The National Center for Excellence in Primary Care Research Presents:

The Agency for Healthcare Research and Quality's Investments in Primary Care Research for 2021 and 2022

The Agency for Healthcare Research and Quality's Investments in Primary Care Research for 2021 and 2022

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Message from the Acting Director of AHRQ's National Center for Excellence in Primary Care Research

As the foundation of a strong health care system, primary care requires and deserves rigorous and innovative research to support and advance high quality primary care delivery. I am excited to share this report showcasing the Agency for Healthcare Research and Quality's (AHRQ's) recent investments in primary care research. AHRQ has supported primary care research since its inception, but this important work has been dispersed across the agency's centers making it a challenge to review and summarize as a comprehensive research portfolio. In 2022, the National Center for Excellence in Primary Care Research (NCEPCR) received initial funding to become the home for primary care research at AHRQ. NCEPCR is dedicated to making primary care research more visible, coordinated, comprehensive, and ultimately more effective.

In this NCEPCR report, we compile and share information about AHRQ's recent primary care research efforts and funding from throughout the agency, including grants, contracts, initiatives, and resources. We hope that this report serves as a resource for researchers, clinicians and clinical teams, quality improvement experts, and decision makers who are interested in primary care research and want to learn more about AHRQ's investments in this area.

NCEPCR envisions a future where all patients receive high quality, whole person, evidence-based, affordable primary health care from a healthy primary care workforce. Over the coming years, we look forward to sharing more about the work of NCEPCR, including research funded directly by the center.

Aimee R. Eden, PhD, MPH
Acting Director, National Center for Excellence in
Primary Care Research
Center for Evidence and Practice Improvement

« About This Report

This report aims to showcase the Agency for Healthcare Research and Quality's (AHRQ's) broad and deep investments in primary care research and introduce AHRQ's National Center for Excellence in Primary Care Research (NCEPCR). To do this, we provide an overview across AHRQ's primary care grants and contracts, highlight studies with potential to impact the primary care field, and share resources that may be useful for researchers and clinicians. In addition, we discuss existing gaps in AHRQ's investments and potential future areas of focus for NCEPCR.

In this report we define "primary care research" as that which meets at least one of the following criteria: [1]

- **is conducted in a primary care setting;**
- **is about primary care patients, clinicians, or teams;**
- **is focused on a topic integral to the primary care setting; or**
- **has clear implications for the delivery of primary care.**

Information about the methods used to develop this report are included in Appendix A.

How To Navigate the Report

The content of this report is organized into the following sections:

- Background on AHRQ's National Center for Excellence in Primary Care Research
  This section introduces NCEPCR and shares the center's goals and vision. We also share some history of AHRQ's primary care research investments.

- Overview of AHRQ's Recent Investments in Primary Care Research
  This section includes a high-level analysis of AHRQ's portfolio of primary care research in 2021 and 2022, including information about the funding committed to grants and contracts during this period. Information about those investments includes the types of grants, types of organizations that received the grant funding, and where those organizations are located.

- Future Directions for NCEPCR
  In this section, we discuss NCEPCR's plans for a primary care research agenda and share feedback and suggestions from primary care stakeholders on future directions for NCEPCR, including a discussion of identified gaps in AHRQ's current funding.

- AHRQ's Recent Primary Care Grants and Resources
  This section provides more detailed information about AHRQ's primary care research related grants and resources, organized into key topic areas and additional topic areas. Each topic area includes: an introduction to the topic, information about each grant that fits primarily in the topic area, links to more in-depth summaries for a few grants, and information about relevant AHRQ initiatives and resources.

The **key topic areas** are:

- **Practice and Quality improvement**
- **Healthcare Systems and Infrastructure**
- **Digital Healthcare**
- **Person-Centered Care**
- **Behavioral Health and Substance Use Disorders**
- **Health Equity**
- **Primary Care Workforce**
- **Public Health and Community integration**

The **additional topic areas** are:

- **COVID-19**
- **Patient Safety**

- **Appendices**
  The appendices include additional information to supplement the main body of this report.
  - **Appendix A: Approach and Methods** describes the methods we used to develop this report, including how the content was compiled and analyzed.
  - **Appendix B: Other AHRQ Programs Relevant for Primary Care Research Audiences** includes information about additional AHRQ investments, initiatives, and resources that may be of interest to primary care researchers and clinicians. This includes information about the Effective Health Care (EHC) Program, and the United States Preventive Services Task Force (USPSTF).
  - **Appendix C: Additional Tables by Topic Area** compiles lists of grants described throughout this report, organized by the following themes: COVID-19, Clinical Decision Support, Multiple Chronic Conditions, Opioids, Patient Safety, Telehealth, and Women's Health/ Reproductive Health.
  - **Appendix D: Grant Summaries** includes short summaries highlighting potentially high impact grants, including both Research Profiles (for studies with at least preliminary findings) and Emerging Research Spotlights (which do not yet have findings), which are linked to from throughout the report.

« 1. Background on AHRQ's National Center for Excellence in Primary Care Research

Revitalizing the nation's primary care system is critical to AHRQ's mission to improve the quality, safety, accessibility, equity, and affordability of health care in the United States (U.S.) – and primary care research is vital to advancing primary healthcare.[2] As the Federal agency with a congressional mandate to advance the primary care research field and establish a Center for this work,[3] AHRQ plays a key role in conducting and supporting research and generating evidence for the field.

Over the past 30 years and across five administrations, AHRQ has remained committed to primary care research.[4] Even in the context of budget constraints and uncertainty, AHRQ has invested in research on primary care organization and delivery, workforce, quality and safety, financing and cost, and prevention. The Agency has also contributed to building primary care research infrastructure; developing research methods, tools, and resources; and generating data. AHRQ has led efforts related to primary care transformation, patient-centered medical homes, quality improvement, integrating behavioral health and primary care, practice facilitation, and practice-based research networks (PBRNs). Many AHRQ funded investigator-initiated grants have resulted in innovative interventions that have later been implemented on a much broader scale, leading to significant impacts on primary care. AHRQ's investments in primary care have also included internal projects to conduct research and develop resources, conceptual frameworks, and research agendas.[4] In addition, AHRQ has funded contracts to support this body of work, including contracts to conduct literature and evidence reviews, gather expert input, evaluate initiatives, support grantees through technical assistance and learning communities, and to develop and disseminate resources.

However, without a direct or earmarked funding stream for primary care research, primary care-focused efforts at AHRQ have historically been dispersed across the Agency's centers and thus challenging to identify as a portfolio of work. Because of this, many primary care researchers, clinicians, and policymakers remain unaware of the true depth and breadth of AHRQ's investments in the field, and useful resources and tools resulting from these investments may remain underutilized.

The recently funded National Center for Excellence in Primary Care Research (or NCEPCR, pronounced "Nice P-C-R") now serves as the home for primary care research at AHRQ, with the following vision and mission statements guiding its work:[5]

> **Vision:** NCEPCR envisions a future where all patients receive high quality, whole person, evidence-based, affordable primary health care from a healthy primary care workforce.
>
> **Mission:** NCEPCR's mission is to support transformative primary care research*, tools and methods for implementation, and the next generation of primary care researchers to improve the delivery of primary care.

To achieve this mission, NCEPCR will engage in the following activities:

Additional information, including NCEPCR's core values (Equity, Community Engagement, Innovation, Sustainability, and Adaptability) can be found on NCEPCR's About webpage.

In alignment with AHRQ's mission, current priority areas for primary care research include:

1. **Research to improve primary care,** focused on quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.
2. **Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes,** such as whole person care, care coordination, continuity of care, and comprehensiveness of care.
3. **Research on management of clinical areas unique to primary care,** such as multiple chronic conditions, preventive care, undifferentiated syndromes, or behavioral and mental health care that is integrated within primary care.

« 2. Overview of AHRQ's Recent Investments in Primary Care Research

For the primary care research projects active in 2021 and 2022 (128 grants and 12 contracts), AHRQ has invested a total of $220.8 million across the multiple years of grant funding (spanning fiscal years 2016-2027). This included $199.8 million for grants and $21.0 million for contracts.

In 2021 and 2022 alone, AHRQ committed $99.4 million to new primary care research projects that will continue into 2027 (including $92.5 million for grants and $6.9 million for contracts). This funding included:

- $2 million in funding from the first NCEPCR appropriation made in fiscal year 2022 (including $0.5 million in grants and $1.5 million in contracts).
- $42.8 million in funding from the Patient-Centered Outcomes Research Trust Fund (PCORTF) (including $39.6 million in grants and $3.2 million in contracts).
- $22.6 million in funding from General Health Services Research appropriation (including $20.4 million in grants and $2.2 million in contracts).
- $21.6 million in grant funding from Patient Safety appropriation.
- $6.7 million in grant funding from Digital Healthcare Research appropriation.
- $3.7 million in grant funding from the COVID-19 appropriation.

This investment supports a large body of work that is leading to significant impacts on primary care and progress on behalf of the American public.

In this section of the report, we provide analysis across the 128 grants and 12 contracts identified as primary care research projects, to better understand this body of work and AHRQ's investment. (See About This Report for the definition of primary care relevant research, and details about how we identified this list of projects).

Primary Care Grants and Cooperative Agreements

There were a total of 128 primary care related grants and cooperative agreements with active AHRQ funding during fiscal years (FYs) 2021 and 2022. Of these, 124 were unique, 2 were for additional funding to existing grants to answer questions related to COVID, and 2 were non-competing continuations of existing grants. Below we describe the distribution of grants and cooperative agreements (from here on referred to collectively as "grants") by funding mechanism, awardee institutions, topic areas, and other attributes.

Funding Mechanisms

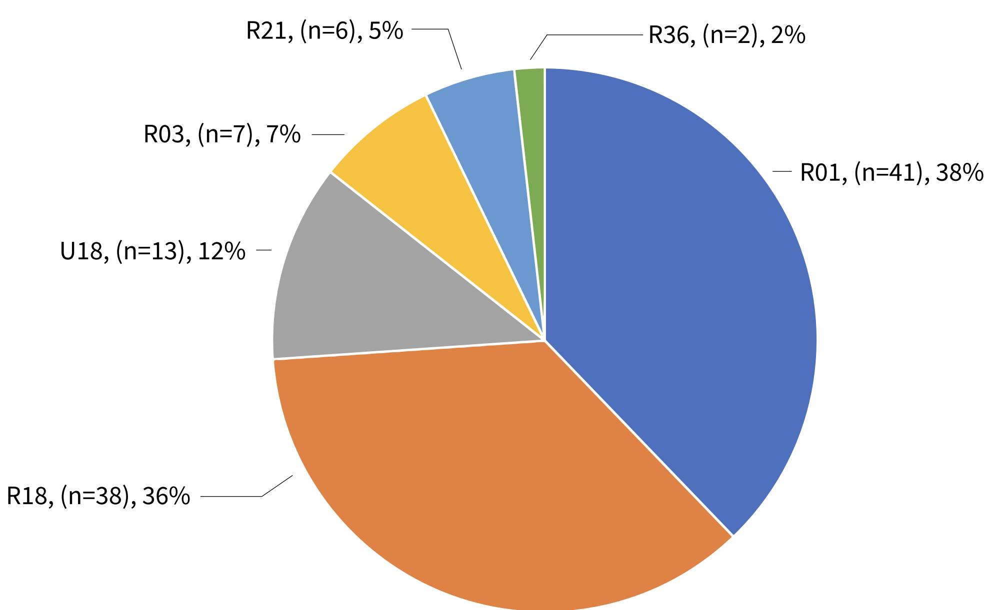
Of AHRQ's 124 unique primary care grants, 120 were research focused and 4 were conference grants. Of the 120 research focused grants, 13 (or 10%) were career development or "K" awards and 2 grants were R36 Dissertation Awards. The specific funding mechanism and the number of each type are shown in Exhibit 1.

