents cannot receive health care services without transportation to access facilities and providers. Beyond direct access to care, transportation is essential for accessing basic necessities for health and wellness, such as food, recreation, employment, education, and social support.

This project used a mixed-methods design to examine ways in which transportation operates as a social determinant of health for vulnerable rural residents, and to identify exemplar transportation programs that are successfully improving health and well-being of those residents. Work on this project continued during 2017-18:

- Policy brief: “Rural Transportation: Challenges and Opportunities.” (Nov 2017)
- Policy brief: “Addressing Commuting as a Public Health Issue: Strategies Differ by Geography.” (Jul 2018)
- “Geographic Variation in Transportation Concerns and Adaptations to Travel-Limiting Medical Conditions” published in *Journal of Transport and Health*. (Nov 2017)
- Alex Evenson presented “Rural Transportation: Challenges and Opportunities” at the National Rural Health Association’s annual conference in New Orleans, LA. (May 2018)
Measuring the Quality of Swing-Bed Care in Critical Access Hospitals

Year Funded: 2016

Project Lead: Ira Moscovice, Ph.D.

Project Staff: Michelle Casey, M.S.; Henry Stabler, M.P.H.

The lack of nationally comparable swing-bed quality measure data for Critical Access Hospitals (CAHs) means that they are not able to demonstrate the quality of care provided to swing-bed patients, and limits their ability to participate in alternative payment models that include post-acute care.

This project has identified quality measures to be used by CAHs to assess the quality of care provided to their swing-bed patients. Researchers are in the process of implementing a field test of these measures in 107 CAHs in 13 states, in collaboration with Stroudwater Associates. This included the completion of staff training, an inter-rater reliability process, IRB approval, and the development of a web application.

The goal is to obtain eventual endorsement of the measures by the National Quality Forum, and recommend them for use by CMS for assessing the value of CAH swing beds.

Products:

- Presented “Quality Measures for CAH Swing Bed Patients” at the NRHA annual meeting. (May 2018)
- Presented “Quality Measures for CAH Swing Bed Patients” on the field test at the Federal Office of Rural Health Policy Flex Program Reverse Site Visit in Washington, DC. (Jul 2018)
Skilled Nursing Facility Care for Rural Residents with Complex Care Needs

Year Funded: 2016

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Michelle Casey, M.S.; Shailendra Prasad, MD; Katy Kozhimannil, Ph.D.

With the aging of the U.S. population, the number of adults with complex care needs is rising, particularly in rural areas. Despite this, nursing homes often lack the staffing, funding, and infrastructure to adequately care for them. As a result, access to appropriate, timely long-term care in skilled nursing facilities may be constrained for rural residents who need it most.

This project examined barriers to skilled nursing facility placement for rural residents with complex care needs (including obesity, dementia, and behavioral health problems) and explored potential implications for access to and quality of care.

In addition to the products published during this project’s funding cycle, the following were released in 2017-18:

- “Barriers to nursing home care for non-elderly rural residents” published in *Journal of Applied Gerontology*. (Dec 2017)
Activity in 2017-18 on Projects Funded in 2017
Caring for Caregivers: Available Support for Unpaid Caregivers in Rural Areas

Year Funded: 2017

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Megan Lahr, M.P.H.; Michelle Casey, M.S.

Currently, more than 80% of all long-term care is provided by informal (unpaid) caregivers, usually family members, and more than 44 million Americans are currently providing unpaid care to a loved one, the majority of whom are older adults. The value of unpaid caregiving has been estimated at nearly $500 billion annually, yet it receives far less research attention than institutional care or home health services. Caregiving, especially without appropriate support, is associated with various poor health outcomes for the caregiver. While the entire U.S. is aging quickly, rural areas are aging at a faster rate and have greater long-term care needs. Further, rural areas face shortages in the formal long-term care workforce, pushing even more of the burden of care to unpaid caregivers. Yet, caregiver support programs are scarcer in rural areas, leaving caregivers who may need help most at the greatest risk of not receiving it.

This project aimed to describe rural-urban differences in the prevalence and intensity of informal caregiving for older adults and associated socio-demographic correlates, and identify potential policy interventions to improve the quality of life and health outcomes of rural caregivers.