Exhibit 1. Number and Percentage of Primary Care Grants, by Mechanism (N = 124)

Code	Funding Mechanism Name[1]	#	%
Research			
R01	Research Project	41	33%
R18	Research Demonstration and Dissemination Project	38	31%
U18	Research Demonstration / Cooperative Agreement	13	10%
R03	Small Research Project Grant	7	6%
R21	Exploratory / Developmental Research Grant	6	5%
R36	Dissertation Award	2	2%
Career Development			
K08	Mentored Clinical Scientist Development Award	8	6%
K01	Research Career Programs	4	3%
K18	Research Career Enhancement Award for Established Investigators	1	1%
Conference			
R13	Support for Conferences and Scientific Meetings	4	3%
Total		**124**	**100%**

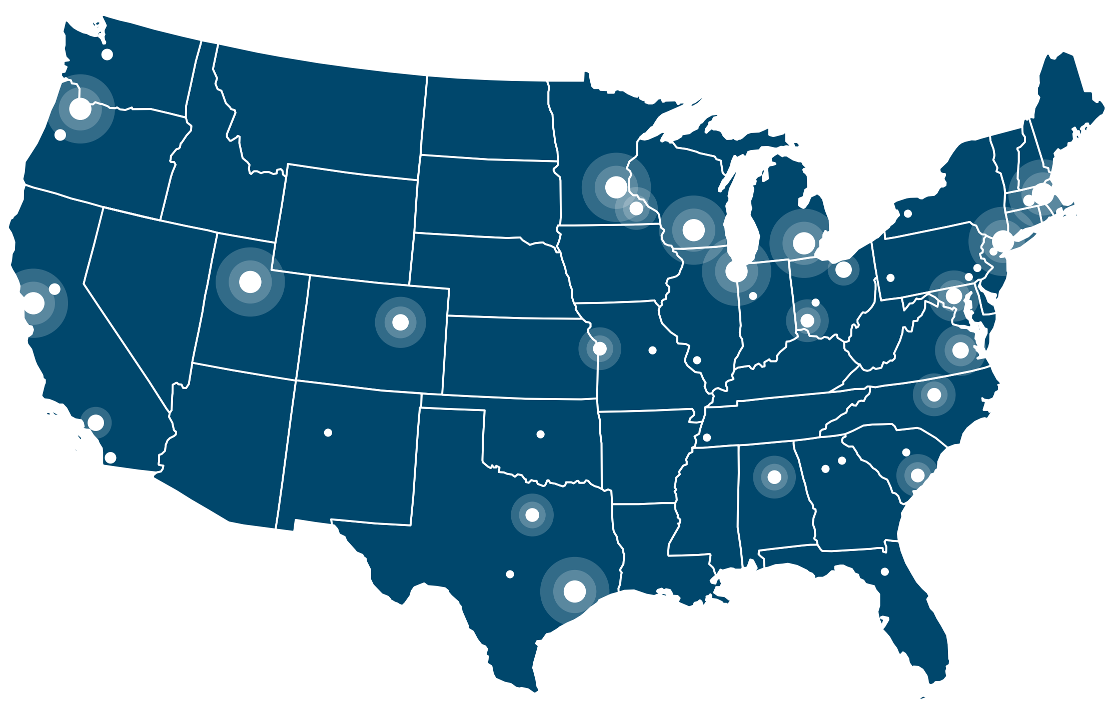
The proportion of grants by funding mechanism, after both career development grants and conference grants have been removed, is depicted in Exhibit 2.

Exhibit 2. Proportion of Research Grants by Mechanism (N=107)



The 124 grants were distributed across 66 institutions located in 30 states across the country. The map in Exhibit 3 depicts the distribution of awards across the U.S., with the size of the dots on the map indicating the number in a particular area.

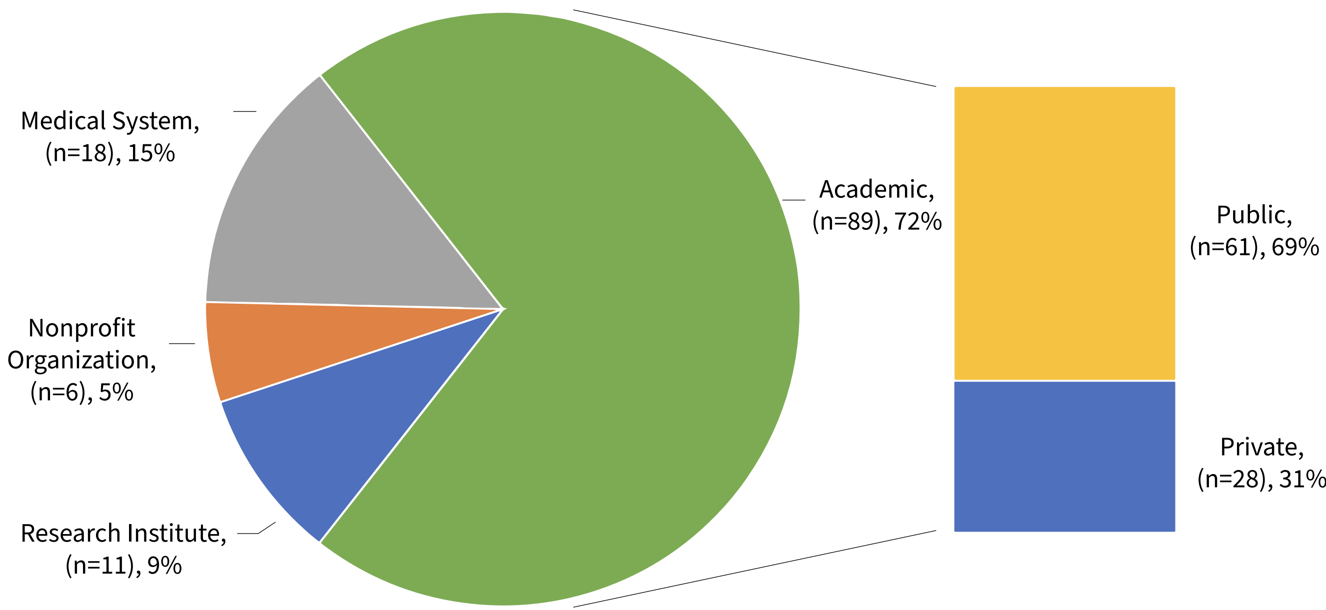
Exhibit 3. Map of Grant Recipients*



*Dots indicate grants by zip code, where larger dots equal a greater number of grants in the area.

Among the institutions that received AHRQ grants (as depicted in Exhibit 4, below), we found that the majority (72%) were academic institutions, followed by medical systems (15%), research institutes (9%), and non-profit organizations (5%). Of the academic institutions, 69% were public, and 31% were private.

Exhibit 4. Awardee Types (N=124)



Almost half of the 66 institutions held more than one AHRQ primary care grant during this period, as shown in Exhibit 5.

Exhibit 5. Grantee Institutions with Multiple Grants (names as shown in grant application)

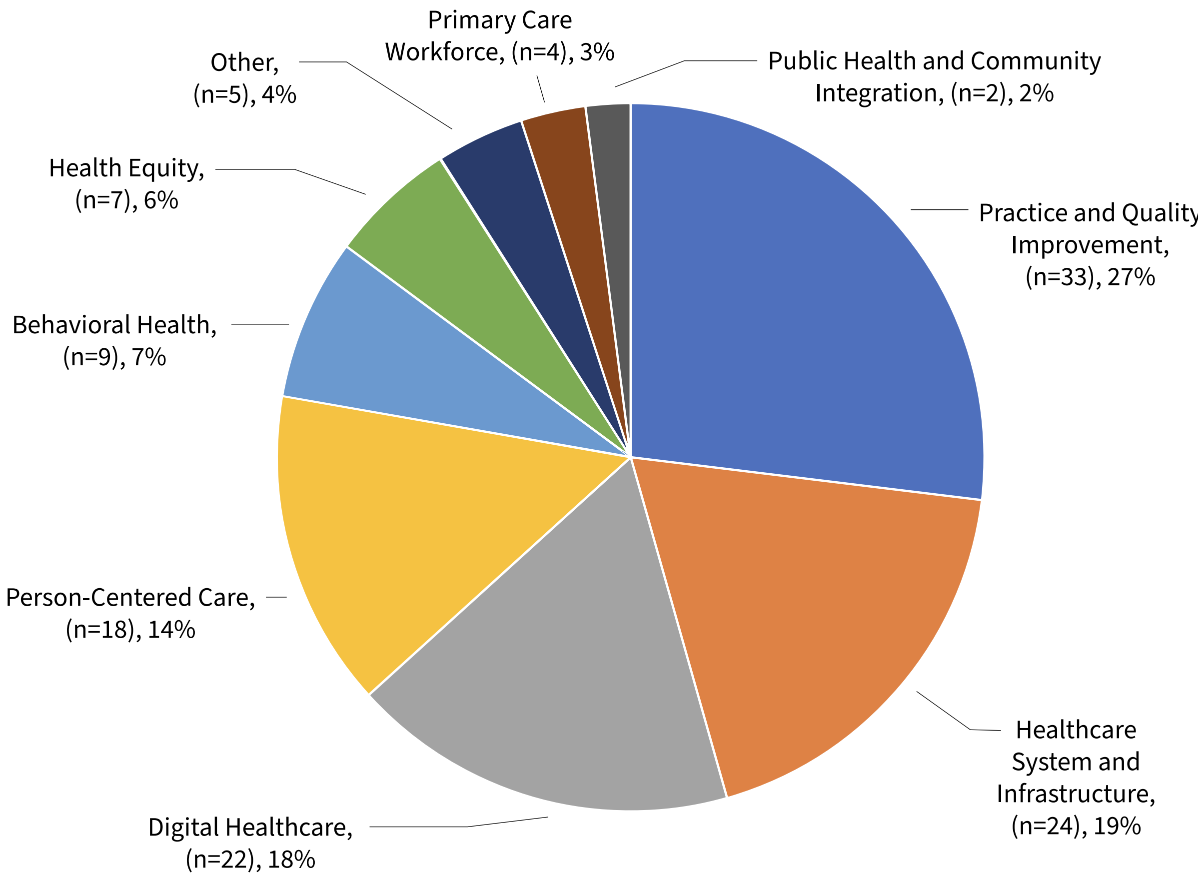
Institution Name	# of Grants
University of California, San Francisco	5
University of Wisconsin-Madison	5
Columbia University Health Sciences	4
Kaiser Foundation Research Institute	4
Northwestern University at Chicago	4
Oregon Health & Science University	4
University of Michigan at Ann Arbor	4
University of Minnesota	4
Virginia Commonwealth University	4
RAND Corporation	3
University of Colorado Denver	3
University of Utah	3
Albert Einstein College of Medicine	2
Baylor College of Medicine	2
Brigham and Women's Hospital	2
Cincinnati Children's Hospital Medical Center	2
Harvard Medical School	2
Massachusetts General Hospital	2
Mayo Clinic Rochester	2
Medical University of South Carolina	2
North American Primary Care Research Group	2
OCHIN, Inc.	2
Stanford University	2
University of Alabama at Birmingham	2
University of California at Davis	2
University of California, San Diego	2
University of Massachusetts Medical School, Worcester	2
University of North Carolina Chapel Hill	2
Weill Medical College of Cornell University	2

Topic Areas

Key Topic Areas

To further understand AHRQ's primary care grants, we categorized each grant across key topic areas of interest to AHRQ, as well as additional areas of focus. When we look at the topic area that best describes each grant, we find that the largest proportion of projects aligned with Practice and Quality Improvement (27%); followed by Healthcare Systems and Infrastructure, including payment (19%); Digital Healthcare (18%); and Person-Centered Care (14%). A smaller proportion of projects primarily aligned with Behavioral Health (7%), Health Equity (6%), Primary Care Workforce (3%), or Public Health and Community Integration (2%). The full distribution across grants is displayed in Exhibit 6.