Research activity during 2017-18:

• Completed analysis of 2015 Caregiving in the U.S. Survey to examine rural-urban differences in caregiver burden, strain, health, and service use as well as rural-urban differences among employed caregivers in workplace supports and impacts.
• Conducted thorough literature review on informal caregiving in rural areas.
• Conducted 34 key informant interviews, with a total of 41 key informants, with experts on rural caregiving issues.
• Coded themes from interviews, identifying areas of challenge, recent change, and potential policy interventions.
• Compiled detailed list of programs supporting rural caregivers at the local, state, and federal level.

Products:

• Policy brief: “Perspectives on Rural Caregiving: Challenges and Interventions.” (Aug 2018)
• Policy brief: “Resources for Caregivers in Rural Communities.” (Aug 2018)
Rural-Urban Differences in Opioid-Affected Pregnancies and Births

Year Funded: 2017

Project Lead: Katy Kozhimannil, Ph.D.

Project Staff: Carrie Henning-Smith, Ph.D.; Tongtan Chantarat, M.P.H.; Alexandra Ecklund, M.P.H.; Cresta Jones, MD

The opioid epidemic has had devastating health, social, and economic consequences for families across the U.S., with a disproportionate impact in rural areas. Non-medical opioid use and opioid use disorder during pregnancy are associated with poor maternal outcomes and adverse effects among infants. The diagnosis of maternal opioid use disorder in the U.S. increased disproportionately in rural counties from 2004 to 2013, indicating the need for rural-tailored information to inform opioid programs and policies.

This analysis described the rates and predictors of non-medical opioid use prior to and during pregnancy and maternal diagnosis of opioid use disorder at birth, based on rural or urban maternal residence and rural or urban hospital location. Findings will help policymakers and key stakeholders target resources to combat the opioid epidemic in rural communities.

Research Activity during 2017-18:

• Completed analyses of National Inpatient Sample (NIS) data from 2007-2014 to examine maternal opioid use disorder among rural residents, by birth hospital location.
• Conducted literature review for maternal opioid use disorder and neonatal abstinence syndrome in rural communities.
• Began a new collaboration with Cresta Jones, MD, a maternal-fetal medicine doctor at the University of Minnesota who specializes in substance use during pregnancy.
• Completed a manuscript, “Maternal opioid disorder among rural residents, by hospital location and type” and submitted to a peer-reviewed journal.
• Completed a new type of “practical implications” product which describes the real-world meaning of research findings from a clinician’s perspective and submitted to FORHP for review.

Products:

• Dr. Katy Kozhimannil presented “Effects of the opioid epidemic in for rural women and families” at the National Rural Health Association’s Annual Meeting in New Orleans, LA. (May 2018)
• Dr. Katy Kozhimannil presented “Maternal opioid use disorder among rural residents” at the AcademyHealth Annual Research Meeting in Seattle, WA. (Jun 2018)
Addressing Rural Social Isolation as a Health and Mortality Risk Factor

Year Funded: 2017

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Katy Kozhimannil, Ph.D.; Ira Moscovice, Ph.D.; Alexandra Ecklund, M.P.H.

Social isolation, defined as a lack of contact with friends, family members, neighbors, and society at large, is directly related to increased morbidity and mortality, both of which are elevated in rural areas, compared with urban areas. Addressing social isolation should be viewed as a matter of primary prevention and as imperative to population health.

The purpose of this project was to describe rural/urban differences in the prevalence of social isolation, as well as identify challenges and strategies related to addressing rural social isolation in order to inform policy-making.

Research Activity during 2017-18:

- Completed analyses of the National Social Life, Health, and Aging Project (NSHAP) dataset to examine rural urban differences in social isolation and self-reported health outcomes.
- Conducted literature review on social isolation and its effects on health.
- Completed 22 key informant interviews to learn more about rural social isolation throughout the life course. Interviewees from across the U.S. included community-level program directors, academic experts, and leaders of national advocacy groups.
- Completed qualitative coding of key informant interviews.
- Drafted and submitted manuscript “Rural-Urban Differences in Social Isolation and its Relationship to Health” to a peer-reviewed journal.
- Policy Brief drafted and submitted to FORHP.
- Proposal for podium presentation at the Gerontological Society of America Annual Meeting accepted; will take place November 14-18, 2018 in Boston, MA.