Exhibit 6. Research Grants by Main Topic Area (N=124)



However, most of the grants include some focus on multiple topic areas. When we look at the top three topic areas addressed across each grant, we see a slightly different story, as shown in Exhibit 7. For example, when we look at all of the projects that align with a topic, the largest proportion of projects align with Digital Healthcare (48%), followed closely by Practice and Quality Improvement (44%). We also see that the percentage of grants with a focus on Health Equity went up dramatically (from 6% to 26%). The percentage of grants with a focus on Behavioral Health (14%), Public Health and Community Integration (7%), and Primary Care Workforce (4%) remain low relative to other topic areas. Given AHRQ's interest in these topics, additional grant funding could be warranted in these areas.

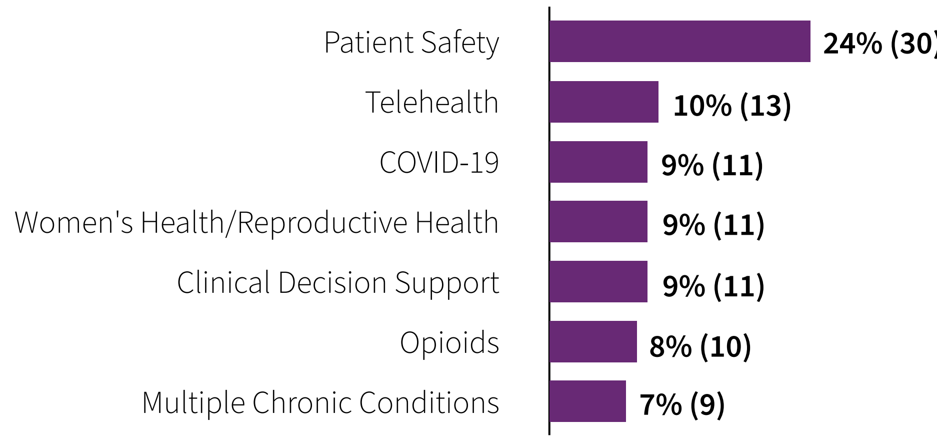
Exhibit 7. Number of Grants by All Topic Areas (N=124)

Topic Area	Grants
Digital Healthcare	48% (60)
Practice and Quality Improvement	44% (55)
Person-Centered Care	29% (36)
Healthcare Systems/Infrastructure	28% (35)
Health Equity	26% (32)
Behavioral Health	14% (17)
Public Health and Community Integration	7% (9)
Primary Care Workforce	4% (5)

Additional Topic Areas

We also identified several additional areas of focus across the grants, as described in Exhibit 8. A relatively large percentage of grants (24%) were related to Patient Safety, while a similar percentage of grants looked at each of the other additional topic areas.

Exhibit 8. Number of Grants by Additional Areas of Focus (N=124)



[a] This exhibit describes 126 grants, including the 124 unique grants plus the 2 COVID-19 grants that were additional funding to existing grants.

Setting, Geography, and Populations

Finally, we collected information about the practice type, geographical settings (e.g., rural, or urban practices, or region of interest), and patient population for the AHRQ primary care grants. Unfortunately, we did not have this information across grants, so we cannot share precise numbers or compare percentages. However, we can report that the grants researched care provided in a wide range of provider settings, including community health centers; federally qualified health centers; small, independent practices; clinics in large health centers; ambulatory care centers; urgent care centers; community pharmacies; and Veteran's Health Administration facilities. In addition, funded grants studied primary care throughout the U.S. as well as in frontier, rural, and urban geographical settings and in widely diverse patient populations, including children and adolescents; women; older adults; people with limited English proficiency or low literacy; low income or medically underserved populations; people from racial and ethnic minority groups; uninsured people; Medicaid, Medicare, and dual-eligible beneficiaries; Veterans; and clinicians.

Publications

Through National Library of Medicine searches, our team identified 516 published papers acknowledging 82 of the 128 primary care AHRQ grants as of February 2024. Exhibit 9 shows the journals with the most publications from this set.

Exhibit 9. Ten Most Common Journals for Publications from AHRQ Primary Care Grants

Journal Title	# of Publications
Journal of General Internal Medicine	37
JAMA Network Open	19
Medical Care	14
Journal of the American Board of Family Medicine	9
Journal of the American Geriatrics Society	9
Diabetes Care	8
BMJ Open	8
Health Services Research	8
JAMA Internal Medicine	8
Applied Clinical Informatics Journal	8

In addition, AHRQ identified another 100 articles with primary care relevant content from other AHRQ funded sources (e.g., non-primary care grants).

Primary Care Contracts

The 12 primary care related contracts funded by AHRQ in 2021 and 2022 were led by nine organizations, including two universities (Johns Hopkins University and Oregon Health & Science University), five research and consulting firms (Abt Global, National Opinion Research Center [NORC], RAND Corporation, Research Triangle Institute International [RTI], and Westat Inc.), one member association (The Association for Prevention Teaching and Research), and a non-profit society of scholars (National Academy of Sciences). Information about each of these contracts is included in Exhibit 10.

Exhibit 10. AHRQ's Primary Care Related Contracts active during 2021 and 2022

Contract Title	Contractor	Brief Description of Scope
Implementing High-Quality Primary Care	National Academy of Sciences	Examine the current state of primary care and develop an implementation plan to strengthen primary care services in the United States and inform primary care systems around the world.
Models of Pediatric-Adolescent Cancer Survivorship Care that Include Primary Care	Johns Hopkins University	A large topic refinement with an option for a medium systematic review.
Study of State Actions to Improve the Delivery of Primary Care	Research Triangle Institute	Promote an understanding of which state actions have helped improve primary care, what conditions and factors positively and negatively affect the results of state actions, and provide findings and lessons to inform federal initiatives to improve and expand primary care.
Strategies for Integrating Behavioral Health and Primary Care	Oregon Health & Science University	Conduct one large topic refinement with pre-award key question posting, and an optional task of one large systematic review with simultaneous peer review and public comment.
Patient-Centered Preventive Healthcare: Gathering Stakeholder Input on Evidence and Implementation	Research Triangle Institute	Update the list of high-priority clinical preventive services for adults over the age of 35 through expert consensus and to gather expert input on strategies for the patient-centered implementation of these services as recommended by the U.S. Preventive Services Task Force and Center for Disease Control's Advisory Committee on Immunization Practices.
The Academy for Integrating Behavioral Health and Primary Care	Westat, Inc	Maintain the Academy portal to serve as a national resource hub for the field of integrating behavioral health and substance abuse with primary care.
Preventive Medicine and Primary Care Residency Rotation Program	Association For Prevention Teaching and Research	Administer and coordinate a preventive medicine and primary care residency rotation program providing scientific and dissemination support to the U.S. Preventive Services Task Force.
Dissemination and Stakeholder Engagement Support for AHRQ's National Center for Excellence in Primary Care Research	Abt Global Inc.	Increase awareness of NCEPCR and AHRQ's primary care research by engaging stakeholders, providing webinars and events informed by stakeholders' needs and interests, and producing an annual report to summarize and synthesize AHRQ's investments in primary care research including dissemination and implementation (D&I) research.

EvidenceNOW Contracts		
Contract Title	**Contractor**	**Brief Description of Scope**
Assistance to AHRQ to Disseminate EvidenceNOW Findings and Plan for Future Investments in Primary Care Quality Improvement Infrastructure	Abt Global Inc.	Create and update resources, tools, and other communications materials to increase awareness of findings from the *EvidenceNOW*: Advancing Heart Health initiative; create and implement a plan to disseminate EvidenceNOW findings to key stakeholder groups; and develop recommendations for integrating EvidenceNOW web content with other primary care-related content on AHRQ's website.
Supporting and Evaluating the Dissemination and Implementation of PCOR to Increase Screening and Management of Unhealthy Alcohol Use in Primary Care	National Opinion Research Center (NORC)	Technical assistance and evaluation contract to support the *EvidenceNOW*: Managing Unhealthy Alcohol Use initiative. Includes developing a resource center, convening a technical expert panel, conducting an environmental scan, and facilitating a learning community among the grantees. Additionally, the contractor is conducting an evaluation to assess the performance and impact of the grants.
Technical Assistance to and Evaluation of Grant Initiative to Develop State-level Capacity for Dissemination and Implementation of Patient-Centered Outcomes Research into Primary Care	Abt Global	Technical assistance and evaluation contract to support the *EvidenceNOW*: Building State Capacity initiative. Contractor supports a grant initiative to disseminate and implement PCOR findings in primary care practices and develop sustainable, primary care quality improvement capacity within states by providing communications services to AHRQ and grantees, providing technical assistance to grantees, and conducting an overarching evaluation of the initiative.
Improving Nonsurgical Treatment of Urinary Incontinence among Women in Primary Care (INTUIT-PC) Evaluation and Technical Support	RAND Corporation	Technical assistance and evaluation contract to support the *EvidenceNOW*: Managing Urinary Incontinence initiative. Includes developing resources to support grantees’ success, creating a learning community to support peer-to peer sharing of resources and lessons learned, and evaluating the program’s impact.

AHRQ has developed many resources and materials to support primary care research and primary care clinician practice, as described in the following sections of this report. Many of these resources were developed through contracts.

« 3. Future Directions for NCEPCR

This section shares feedback from NCEPCR's stakeholder group (described below), as well as a discussion of gaps based on the portfolio analysis of AHRQ's recent investments in primary care research conducted for this report. AHRQ will consider this input as the agency implements the goals and vision for NCEPCR, finalizes the forthcoming primary care research agenda, and works to disseminate information to the field.

NCEPCR's Stakeholder Group Recommendations

NCEPCR has engaged primary care stakeholders to elicit input about NCEPCR's role within the primary care research field; better understand information needs of primary care research audiences; and help identify effective approaches to increase knowledge about, and use of, primary care research, tools, and resources.

In late spring 2023, NCEPCR convened a group of 20 emerging and recognized leaders in primary care and primary care research to serve as an expert panel. The group met virtually on June 5-6, 2023, and will meet (both virtually and in-person) again twice before July 2024.

Overall, the group recognized AHRQ as a strong contributor to the primary care research field, although few were familiar with NCEPCR. The group acknowledged the limited funding for primary care research broadly, and that AHRQ is working with a relatively small overall research budget. Given this backdrop, during their first meeting, the group provided feedback and insights relevant for shaping the near-term future work and focus of NCEPCR. Highlights of this feedback are summarized below.

- **Clarify funding priorities and role relative to other entities that support primary care research.** Given the resource constraints in primary care research at AHRQ, the expert panel recommended that NCEPCR work to clarify its funding priorities and develop its specific role or niche relative to other federal agencies and public or private initiatives. This would help to create alignment across initiatives and avoid redundant efforts, identify research and information gaps and areas where NCEPCR should take the lead. Along similar lines, the group suggested it would be helpful for NCEPCR to further clarify their definition of "primary care research," and be specific about the types of primary care research it plans to support.

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[b] We include the term "stakeholder" here for purposes of consistency. However, for inclusive language purposes, we limit the use of this term in this report, and use the terms "expert panel", "group" and "audiences" instead as relevant.