Products:

- Policy brief: “Gender Differences in Social Isolation and Support among Rural Residents”
Access to and Quality of Care for Rural Patients with Chronic Obstructive Pulmonary Disease

Year Funded: 2017

Project Lead: Ira Moscovice, Ph.D.

Project Staff: Michelle Casey, M.S.; Alex Evenson, M.A.; Zhengtian Wu, M.S.

Chronic Obstructive Pulmonary Disease (COPD) is a set of progressive lung diseases including chronic bronchitis, emphysema, asthma, and other small-airways disease. An estimated 16 million individuals in the U.S. have COPD, resulting in over 800,000 hospitalizations per year with a hospital readmission rate close to 25%. COPD is the fourth leading cause of death in the U.S.; COPD-related direct and indirect health costs have been estimated to be approximately $50 billion per year.

This project aims to address the large gap in the literature on key access and quality issues for the rural population with COPD by describing the prevalence of COPD in rural areas, and demographic characteristics and health status measures for rural patients with COPD; assessing access to care and availability of needed care and services for rural COPD patients.

Research Activity during 2017-18:

- Conducted review of literature on rural COPD and collected information from websites of COPD organizations.
- Downloaded publicly-available AHRQ, POS, Hospital Compare, and NHATS data.
- Obtained data on pulmonary rehabilitation program locations from the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) and the COPD Foundation.
- Completed initial review of all U.S. hospitals, aiming to identify those that offer pulmonary rehab services regardless of AACVPR certification.
- Began statistical analyses of secondary data.

Products:

- Policy brief: “Provision of Respiratory Care in Rural Hospitals.” (Mar 2018)
- Attended & participated in “COPD & Rural Health: A Dialogue on the National Action Plan” at National Institutes of Health, Bethesda MD. (Mar 2018)
- Attended & participated in “Rural Response to COPD & Rural Health Summit” at Federal Office of Rural Health Policy, Rockville MD. (Jun 2018)
Developing Rural-Relevant Strategies to Reduce Maternal Morbidity

Year Funded: 2018

Project Lead: Katy Kozhimannil, Ph.D.

Project Staff: Carrie Henning-Smith, Ph.D.; Amanda Corbett, M.P.H.; Cori Blauer-Peterson, M.S.; Angela Thompson, M.D.; Julia Interrante, M.P.H.

The purpose of this project is to distinguish and analyze predictors of maternal morbidity during childbirth hospitalization by geography and to develop recommendations to improve the safety of childbirth for rural residents. It will also assess the degree of rural focus and representation in current policy efforts to address this crisis.

Description:

Most people enter pregnancy without anticipating major risks to their health, yet every year, at least 50,000 experience potentially life-threatening complications of childbirth (e.g., blood clots, acute renal failure, shock, cardiac arrest, respiratory distress, amniotic fluid embolism, eclampsia, complications of anesthesia). The rate of severe maternal morbidity doubled between 1998 and 2011, as did maternal mortality, doubling between 1990 and 2013. In the general population, there are divergent morbidity trends in rural and urban areas, leading to excess mortality among rural residents. Both of these troubling trends render residents of rural areas particularly vulnerable to illness and death following childbirth.

Several national clinical efforts are underway to address severe maternal morbidity, but many national efforts do not address the specific conditions of care provided in rural contexts (e.g., limited access to specialty providers, lack of a dedicated operating room for obstetrics, use of general - vs. specialized - nursing staff in labor and delivery units). Attention to the particular challenges faced by rural patients and health care facilities is crucial to the success of efforts to reduce maternal morbidity and mortality in rural areas. Additionally, state and federal legislators have increasingly proposed and adopted policies in the wake of rising rates of maternal morbidity and mortality. Many policy efforts focus on the establishment of committees to review cases of maternal morbidity or mortality, and clinical leaders have argued for the importance of these efforts at federal, state, and local levels. As these efforts gain strength, it is not clear to what extent rural populations are recognized and explicitly included in policies designed to address this growing crisis. No prior studies have examined rural-urban differences in current trends in maternal morbidity. Such evidence is urgently needed to inform geographically-tailored clinical and policy efforts to reverse the rising rates of maternal morbidity and mortality nationally.