- **Serve as a convening center.** The expert panel reported that it would be helpful for NCEPCR to serve as a "home" for primary care research activities, play the role of a convener among entities that support primary care research, and help to set a unified agenda for the field. Centralization will help primary care researchers and other interested parties understand what research has been conducted or underway; recognize who the various interested parties and audiences are for this work; and bring those parties together to align goals and effectively disseminate information.
- **Improve dissemination.** The expert panel considered AHRQ to be a trusted source of primary care information – but reported it can be difficult to see the agency's full influence because their primary care relevant resources are dispersed across the agency's website – making them difficult to find. The group recommended improving NCEPCR's website to increase access to relevant information and to make it easier to search for and find tools and resources. They called for the development of more toolkits and resources that translate useful information into digestible formats for practical use by clinicians and other audiences, with content that has been vetted by clinicians. Additionally, the group suggested making it clearer to website users how they can search the AHRQ website for primary care relevant information, tools, resources, and clinical findings.
- **Bolster primary care research infrastructure.** The expert panel consistently described the need to support research infrastructure, including non-project specific administrative support and other innovative ways to help sustain research capabilities and develop primary care research careers over time and between grants.
- **Encourage research focused on workforce issues, health equity, patient and community participation, and interdisciplinary collaborations.** The expert panel recommended that NCEPCR fund more grants with a focus on workforce development and health equity. In addition, they suggested building grant mechanisms to encourage grantees to meaningfully engage with the communities where their research takes place. This means collaborating with communities most impacted by health inequities not just as an audience for findings, but as partners that provide ongoing input on research priorities, conduct, and dissemination. In addition, the group suggested that AHRQ consider encouraging and rewarding grantee teams that feature interdisciplinary collaborations, to help drive innovative and lasting solutions.

Addressing Primary Care Research Gaps

As described in the Overview of AHRQ's Recent Investments in Primary Care Research section, AHRQ's recently funded grants are not equally distributed across the topic areas AHRQ has identified as important for primary care research. Among AHRQ grants with active funding in fiscal years 2021 and 2022, a good proportion aligned with digital healthcare (48%), practice and quality improvement (46%), person-centered care (31%), healthcare systems and infrastructure (28%), and health equity (23%). However, there has been less focus on behavioral health (14%), and only a small proportion of grants with a focus on public health and community integration (7%) and workforce (4%). Given the recommendations of the advisors (as described above), an increased focus on health equity and primary care workforce may be of particular importance for NCEPCR to consider going forward.

In addition, given the importance of developing the workforce of primary care researchers, NCEPCR may want to consider funding more dissertation grants (R36s) and other career development grants ("K" awards) as a part of their future funding for investigator-initiated primary care research.

Next Steps

AHRQ is working to finalize a primary care research agenda. This agenda will be informed by discussions that took place as part of AHRQ's Primary Care Research Conference, held in December 2020; existing and historical AHRQ priorities; the HHS Initiative to Strengthen Primary Care;[6] the administration's priorities; and additional insights about high-impact research areas and important gaps offered by academic institutions, primary care advocacy organizations and think tanks, and other HHS agency partners.[7] The 2020 National Academy of Sciences, Engineering, and Medicine (NASEM) Report on *Implementing High-Quality Primary Care: Rebuilding the Foundation of Healthcare* and its 2023 consensus study report *Achieving Whole Health: A New Approach for Veterans and the Nation* will also be used to guide the new research agenda. In addition, AHRQ and NCEPCR are committed to listening to and learning from patients and families as part of this process.

NCEPCR is working to develop a more coordinated primary care research portfolio and agenda at AHRQ; create more targeted primary care research funding opportunities; support and expand a diverse primary care research workforce; and develop a more robust dissemination strategy to share valuable tools and resources with the field. If fully funded to the level of the President's budget ($11M for FY2024)[7] NCEPCR will have the capacity to more meaningfully and sustainably engage in activities to achieve NCEPCR's mission. The recommendations of the stakeholder group are very much in line with NCEPCR's goals and purpose, including to:[5]

- **Coordinate** primary care research activities across AHRQ.
- **Curate** and synthesize information about primary care research across federal HHS agencies
- **Communicate** important primary care research findings to the field.
  - This includes developing an online resource center to share and disseminate information, evidence, methodologies, instruments, measures, and data sets.

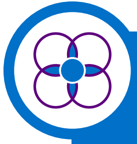
- **Convene** primary care research activities across AHRQ.
  - This includes hosting webinars, seminars, and conferences to bring primary care researchers, clinicians and clinical teams, quality improvement experts, healthcare decision makers, and other interested parties together to accelerate the dissemination and implementation of evidence into practice.
- **Catalyze** new and innovative primary care research by identifying research gaps and funding primary care research projects.
- **Cultivate** a diverse primary care research workforce by funding investigator-initiated primary care research.

NCEPCR is also updating and reorganizing its website to make it easier for interested parties to navigate, find information of interest, and come together in virtual spaces. This includes developing a searchable database of primary care tools and resources and hosting an online space for building primary care research communities. NCEPCR has begun reengaging with primary care Practice Based Research Networks (PBRNs) to identify meaningful web-based tools and resources and other ways that AHRQ can support the work of PBRNs.

As AHRQ works to finalize its forthcoming primary care research agenda and implement the work of NCEPCR, the agency will consider and incorporate the feedback from the advisory group along with the research gap information shared in this report, which is the first of what will be an annual or biennial presentation of AHRQ's investment in primary care research.

« 4. AHRQ's Recent Primary Care Grants and Resources

In this section we share information about AHRQ's primary care grants, initiatives, and resources in 2021 and 2022. This information is organized into key topic areas and additional topic areas. In the tables throughout this section, we include short summaries for each of the 124 unique AHRQ primary care relevant grants and the 2 COVID-19 add-on studies. We include links to Project Profiles and Emerging Research Spotlights in **Appendix D** for more detailed summaries of potentially high-impact grants. Grant titles in the tables link to additional information (including publications) on the NIH RePORTER website.



Grants with a focus on health equity, which is an important cross-cutting topic, are indicated throughout the report with this icon

Key Topic Areas

The information in this section is organized into the eight areas identified by AHRQ as the topics of key interest for their forthcoming primary care research agenda. Each grant is described in the section that best matches the main focus of the work (as determined by the Abt team). The key topic areas are:

- **Practice and Quality Improvement**
- **Healthcare Systems and Infrastructure**
- **Digital Healthcare**
- **Person-Centered Care**
- **Behavioral Health and Substance Use Disorders**
- **Health Equity**
- **Primary Care Workforce**
- **Public Health and Community Integration**

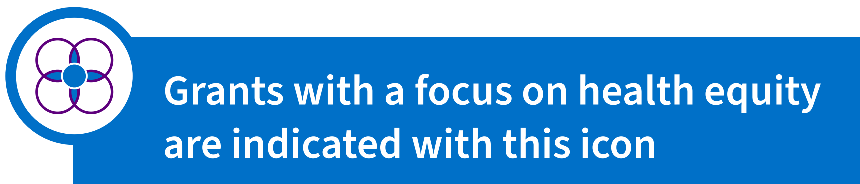
Below we provide information about the AHRQ grants, initiatives, and resources for each of these key topic areas.

Practice and Quality Improvement

The American Academy of Family Physicians defines quality improvement (QI) as "a systematic, formal approach to the analysis of practice performance and efforts to improve performance."[8] Primary care practices with a strong QI orientation seek to continuously improve their own processes of care and improve patient health outcomes.[9] Practices engaged in QI identify areas of their performance in need of improvement, set goals for the clinical and practice performance outcomes they aim to achieve, and identify the appropriate methods or approaches to achieve those goals.

Implementing primary care quality improvement on a national scale requires effectively disseminating the latest evidence to practices. It also requires that practices have the capacity and skills to engage in QI activities based on that evidence. AHRQ funds patient-centered outcomes research to generate new evidence for primary care, as well as dissemination and implementation (D&I) research on how evidence-based practices are translated and used in clinical settings.[10] AHRQ also works to disseminate evidence to practices and clinical teams, and develops QI implementation tools and resources to help practices implement evidence-based practices to improve the care of their patients.

Below we include a summary of AHRQ's grants, contracts, and resources that focus on practice and quality improvement in primary care.



Grants

Thirty-three AHRQ primary care grants actively funded during FYs 2021 and 2022 were mainly focused on practice and quality improvement. This included 12 R18s (Research Demonstration and Dissemination Projects), 9 U18s (Research Demonstration / Cooperative Agreements), 5 R01s (Research Projects), 3 R13s (Support for Conferences and Scientific Meetings), 2 R03s (Small Research Project Grants), 1 K01 (Research Career Program), and 1 K08 (Mentored Clinical Scientist Development Award). Another 22 grants included some focus on the topic of practice and quality improvement and are described in other sections of this report, including Person-Centered Care (10), Digital Healthcare (9), Healthcare Systems and Infrastructure (1), Health Equity (1), and Primary Care Workforce (1).

Below are tables, organized by subtopic, which include short summaries of each of the 33 primary care grants focused mainly on practice and quality improvement. The seven subtopics include improving care and prevention for cardiovascular disease or diabetes, improving the quality of care for other specific health conditions, electronic health record (EHR)-based tools to improve care for sexual and reproductive health, practice improvements to improve patient safety, impact of care teams on quality of care, conference grants, and grants from the *EvidenceNOW* initiative.

Improving Care and Prevention for Cardiovascular Disease or Diabetes

Four studies examine efforts to improve evidence-based care for cardiovascular disease or diabetes management and prevention.

Assessing the Use of Practice Facilitation to Optimize Scale Up of CDS for Hypertension Management (R18)

PIs: Hang Pham-Singer; Saul B. Blecker
Organization: Fund for Public Health in New York, Inc.

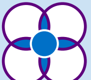
Examines if receiving practice facilitation would improve the use of a hypertension focused clinical decision support to effectively improve blood pressure control rates in small primary care practices. (See more information about practice facilitation, including resources in Initiatives and Resources below).

Improving Recognition and Management of Hypertension in Youth: Comparing Approaches for Extending Effective CDS for Use in a Large Rural Health System (R18)

PIs: Elyse Olshen Kharbanda; Catherine Pastorius Benziger

Organization: HealthPartners Institute

Compares high and low intensity interventions to implement an EHR-linked clinical decision support in rural primary care practices to provide evidence-based clinical care recommendations for blood pressure management in youth.



Adapting Guideline Implementation to Local Environments (AGILE) in Primary Care After Telehealth Expansion (K01)

PI: Edmond Ramly

Organization: University of Wisconsin—Madison; School of Medicine, Family Medicine

Aims to develop a customizable toolkit for implementing cardiovascular disease guidelines in primary care after telehealth expansion. The toolkit includes a menu of options to help practices address specific local barriers without requiring the engagement of an expert for a costly tailoring process.

Prevent Diabetes Mellitus (PreDM) Clinical Decision Support Intervention in Community Health Centers (R18)

PI: Matthew James O'Brien

Organization: Northwestern University at Chicago; School of Medicine, Internal Medicine

Evaluates a clinical decision support-based intervention to improve care at community health centers for patients with prediabetes.

Improving the Quality of Care for Other Specific Health Conditions

Three grants examine improving the quality of care for other health conditions.

Reframing Optimal Management of Pain and Opioids in Older Adults (R18)

PIs: Daniel William Berland; Christine Elizabeth Stanik

Organization: University of Michigan at Ann Arbor; School of Medicine, Internal Medicine

Implements practice improvements for safely prescribing opioids or alternative medications for pain management in older adults in primary care. The project takes a multi-faceted approach, including educating and supporting prescribers, academic detailing, and use of electronic health record technology.

Enhanced Kidney Follow-up for AKI Survivors in Care Transitions (the ACT Study) (R03)

PI: Erin Frazee Barreto

Organization: Mayo Clinic Rochester

This pilot feasibility trail evaluates a program that supports patients discharged from the hospital to home after an episode of acute kidney injury. The findings from this study can assist primary care clinicians with providing high-quality, well-coordinated, and patient-centered care for survivors of AKI.

Read Research Profile #1

Improving Evidence-based Care for Cancer Patients (R01)

PI: Graham W. Warren

Organization: Medical University of South Carolina; School of Medicine, Radiation-Diagnostic /Oncology

Evaluates the use of an "opt-out" (rather than “opt-in”) strategy for increasing enrollment of cancer patients who smoke into an evidence-based smoking cessation program. While this project is not focused on primary care, the findings can help advise how primary care practices can effectively enroll patients in evidence-based smoking cessation programs.

EHR-Based Tools to Improve Care for Sexual and Reproductive Health

Three studies look at EHR-based tools to improve care for sexual and reproductive health. More studies focused on EHR-based tools, including clinical decision supports, are included in the Digital Healthcare section.

EHR-based Screening and Intervention for Intimate Partner Violence (R18)

PIs: Leslie A. Lenert; Alyssa Ann Rheingold

Organization: Medical University of South Carolina; School of Medicine, Public Health & Preventive Medicine

Evaluates the implementation of an EHR-based decision support program to support universal screening of women for intimate partner violence (IPV) in primary care clinics. The decision support program includes a referral to a national IPV counseling hotline for those who screen positive.

Implementation of Electronic Health Screening in Primary Care to Improve STI Testing (R18)

PI: Fahd Aqeeb Ahmad

Organization: Washington University; School of Medicine; Pediatrics

Integrates an electronic risk assessment tool into four pediatric primary care clinics to help identify adolescents at-risk for sexually transmitted infections during annual preventive maintenance visits.

Read Research Profile #2

The Community Health Center - Reproductive Life Plan (CHC-RLP) Project (R03)

PI: Lisa Marie Masinter

Organization: Alliance Chicago

Aims to use structured reproductive health assessments, known as reproductive life plans, embedded in the EHR to improve reproductive health care for women in a primary care setting.

Practice Improvements to Improve Patient Safety

Three grants focus on practice improvement efforts to improve patient safety. More about AHRQ research and initiatives related to patient safety in primary care can be found in the Patient Safety section of this report.

Implementing Telemedicine to Improve Appropriate Antibiotic Prescribing for Acute Respiratory Tract Infections (R01)

PIs: Tamar Barlam; Mari-Lynn Drainoni

Organization: Boston Medical Center

Examines if telehealth visits can be used to improve the management of acute respiratory tract infections, including reducing inappropriate prescribing of antibiotics in ambulatory care settings.

Medical Reversals: De-Implementing Ineffective and Unsafe Treatments (R01)

PI: Pinar Karaca-Mandic

Organization: University of Minnesota; School of Public Health, Public Health & Preventive Medicine

Looks at the de-implementation of treatments that have been found to be ineffective or unsafe. The research team examines the differences in de-implementation across different physicians and health care delivery organizations, taking into account varying characteristics and market environments. While this project is not focused exclusively on primary care, the findings can be used to understand barriers and facilitators to de-implementing the use of ineffective and unsafe treatments and screenings in a primary care setting.

ExPERTS-PC: Engaging Patients in Event ReporTing for Safety in Primary Care (K08)

PI: Anjana Estelle Sharma

Organization: University of California, San Francisco; School of Medicine, Family Medicine

Develops a tool for patients to report adverse drug events (ADEs) to their ambulatory care teams. The research team will use natural language processing to identify the patient, caregiver, and healthcare team related causes of ADEs from the reports of a multistate Patient Safety Organization. Using the information about identified causes, the team will develop a prototype of a patient-initiated ADE reporting system using text messaging, and will conduct feasibility testing with patients, family members, and primary care clinic staff.

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

Impact of Care Teams on Quality of Care

Two grants study the impact of care teams on the quality of care.

Impact of Team Configuration and Team Stability on Primary Care Quality (R01)

PI: Sylvia J. Hysong

Organization: Baylor College; School of Medicine, Internal Medicine

Uses Veterans Health Administration data to conduct network analysis to understand the impact of team configurations on quality in primary care. The study aims to develop guidance on the best configurations of primary care teams for delivering high-quality and patient-centered care.

Read Research Profile #3

Primary Care Physician-Staff Dyads ("Teamlets"): A Simple, Efficient Means to Improve Healthcare Quality and Decrease Cost? (R01)

PI: Lawrence Peter Casalino

Organization: Weill Medical College of Cornell University; School of Medicine

Looks at the use of "teamlets" in primary care. Teamlets are dyads that include a physician and another staff person who consistently work together to provide care. This study looks at the prevalence of teamlets in primary care, examines the relationship between teamlets and quality, and identifies the characteristics of high-performing teamlets.

Conference Grants

There are three conference grants on this topic area of Practice and Quality Improvement, described below. More information about practice-based research networks and practice facilitation (the foci of two of the conference grants) is included in Initiatives and Resources.

Advancing & Improving Measurement and Value in Primary Care (The AIM-PC Starfield Summit) (R13)

PI: Beth A Bortz

Organization: Virginia Center for Health Innovation

The 5th Starfield Summit aims to bring together a diverse group of leaders in primary care research and policy to address the challenge of measurement in primary care with a focused discussion on increasing the value of primary care through measurement and reducing low value care.

National Practice-Based Research Network Conferences 2020 to 2022 (R13)

PI: Donald E Nease

Organization: North American Primary Care Research Group (NAPCRG)

This annual conference brings together practice-based research network (PBRN) researchers to share their research strategies, methods, innovations, and results to advance the science of primary care research and improve the quality of primary care.

International Conference on Practice Facilitation 2020, 2021, 2022 (R13)

PI: Zsolt J Nagykaldi

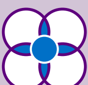
Organization: North American Primary Care Research Group (NAPCRG)

This conference serves as a learning community for primary care practice facilitators and works to establish a professional society for professionals working in this field.

EvidenceNOW Grants

Among the 33 grants in the Practice and Quality Improvement section, there were 15 grants and cooperative agreements from across the three active EvidenceNOW initiatives: EvidenceNOW: Building State Capacity, EvidenceNOW: Managing Unhealthy Alcohol Use, and EvidenceNOW: Managing Urinary Incontinence. For additional information about these initiatives overall and the EvidenceNOW model, please see Initiatives and Resources.

EvidenceNOW: Building State Capacity

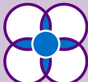


The Alabama Cardiovascular Cooperative: Supporting Cardiovascular Risk Reduction in Primary Care (U18)

PI: Andrea L Cherrington

Organization: University of Alabama at Birmingham; School of Medicine, Internal Medicine

This grant funds the Alabama Cardiovascular Cooperative to coordinate statewide efforts to improve cardiovascular risk and reduce disparities. Additionally implements a heart health improvement project in 60 primary care clinics throughout Alabama to improve rates of blood pressure control and screening for smoking status.

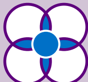


Tennessee Heart Health Network: Implementing Patient-Centered Practices in Primary Care to Improve Cardiovascular Health (U18)

PIs: James E Bailey; Benjamin S Heavrin

Organization: University of Tennessee Health Science Center; School of Medicine, Internal Medicine

This grant funds the Tennessee Heart Health Network (THHN), which will leverage existing infrastructure to identify and implement evidence-based interventions to improve quality of care for cardiovascular disease in primary care across the State. The THHN will specifically target hypertension control and smoking cessation to help reduce disparities in cardiovascular outcomes.

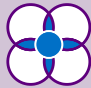


Achieving Outstanding Cardiovascular Health Outcomes for All Ohioans: A Statewide Cardiovascular Health Collaborative (Cardio-OH) (U18)

PIs: Shari Danielle Bolen; Aleece Caron

Organization: Case Western Reserve University; School of Medicine; Internal Medicine

Expands a nascent statewide cardiovascular health collaborative in Ohio and establishes a sustainable external quality improvement (QI) support infrastructure in the State. The project will also implement and evaluate a QI intervention for heart health that will be co-designed with primary care practices.



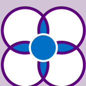
Healthy Hearts for Michigan (HH4M): Providing Support to Improve the Heart Health and Help Reduce CVD Disparities by Engagement with Primary Care Practices (U18)

PIs: Anya Day; Theresa L Walunas

Organization: Altarum Institute

The Healthy Hearts for Michigan (HH4M) project establishes a statewide cooperative in MI to provide QI support to help primary care practices implement interventions to improve hypertension management and tobacco cessation. These efforts will be coupled with optimization of health information technology and telehealth approaches to address barriers to access in rural parts of the State.

EvidenceNOW: Managing Unhealthy Alcohol Use



Practice Facilitation to Promote Evidence-based Screening and Management of Unhealthy Alcohol Use in Primary Care (R18)

PI: Alexander H Krist

Organization: Virginia Commonwealth University; School of Medicine, Family Medicine

Brings together 125 primary care practices in 5 regions throughout Virginia to participate in an intervention to implement evidence-based screening, counseling, and treatment for unhealthy alcohol. Practice support includes practice facilitation, education and training, shared learning and best practices, screening and counseling toolkits, data support, and assessment with feedback.

Intervention in Small Primary Care Practices to Implement Reduction in Unhealthy Alcohol usE (INSPIRE) (R18)

PIs: Abel N Kho; Theresa L Walunas

Organization: Northwestern University at Chicago; School of Medicine, Internal Medicine

Tests the feasibility and effectiveness of office-based screening for unhealthy alcohol use supported by behavioral and medication-based interventions in primary care practices. Practices receive support for implementation through an integrated platform of education, practice facilitation, and embedded EHR technology.

Facilitating Alcohol Screening and Treatment (FAST), Colorado (R18)

PI: Walter Perry Dickinson

Organization: University of Colorado Denver; School of Medicine, Family Medicine

Conducts a cluster randomized trial to compare approaches for supporting primary care practices to improve their identification and treatment management of unhealthy alcohol use among adults, including screening, brief intervention, medication assisted therapy, and referral to treatment. The two approaches being compared include an in-person practice facilitation intervention and a virtual practice facilitation intervention. The virtual intervention includes an e-learning module to guide the virtual group sessions.

Screening and Management of Unhealthy Alcohol Use in Primary Care: Dissemination and Implementation of PCOR Evidence (R18)

PIs: Darren A Dewalt; Daniel E Jonas

Organization: University of North Carolina Chapel Hill; School of Medicine, Internal Medicine

Aims to determine if primary care practice facilitation can support rapid dissemination and implementation of evidence-based screening, counseling, and medication assisted therapy for unhealthy alcohol use. In addition, the research team aims to test if providing embedded telehealth services accelerates dissemination and implementation for practices with slower uptake.

ANTECEDENT (Partnership to Enhance Alcohol Screening, Treatment, and Intervention) (R18)

PIs: Melinda Marie Davis; John Muench

Organization: Oregon Health & Science University; Medicine

Aims to have practice facilitators help 150 primary care practices in Oregon implement screening and brief intervention (SBI), medication assisted treatment (MAT), and referral to treatment as part of routine care to address unhealthy alcohol use. The study will evaluate the impact of foundational and supplemental implementation support on SBI, MAT, and quality improvement capacity in participating primary care clinics.