This project is national in scope and will have relevance for policy making at the federal, state, local, and institutional levels. We will conduct analyses using both a 20% sample of births (2004-2014) to assess trends and on a 100% sample of hospital-based 2014 births that occurred in 9 states across the four U.S. Census regions. We also plan to conduct a review of state and federal legislation (including proposed legislation) related to maternal mortality and maternal morbidity review committees, as well as a site visit to a rural hospital providing obstetric services. The purpose of the visit is to discuss management of care during pregnancy and childbirth with clinicians and hospital administrators; how a high-risk designation affects care for rural residents (e.g., referrals to specialized or subspecialized care); and how decisions are made to transfer rural patients in the intrapartum period.
Team-Based Primary Care in Rural Communities

Year Funded: 2018

Project Lead: Hannah Neprash, Ph.D.

Project Staff: Shailendra Prasad, M.D.; Ira Moscovice, Ph.D.; Katy Kozhimannil, Ph.D.; Laura Smith, B.A.

This project will describe primary care practice structure in rural communities and quantify characteristics of primary care teams associated with high-quality care.

Description:

Roughly one in six Americans live in a rural area, but only 10 percent of primary care physicians (PCPs) practice in these communities. Physicians in rural areas are older on average, suggesting that the rural PCP shortages will intensify in coming years. In the face of a looming PCP shortage nationwide, some researchers advocate team-based care—defined as collaborative care provided by groups of physician and nonphysician clinicians—as one way to accommodate the care needs of an aging population in rural and urban areas alike. Nonphysician clinicians such as nurse practitioners (NPs) and physician assistants (PAs) are already integral members of the rural primary care workforce. Compared to physicians, NPs and PAs are more than twice as likely to locate in rural areas. As a result, NPs and PAs provide 1 in 6 office visits in rural areas, compared to 1 in 10 in urban areas. For this reason, rural areas provide an opportunity to learn about the structure, functioning, and quality of care provided by primary care teams.

While considerable research has focused on the productivity and quality of care provided by individual clinician types, data limitations have hampered researchers’ ability to study team-based provision of care. In particular, few data are currently available on rural-urban differences in the structure and quality of care provided by primary care teams.

This analysis will address that gap by describing the size, clinician types, specialty composition, and workload allocation of primary care teams, based on rural versus urban practice location. It will also quantify associations between attributes of primary care teams and the quality of care they provide. By providing detailed information on the organization, workflow, and care quality of primary care teams in rural communities, this project will inform the policy conversation regarding workforce adequacy and access to high-quality primary care.

This project is national in scope and will have relevance for policy making at the federal, state, local, and institutional levels. We will analyze two national datasets, one of clinician characteristics and the second comprising all-payer claims and electronic health record data.

We plan to compare attributes of primary care teams—including size (total number of clinicians and size of patient panel) and composition (ratio of physician to nonphysician clinicians)—in rural and urban communities; describe workload allocation (number of visits and total time scheduled for patient care) and complexity (number, type, and severity of patient diagnoses) among primary care team members and compare by rural/urban location; assess patterns of high-quality care delivery within and between primary care teams; and identify characteristics of successful team-based primary care structure in rural settings that may inform the shift to patient-centered team-based care nationwide.
Disparities in Preventive Care by Race and Ethnicity among Rural Adults

Year Funded: 2018

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Katy Kozhimannil, Ph.D.; Rachel Hardeman, Ph.D.; Marizen Ramirez, Ph.D.; Ashley Hernandez, M.S.

The purpose of this project is to identify differences in access to and use of preventive care by race and ethnicity among rural residents. Results from this project will identify racial/ethnic disparities that exist within rural communities and may guide targeted interventions to improve equity and increase access to high-quality health care for all rural residents.