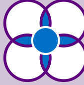
The Michigan Sustained Patient-centered Alcohol-Related Care (MI-SPARC) Trial (R18)

PI: Katharine Bradley

Organization: Kaiser Foundation Research Institute

Brings together the expertise of Kaiser Permanente Washington Health Research Institute (KPWHRI) in implementing evidence-based care for treating unhealthy alcohol use with Altarum Institute's experience effectively engaging small and medium sized primary care practices throughout Michigan in quality improvement efforts. The project will specifically test if involvement in MI-SPARC increases practice use of screening and brief intervention and medication assisted treatment for alcohol use disorder.

EvidenceNOW: Managing Urinary Incontinence



A Practice-based Intervention to Improve Care for a Diverse Population of Women with Urinary Incontinence (U18)

PI: Jennifer Tash Anger

Organization: University of California, San Diego; School of Medicine, Urology

Aims to improve the quality of urinary incontinence care provided to a diverse population of women in primary care, with the goals of improving care and reducing the need for specialty care. Three Southern California medical groups (a total of 60 clinics) will participate in a practice-based incontinence intervention. The intervention will be led by a "clinical champion dyad" including a primary care provider and urologist/urogynecologist from each medical group and will include physician education and performance feedback, electronic decision support, patient education from dedicated advanced practice providers, and an electronic referral service.

Improving Primary Care Understanding of Resources and Screening for Urinary Incontinence to Enhance Treatment (PURSUIT) (U18)

PIs: Alayne Denise Markland; Elizabeth Camille Vaughan

Organization: University of Alabama at Birmingham; School of Medicine, Internal Medicine

Aims to improve access for women Veterans in the southeastern U.S. to evidence-based, nonsurgical treatment for urinary incontinence. Compares the effectiveness of the interactive treatment modality with or without additional urinary incontinence clinical expertise delivered via telehealth in 62 primary care practices that treat women Veterans. Participating practices receive practice facilitation support, training, and health information technology assistance. Researchers explore women Veterans' and providers' perceptions of remote urinary incontinence treatment to advise future scalability.

Empowering Women and Providers for Improved Care of Urinary Incontinence: EMPOWER Study (U18)

PIs: Adonis K Hijaz; Goutham Rao

Organization: University Hospitals of Cleveland

Uses an integrated, multilevel approach to address key barriers to diagnosing and managing urinary incontinence in primary care. The approach will be implemented across a large network of primary care practices, and include large-scale screening, empowering patients to discuss urinary incontinence with their providers, provider education and training, practice facilitation through nurse navigation, and a "chatbot" to support patient self-management. The project will also implement a system-based strategy for streamlined referrals and treatment.

Identify, Teach and Treat (IT2): Automating Clinical Decision Pathways for the Care of Women (U18)

PIs: Kimberly Sue Kenton; Steven Persell

Organization: Northwestern University at Chicago; Schools of Medicine, Internal Medicine

This project's multi-level implementation strategy aims to improve care for urinary incontinence for women in primary care through systematic and equitable screening, supporting patient-centered decision making for selecting treatment options, and accelerating the uptake of evidence-based nonsurgical treatment modalities. This project will take place in the largest health system in Illinois, with 65 primary care practices and 327 primary care physicians.

Bridging Community-based Continence Promotion and Primary Care (U18)

PIs: Heidi Wendell Brown; Kathryn E Flynn; Joan Marie Neuner

Organization: University of Wisconsin—Madison; School of Medicine

Aims to increase the proportion of patients who are screened and offered treatment for urinary incontinence (UI) in 50 primary care practices. The intervention, called UI Assist, includes screening, education, and evidence-based treatment. The research team will also compare implementation of UI Assist alone or in combination with partnership building to help practices overcome barriers to intervention implementation.

Initiatives and Resources

AHRQ has initiatives as well as resources related to Practice and Quality Improvement in primary care that were ongoing or new in 2021 and 2022. These include AHRQ's EvidenceNOW initiatives, and materials related to practice facilitation and practice-based research networks (PBRNs). Additional information and links are included below.

EvidenceNOW

AHRQ's ***EvidenceNOW* model** serves as a "blueprint for delivering external support to primary care practices to healthcare quality and implement new evidence into care delivery."[11] The model is defined by the following core services delivered as part of the external support to primary care practices:

- Practice facilitation and coaching
- Health information technology support
- Shared learning collaboratives
- Expert consultation
- Data feedback and benchmarking

***EvidenceNOW* Tools for Change** is a searchable database of tools and resources that primary care practices and those who support practices can use to implement quality improvement, organized based on a key driver diagram. The curated collection of resources included in Tools for Change contains over 100 tools and continues to be developed over time. Newly developed tools from 2021 and 2022 include:

- Integrating Cardiovascular Disease Risk Calculators into Primary Care
- Recruitment and Retention of Primary Care Practices in Quality Improvement Initiatives: A Toolkit

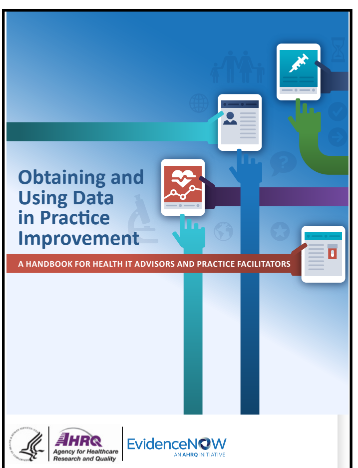
The *EvidenceNOW* model was developed based on ***EvidenceNOW*: Advancing Heart Health** – the first *EvidenceNOW* initiative which launched in 2015. While the 6 grants for this initiative ended in 2018, AHRQ has continued to develop materials to share what was learned. These recent materials include the following:

- Videos Tell the Story of EvidenceNOW: Advancing Heart Health
- EvidenceNOW: A Model for Heart Health and Beyond
- Bridging Research & Practice in Primary Care: Fact Sheet

Building on the success of *EvidenceNOW*: Advancing Heart Health, AHRQ has gone on to fund three additional initiatives based on use of the *EvidenceNOW* model to provide external support to implement evidence into primary care. These three initiatives are described below. :

- *EvidenceNOW*: Building State Capacity. The aim of this initiative is to build state capacity and infrastructure to support primary care practices with implementing evidence-based heart health interventions, and decrease health disparities, in States with a high prevalence of preventable cardiovascular events. This initiative includes four grantees in Alabama, Ohio, Michigan, and Tennessee (described in greater detail in the grants section above), and a technical assistance and evaluation contract (led by Abt Global).[12]
- *EvidenceNOW*: Managing Unhealthy Alcohol Use. This initiative aims to increase the implementation of screening for unhealthy alcohol use in primary care, followed by a brief intervention and referral to treatment as indicated.[13] AHRQ funded six grants in Michigan, Virginia, North Carolina, Colorado, Oregon, and Illinois and Wisconsin (described in greater detail in the grants section above), as well as a Resource Center and Evaluation contract led by NORC at the University of Chicago.
- *EvidenceNOW*: Managing Urinary Incontinence. This initiative, launched in 2022, supports primary care practices to implement evidence-based, nonsurgical treatments for urinary incontinence in women, including behavioral approaches, medications, and neuromodulation. The five grantees include University of Alabama at Birmingham; University of Wisconsin, Madison; University of California, San Diego; Northwestern University; and University Hospitals of Cleveland (described in greater detail in the grants section above). AHRQ also funded a contract to support a learning community for the grantees and evaluate the program's impact, led by the RAND Corporation.[14] Materials developed for this project in 2021 and 2022 include:
    - Managing Urinary Incontinence for Women in Primary Care: Environmental Scan (Base Year)
    - Webinar on AHRQ’s Initiative to Improve Management of Urinary Incontinence in Primary Care

Practice Facilitation



Practice facilitation is an approach to supporting quality improvement in primary care practices with individualized trained practice coaches (known as practice facilitators).[15] In addition to previously developed resources to describe practice facilitation, train practice facilitators, and advise program development and deployment, AHRQ developed the following materials in 2021 and 2022:

- AHRQ Practice Facilitation Training Modules. These 20-30 minute interactive modules – based on AHRQ's Primary Care Practice Facilitation Curriculum – teach practice facilitators the skills they need to be effective. The modules are available to upload to learning management systems to track their completion by trainees by sending an email request to: pftraining@ahrq.hhs.gov.
- Obtaining and Using Data in Practice: A Handbook for Health IT Advisors and Practice Facilitators. This handbook provides detailed guidance for people who support primary care practices with their health information technology (IT) needs related to quality improvement and practice transformation efforts.[16]
- This infographic provides an overview of the most effective strategies used by practice facilitators based on findings from the *EvidenceNOW*: Advancing Heart Health initiative.

AHRQ also provides a grant to fund the annual **International Conference on Practice Facilitation (ICPF) hosted by the North American Primary Care Research Group (NAPCRG),** as described in grants above.

Practice-based Research Networks (PBRNs)

AHRQ defines a PBRN as "a group of ambulatory practices devoted principally to the primary care of patients, and affiliated in their mission to investigate questions related to community-based practice and to improve the quality of primary care."[17] PBRNs serve as a "natural laboratory" for conducting dissemination and implementation (D&I) research in a real-world practice setting.

After previously funding the development of PBRNs and providing support through a national resource center and an electronic research repository, AHRQ's direct support to PBRNs has decreased in recent years. However, several of the AHRQ funded grants in 2021 and 2022 are conducted by or with PBRNS. In addition, AHRQ provides a grant to fund the **PBRN Conference hosted by NAPCRG,** as described in grants above. In the future, AHRQ plans to reengage and more actively support PBRNs.

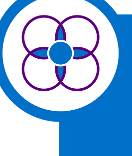
Healthcare Systems and Infrastructure

Part of AHRQ's mission from the public health service act that instituted the agency is,

> … conducting and supporting (1) research that develops and presents scientific evidence regarding all aspects of health care, including… the ways in which health care services are organized, delivered, and financed and the interaction and impact of these factors on the quality of patient care."[3]

This aim includes an explicit focus on how the health system is organized and structured. Healthcare financing and payment reform continue to be opportunities to improve access to care and healthcare quality. Fee for service models limit the ability for healthcare systems to pay for services that optimize care, such as care coordination and improvements in healthcare access.[18] Healthcare system redesign, including models like the Chronic Care Model and the Patient-Centered Medical Home, have the opportunity to improve both the quality and efficiency of care.[19] One way to improve care is to improve coordination between settings and systems of care, such as between primary care and specialty care and during transitions between settings of care. The primary goal for care coordination is to incorporate the needs and preferences of patients and their caregivers into the delivery of high-quality and high-value health care.[20]

This section includes a summary of AHRQ's primary care grants, initiatives, and resources with a main focus on healthcare systems and infrastructure, including issues of payment.



Grants with a focus on health equity are indicated with this icon

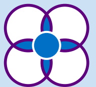
Grants

There were 24 AHRQ primary care grants that were actively funded during FYs 2021 and 2022 that focused mainly on healthcare systems or infrastructure, including payment. This included 12 R01s (Research Projects), 5 R18s (Research Demonstration and Dissemination Projects), 3 K08s (Mentored Clinical Scientist Development Award), 1 R36 (Dissertation Award), 1 R03 (Small Research Grant), 1 K18 (Research Career Enhancement Award for Established Investigators), and 1 U18 (Research Demonstration / Cooperative Agreement). An additional 11 primary care grants had some focus on healthcare systems or infrastructure and are described in other sections of this report, including Practice and Quality Improvement (4), Health Equity (3), Digital Healthcare (2), Public Health and Community Integration (1), and COVID-19 (1).

Below are tables, organized by subtopic, which include short summaries of the 24 studies focused mainly on healthcare systems or infrastructure. The four subtopics include healthcare financing and payment reform, primary care redesign, care coordination across settings, and building center and laboratory infrastructure to improve patient safety.

Healthcare Financing and Payment Reform

Six studies focus on healthcare financing and payment reform, as described in the following table.



Medicaid Payment Policy and Access to Care for Dual Eligible Beneficiaries (R01)

PI: Vicki Fung

Organization: Massachusetts General Hospital

Examines the impact of temporary Affordable Care Act increases in Medicaid payment rates for primary care providers in 2013 and 2014 on care quality, clinical events, and medical spending.

Read Research Profile #4

The Effects of Expanding Medicare Prevention Coverage on Colorectal and Breast Cancer Burden: A Mixed Methods Study (R36)

PI: Mika K. Hamer

Organization: University of Colorado Denver; School of Public Health, Public Health & Preventive Medicine

Investigates the impact of the Medicare Annual Wellness Visit on breast and colorectal cancer outcomes. The Medicare Annual Wellness Visit is an annual primary care check-up with no cost-sharing for the patient.

Reproductive Care in the Safety Net: Women's Health After Affordable Care Act Implementation (EVERYWOMAN) (R01)

PI: Erika K. Barth Cottrell

Organization: OCHIN, Inc.

Studies the impact of Affordable Care Act and Medicaid expansion on reproductive healthcare provided in community health centers, including examining what individual-, clinic-, and State-level factors are associated with improved reproductive health provision.

Read Research Profile #5

Synergies and Sequencing in Delivery and Payment Reform: Understanding What Works (R01)

PI: Julia Rose Adler-Milstein

Organization: University of California, San Francisco; School of Medicine, Internal Medicine

Examines the participation by primary care organizations in payment reform models including the Medicare and Medicaid EHR incentive program "Meaningful Use," patient centered medical homes (PCMH), and Accountable Care Organizations. The study team looks at the combined impact of participation in these models on the quality and value of the primary care provided.

Read Research Profile #6

Primary Care Involvement in End Stage Renal Disease Seamless Care Organizations (ESCOs) and the Quality and Costs of Care for Patients on Chronic Dialysis (R01)

PIs: Vahakn B. Shahinian; Richard A. Hirth; John Malcolm Hollingsworth

Organization: University of Michigan at Ann Arbor; School of Medicine, Internal Medicine

Studies End Stage Renal Disease (ESRD) Seamless Care Organizations (ESCO), including whether ESCOs impact the frequency and quality of primary care provider and nephrologist interactions, involvement of PCPs on financial and clinical outcomes, and outcomes for patients in ESCO versus other payment models including Accountable Care Organizations and Medicare Shared Savings Plans.

Analysis of a Tiered Clinic Cost-sharing Health Insurance Benefit Design (R01)

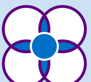
PI: Bryan E. Dowd

Organization: University of Minnesota; Biomedical Engineering / College of Engineering

Evaluates a long running tiered cost-sharing system where Minnesota State employees select a primary care clinic that is responsible for coordinating their care, including referrals to specialists, hospital care, and use of pharmaceuticals. Clinics are assessed on their risk-adjusted total cost of care and cost savings are shared with patients, incentivizing them to select care coordination through lower-cost clinics. This study specifically explores clinical leaders' perceptions of the system, how they have responded to being included in the system, and the barriers they face to practicing more efficiently.

Primary Care Redesign

Five studies focus on primary care redesign interventions, including examining the impact of new models for primary care including Patient Centered Medical Home (PCMH) and Centers for Medicare and Medicaid Services' (CMS') Comprehensive Primary Care Plus (CPC+).



Effect of the Patient-Centered Medical Home on Geographic and Racial Disparities in Health Care Access (R03)

PI: Nathaniel Bell

Organization: University of South Carolina at Columbia; School of Nursing

Examines proximity and utilization of patient-centered medical homes (PCMH) for pediatric Medicaid patients in South Carolina to better understand the association between where a patient lives and their use of a PCMH instead of a hospital for care.

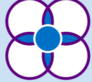
Read Research Profile #7

Social Networks in Medical Homes and Impact on Patient Care and Outcomes (R01)

PI: Lusine Poghosyan

Organization: Columbia University Health Sciences; School of Nursing

Uses social network analysis to examine how staff connections affect team performance and patient outcomes within primary care practices using the Patient Centered Medical Home model.



Examining Payment and Delivery Model Impacts on Health Equity Using Novel Quasi-Experimental Causal Inference Methods (R01)

PI: Laura Hatfield

Organization: Harvard Medical School; School of Medicine

Tests the impact of the Comprehensive Primary Care Plus (CPC+) model on health outcomes for Black Medicare beneficiaries, including an examination of the variation in responses to CPC+ within subgroups by gender, disability, and Medicaid eligibility status.

Impact of a Team-Based Approach to Primary Care: A Natural Experiment in Primary Care Redesign (K08)

PI: Anita Diana Misra-Hebert

Organization: Cleveland Clinic Foundation

Implements and tests the team-based care medical assistant (MA) model in primary care compared to usual care. In the team-based care MA model, two MAs are paired with each medical provider to support documentation and other administrative work.

Costs and Quality of Primary Care Services: Implications for Community Health Centers (R01)

PI: Avi Dor

Organization: George Washington University; School of Public Health, Public Health & Preventive Medicine

Conducts an economic analysis of community health centers, including examining whether service expansion and integrating primary care visits with specialty visits leads to increased cost-savings and improved care quality.

Care Coordination Across Settings

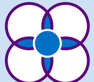
Seven studies focus on care coordination across settings, as described in the following table.

Comprehensive Pediatric Hypertension Diagnosis and Management (R01)

PI: Michael L. Rinke

Organization: Albert Einstein College of Medicine

Engages pediatric primary care practices to test different models of subspecialist involvement in pediatric hypertension diagnosis and management.



Reducing Major Amputations for Rural Patients with Diabetic Foot Ulcers: The Who's and How's of Integrated Care (K08)

PI: Meghan Brennan

Organization: University of Wisconsin—Madison; School of Medicine, Internal Medicine

Develops and pilots an integrated care algorithm to reduce amputation from diabetic foot ulcers for rural healthcare systems through interventions that rural patients receive in an ambulatory setting.

Implementing Personalized Cross-Sector Transitional Care Management to Promote Care Continuity, Reduce Low Value Utilization, and Reduce the Burden of Treatment for High-Need, High-Cost Patients (R01)

PI: Sharon Hewnerh

Organization: State University of New York at Buffalo; School of Nursing

Tests a personalized, cross-sector, transitional care management model in primary care and behavioral health settings to improve care coordination across settings using a health information exchange infrastructure.

Tele-Recovery: Engaging Stakeholders to Adapt and Pilot Test a Scalable Transitional Rehabilitation Intervention for Older, Rural ICU Survivors (K08)

PI: Leslie Page Scheunemann

Organization: University of Pittsburgh at Pittsburgh; School of Medicine, Pediatrics

Tests a transitional care model, TeleRecovery, where a nurse practitioner and occupational therapist deliver telehealth-based rehabilitation services for older adults and their caregivers in rural areas after a transfer from the intensive care unit to home. The TeleRecovery teams work with home health providers to implement the patients' care plans until they are well enough to be managed in primary care.

Integrating Pharmacists into an Automated Discharge Process to Promote Comprehensive Medication Management (R18)

PI: Joel F. Farley

Organization: University of Minnesota

Examines pharmacist-provided comprehensive medication management to coordinate care for high-need/high-cost patients when they transition between the hospital and primary care settings. In this program, a health information exchange's automated electronic alert system notifies primary care sites when patients need pharmacist-provided comprehensive medication management after a hospital visit.

Improving How Older Adults at Risk for Cardiovascular Outcomes Are Selected for Care Coordination (K18)

PI: Lisa M. Kern

Organization: Weill Medical College of Cornell University; School of Medicine, Internal Medicine

Examines different models for assigning care coordinators to Medicare beneficiaries after hospital discharge to improve the coordination of their care.

Closed Loop Diagnostics: AHRQ R18 Patient Safety Learning Laboratories (R18)

PIs: Russell Scott Phillips; James C. Benneyan; Gordon David Schiff

Organization: Harvard Medical School

Uses systems engineering methods to reduce diagnostic errors by creating "closed loop systems" or systems that ensure diagnostic tests and referrals are completed, results are conveyed to patients and primary care providers, and patients inform primary care providers about changes in symptoms that could alter a diagnosis. This study designs, develops, tests, and refines this "closed loop system" for diagnostic tests and referrals.

Building Center and Laboratory Infrastructure to Improve Patient Safety

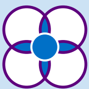
Three studies focus on building centers and laboratory infrastructure to improve patient safety.

Re-engineering Patient and Family Communication to Improve Diagnostic Safety Resilience (R18)

PIs: Kathleen Elizabeth Walsh; Christopher Paul Landrigan

Organization: Boston Children's Hospital

Develops a Diagnostic Center of Excellence focused on improving clinician-patient/family communication in pediatric outpatient settings.



Safety II Together: Coupling Teaming Science with Patient Engagement and Health Information Transparency to Coproduce Diagnostic Excellence (R18)

PI: Sigall Bell

Organization: University of Texas Health Science Center Houston; Internal Medicine

Develops a Diagnostic Center of Excellence that uses teaming science and patient engagement to bring patients and healthcare providers together to reduce diagnostic errors and improve safety in ambulatory care.

PROMIS Learning Lab: Partnership in Resilience for Medication Safety (R18)

PI: Yan Xiao

Organization: University of Texas Arlington; School of Nursing

Creates the Partnership in Resilience for Medication Safety Learning Lab (PROMIS Lab) which promotes patient safety in primary care. The PROMIS Lab is intended to develop and test strategies to reduce medication-related harms in older adults.

Other Healthcare Systems and Infrastructure Topics

The final three studies each focus on a unique topic.

Consumer Assessment of Healthcare Providers and Systems V (CAHPS V) (U18)

PI: Ronald Dale Hays

Organization: RAND Corporation

Expands the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey to include modules related to patient experience, shared decision-making, care coordination, patient engagement, and patient safety. Among other activities, this study looks at how primary care practices use the CG-CAHPS survey and patient-centered medical home items during PCMH transformation, and assesses how pay- for-performance impacts CAHPS survey responses about the care provided by primary and specialty care safety net providers.

Novel, High-Impact Studies Evaluating Health System and Healthcare Professional Responsiveness to COVID-19 (R01)

PI: Rebecca Sarah Etz

Organization: Virginia Commonwealth University; Family Medicine

Examines the impact that COVID-19 has had on digital healthcare expansion in primary care, using a set of surveys developed and implemented during the public health emergency.

Physician Organization and the Use, Cost and Outcomes of Care (R01)

PI: Laurence C. Baker

Organization: Stanford University; School of Medicine, Internal Medicine

Examines the impact of the growing role of physician organizations on healthcare cost, use, and outcomes. A physician organization is a business entity where physicians form a group practice to support an affordable care organization or managed care organization.[21] The study examines whether physician organization size or practice composition (single versus multispecialty groups) affects cost, use, and health outcomes.

Initiatives and Resources

AHRQ invests in data collection activities that can support research in healthcare systems and infrastructure that have implications for primary care. The data resources are described below with links to additional information or to the specific material.

The Medical Expenditure Panel Survey (MEPS) is the largest national data source for measuring how people use and pay for medical care in the U.S. It includes a set of surveys of individuals and households, their medical providers, and employers across the U.S. While MEPS includes information about a broad set of medical services beyond primary care, it may be a helpful source of data for primary care researchers.