Description:

The majority of research on rural health disparities focuses on rural-urban differences in health. By focusing only on rural-urban differences, the variability in health among rural residents is unseen. Rural racial and ethnic diversity has increased in recent decades, with a growth in immigrant populations in rural areas. Currently, 1 in 5 rural residents is a person of color or American Indian, adding up to nearly 10 million rural residents who are black, Latinx, Indigenous, Asian, or mixed-race.

Recent work by the CDC (James et al.) was a crucial first step toward a more nuanced understanding of racial/ethnic disparities within rural populations. However, there are several important next steps that are necessary to inform targeted policies to improve the health of rural communities and populations. This project will build on the James et al. paper by examining within-rural racial and ethnic differences in preventive care use over time, adding socio-demographic controls, looking at the experience of residents of micropolitan rural counties, and also addressing potential state and regional variation in disparities among rural people. Preventive care use is a fundamental measure of health care quality and is essential for population health; disparities in access to and use of preventive services by race and ethnicity will signal where to focus policy and practice efforts to improve the health of rural populations.

This project is national in scope and will have relevance for policy-making and health care delivery at the federal, regional, state, and local levels. The sample will include adults from rural communities across the United States, and will be weighted to generate nationally-representative estimates.

We plan to analyze racial and ethnic disparities among rural adults in preventive care use from 2007-2016, including having an annual flu shot, a usual provider, annual dental visit, and use of routine cancer screenings, as well as unmet need for physical, mental, dental, and vision care; examine whether disparities in preventive care persist after adjusting for socio-demographic characteristics; identify state and regional differences in within-rural racial and ethnic disparities in preventive care; and compare micropolitan and non-core rural residents to examine whether any racial and ethnic disparities in non-core rural residents are similar in micropolitan counties.
Access to Care for Rural Medicare Beneficiaries

Year Funded: 2018

Project Lead: Carrie Henning-Smith, Ph.D.

Project Staff: Megan Lahr, M.P.H.; Hannah Neprash, Ph.D.; Ashley Hernandez, M.S.

This project will examine multiple dimensions of access to care, with a focus on rural Medicare beneficiaries, including rural-urban differences in access to care, and within-rural differences in access to care by region, coverage type (traditional fee-for-service vs. supplemental Medigap coverage), and socio-demographic characteristics. Results from this project will be useful in designing targeted interventions and policies to improve access to care—and ultimately, health outcomes—for rural Medicare beneficiaries.

Description:

Access to timely, appropriate, and affordable health care is important for health outcomes and overall wellbeing. Access to care is partially determined by access to insurance coverage to help make such care affordable and attainable. Because Medicare provides nearly-universal insurance coverage for older adults in the United States, as well as for some non-elderly adults with disabilities, access to care should in theory be guaranteed for individuals with Medicare coverage. However, there is ample evidence showing that some Medicare beneficiaries—including rural residents—still struggle to access care when they need it.

Rural Medicare beneficiaries face particular hurdles in accessing care, including longer distances to health care facilities, lower median incomes, fewer supplemental Medigap and Medicare Advantage plan options, higher disability rates (leading to greater need), and health care workforce shortages. Given these differences, current information is needed about access to care for rural Medicare beneficiaries in order to inform policies and programs to ensure the best possible health care access and health outcomes.

This project is national in scope and will have relevance for policy making and health care delivery at the federal, regional, state, and local levels. The sample will include Medicare beneficiaries from across the country, and will be weighted to generate nationally-representative estimates. Key informants will be selected from each of the four Census regions to ensure national coverage.

We will analyze rural-urban differences in multiple dimensions of access to care, including use of routine and preventive care, as well as difficulty getting necessary care due to concerns about cost, coverage type, inability to find a provider, difficulty with transportation, and difficulty with scheduling; analyze within-rural differences in multiple dimensions of access to care by coverage type, rurality, region, health status, and socio-demographic characteristics; describe the experiences of rural safety net providers in helping to provide access to care for Medicare beneficiaries; and identify policy and programmatic interventions to improve access to care for rural Medicare beneficiaries.

In primary data collection, we will ask key informants about their experiences providing safety net care to rural Medicare beneficiaries, including their perceptions the most challenging aspects of accessing care. We will also ask them about potential policy and programmatic interventions. We will code the interviews to identify themes and policy implications.