As described on the MEPS webpage: "MEPS currently has two major components: the Household Component and the Insurance/Employer Component. The Household Component provides data from individual households and their members, which is supplemented by data from their medical providers. The Insurance Component is a separate survey of employers that provides data on employer-based health insurance."[22]

Digital Healthcare

Investment and expansion of digital healthcare, which includes mobile health (mHealth) and electronic health (eHealth), health information technology, wearable devices, and providing patient care and support through telemedicine,[23] has grown significantly in recent years. The COVID-19 public health emergency accelerated this growth, particularly for telemedicine and related technologies. Integrating digital healthcare technology into primary care has the promise of increasing access to services, enhancing care coordination across healthcare settings, supporting clinical decision-making, and improving patient safety and health outcomes. However, research indicates that digital healthcare approaches can exacerbate existing disparities in healthcare, requiring dedicated interventions that center health equity in improved design, implementation, and dissemination of digital healthcare tools to those who have the greatest need.[24] Ongoing research continues to explore new avenues for expanding digital healthcare technology in ways that improve equitable access to high-quality health care.

AHRQ's Division of Digital Healthcare Research produces and disseminates evidence on how digital healthcare can improve the quality, safety, and effectiveness of healthcare while also improving patient experiences. However, many AHRQ grants that have a focus on digital healthcare intersect with other agency priorities. This section of the report includes a summary of AHRQ's primary care grants, initiatives, and resources with a main focus on digital healthcare.

Grants with a focus on health equity are indicated with this icon

Grants

Twenty-two AHRQ primary care grants actively funded during FYs 2021 and 2022 were mainly focused on digital healthcare. This included 12 R18s (Research Demonstration and Dissemination Projects), 5 R01s (Research Projects), 3 R21s (Exploratory/ Developmental Grants), 1 U18 (Research Demonstration / Cooperative Agreement), and 1 K08 (Clinical Investigator Award). In addition to these 22 grants, another 38 primary care grants had some focus on digital healthcare and are described in other sections of this report, including Practice and Quality Improvement (15), Person-Centered Care (7), Healthcare Systems and Infrastructure (5), Behavioral Health and Substance Use Disorders (5), COVID-19 (2), Health Equity (1), Primary Care Workforce (1), and Public Health and Community Integration (1).

Below are tables, organized by five subtopics, which include short summaries of each of the 22 primary care grants focused mainly on digital healthcare. Subtopics include clinical decision support tools, other EHR tools, mobile health and electronic health approaches, telemedicine or telehealth, and diagnostic centers of excellence.

Clinical Decision Support Tools

Out of eight grants investigating EHR tools, five focus specifically on clinical decision support (CDS) tools to help clinicians reduce errors and improve the consistency of diagnoses and care recommendations. CDS describes a range of tools that can be used to help support decision-making in the clinical workflow. CDS tools include “computerized alerts and reminders to care providers and patients; clinical guidelines; condition-specific order sets; focused patient data reports and summaries; documentation templates; diagnostic support, and contextually relevant reference information, among other tools.”[25] All of AHRQ primary care grants with a focus on CDS throughout this report are included in Appendix C: Clinical Decision Support.

Engaging Patients to Enable Interoperable Lung Cancer Decision Support at Scale (R18)
PI: Kensaku Kawamoto **Organization:** University of Utah; School of Medicine Expands an existing CDS program (Decision Precision+) designed to analyze EHR data to prompt doctors to discuss lung cancer screening with eligible patients with individually tailored information on the benefits and harms of screening. For this grant, the research team will adapt Decision Precision+ to integrate with a patient portal (MyLungHealth) that patients use directly to learn about lung cancer screening. The research team will test how healthcare systems implement MyLungHealth in primary care practices and examine the additional benefit of MyLungHealth for practices that already use Decision Precision+.
Averting Diagnostic Error Through Improved Recognition of Child Abuse (K08)
PI: Irit R. Rasooly **Organization:** Children’s Hospital of Philadelphia; Independent Hospital Uses EHR data- and systems-analysis to develop CDS strategies that can identify and help diagnose child abuse in primary care settings. The research team is using EHR data to detect and validate markers of physical abuse to help identify children experiencing abuse; using EHR simulations to identify abuse-related diagnostic errors; and working to develop feasible, acceptable, and appropriate CDS strategies for improved child abuse detection and diagnosis.

Clinical Decision Support for Disseminating and Implementing Patient-Centered Outcomes Research (R18)

PI: Ronilda Lacson

Organization: Brigham and Women's Hospital; Independent Hospital

Aims to develop and validate CDS-consumable knowledge artifacts based on clinical evidence for imaging that can be widely adopted. In previous work, a multi-disciplinary team of clinicians and medical informaticists developed and graded artifacts to represent clinical evidence and made them publicly available. Assesses the technical capability of standardized EHR syntax and formats (e.g., FHIR, CQL, and SNOMED CT) to use the knowledge artifacts for imaging CDS. Specifically, the team will look at CDS for using MRI to diagnose a second incidence of breast cancer, using CT scan for pulmonary embolism, and for physician education about the risk for pulmonary embolism. Results will help inform clinical decision making for diagnostic imaging in primary care.

Shareable, Interoperable Clinical Decision Support for Older Adults: Advancing Fall Assessment and Prevention Patient-Centered Outcomes Research Findings into Diverse Primary Care Practices (ASPIRE) (U18)

PIs: Patricia C. Dykes; Robert J. Lucero

Organization: Brigham and Women's Hospital

Aims to develop a shareable, standards-based fall prevention software to improve the implementation of a clinical decision support program into primary care settings using Fall Care Managers to promote fall prevention decision-making.

Adaptation and Pilot Implementation of a Validated, Electronic Real Time Clinical Decision Support Tool for Care of Pneumonia Patients in 12 Utah Urgent Care Centers (R18)

PI: Nathan C. Dean

Organization: IHC Health Services Inc.; Non-Profit

Adapts an existing CDS tool containing guidelines for pneumonia ("ePNa") to urgent care centers. The research team is identifying barriers and facilitators to implementation and uptake of the ePNa tool, and testing it within urgent care centers by examining outcomes related to patient safety, antibiotic prescribing, and diagnoses without chest imaging. While this study is not conducted in primary care practices, it has potential to be implemented in primary care practices, as acute respiratory complaints are commonly seen in primary care.

Other EHR Tools

Four grants focus on EHR tools other than CDS.

Understanding CancelRx: Impact on Clinical Workflows, Medication Safety Risks, and Patient Outcomes (R21)

PI: Samantha Pitts

Organization: Johns Hopkins University; School of Medicine; Genetics

Conducts formative research on the development and optimization of CancelRx, an EHR functionality that sends electronic prescription cancellations from the EHR to pharmacies, to help reduce adverse drug events in ambulatory care settings.

Care System Analytics to Support Primary Care Patients with Complex Medical and Social Needs (R18)

PI: Richard W. Grant

Organization: Kaiser Foundation Research Institute; Research Institute

Develops and tests an EHR-based dashboard to help clinical teams ensure patients with multiple chronic conditions and socially determined barriers to care receive high-quality primary care.

Read Emerging Research Spotlight #1

Prescription Drug Monitoring Program Integration in the Electronic Health Record (R21)

PI: Daniel M. Hartung

Organization: Oregon State University; School of Pharmacy; Other Health Professions

Evaluates how integrating Oregon's electronic registry of controlled-substance prescription dispensing data (prescription drug monitoring program) into the EHR of primary care clinics impacts provider use of registry data and prescribing behavior.

A Turn-Key EHR Simulation Program to Reduce Diagnostic Error in Ambulatory Care (R18)

PIs: Jeffery A. Gold; Raj M. Ratwani

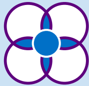
Organization: Oregon Health & Science University; Domestic Higher Education

Develops a library of validated EHR-based simulations to improve diagnostic safety in ambulatory care. The research team is using a combination of administrative and claims data to identify diagnoses at risk for diagnostic error in ambulatory care settings and the EHR use errors associated with those errors. The researchers will use this data to develop simulations for five ambulatory care settings, including primary care, and validate the use of the simulation activities as a training tool to change EHR use patterns and reduce diagnostic errors.

Read Emerging Research Spotlight #2

Mobile Health and Electronic Health

Eight grants focus on mHealth or eHealth interventions.



Adapting, Scaling, and Spreading an Algorithmic Asthma Mobile Intervention to Promote Patient-Reported Outcomes Within Primary Care Settings (R18)

PI: Sunit Jariwala

Organization: Albert Einstein College of Medicine; Domestic Higher Education

Develops and evaluates an app for asthma control in adults and tests its implementation and scaling within primary care settings.

Integrating Patient-Reported Outcomes into Routine Primary Care: Monitoring Asthma Between Visits (R18)

PI: Robert Samuel Rudin

Organization: RAND Corporation; Research Institute

Refines an app for reporting asthma symptoms for use in a primary care setting, implements it in four primary care clinics, and evaluates the effect of patient use on quality of life and healthcare utilization.

Impact and Sustainability of a Digitally-Based Diabetes Prevention Program (R01)

PI: Yoshimi Fukuoka

Organization: University of California, San Francisco; School of Nursing; Other Health Professions

This randomized controlled trial assesses the effectiveness and sustainability of a digitally-based diabetes prevention program for reducing body weight and HbA1c in adults with prediabetes and obesity. The findings from this study have clear implications for primary care, where diabetes prevention is a common part of care.

Feasibility Study of a Mobile Digital Personal Health Record for Family-Centered Care Coordination for Children and Youth with Special Healthcare Needs (R21)

PI: David Y. Ming

Organization: Duke University; School of Medicine; Pediatrics

Develops an app for families of children and youth with special healthcare needs to manage digital personal health records that span healthcare and EHR systems. The study will explore app adoption, barriers and facilitators, and outcomes among families of children with special healthcare needs in a pediatric primary care clinic.

Improving Medication Safety for Medically Complex Children with MHealth Across Caregiving Networks (R18)

PIs: Ryan J. Coller; Nicole E. Werner

Organization: University of Wisconsin—Madison; School of Medicine; Pediatrics

Develops an app (MedS@HOME) to improve medication safety for children with medical complexity. The app supports standardized medication management across the caregiving network to increase administration accuracy and reduce medication-related adverse events.

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

Care Transitions App for Patients with Multiple Chronic Conditions (R01)

PIs: Lipka Samal; Patricia C. Dykes

Organization: Brigham and Women's Hospital; Independent Hospital

Develops and tests the effectiveness of an app to support care transitions between the hospital, home, and primary care clinic to reduce post-discharge adverse events. The app contains a digital post-discharge transitional care plan, modules for multiple chronic conditions, relevant lab values, education specific to the patient's prescribed medications, and a functionality that allows patients to ask questions to support their recovery goals.

An Evaluation of the Spread and Scale of PatientToc from Primary Care to Community Pharmacy Practice for the Collection of Patient-Reported Outcomes (R18)

PI: Margie E. Snyder

Organization: Purdue University; School of Pharmacy; Pharmacology

Implements a patient-reported outcomes app for patients using community pharmacies to improve medication adherence and ultimately patient health outcomes.

Read Emerging Research Spotlight #3

Using Smart Devices to Implement an Evidence-based eHealth System for Older Adults (R18)

PIs: David H. Gustafson; Marie-Louise Mares

Organization: University of Wisconsin—Madison; Biomedical Engineering/College of Engineering; Engineering

Implements a smart-system (a smart speaker plus display) version of an existing Elder Tree intervention – a program that supports the self-management of health for older adults with multiple chronic conditions. This grant tests a smart-system version compared to the computer-based system on outcomes, including quality of life, hospital readmission, and medication adherence.

Telemedicine or Telehealth

Three grants with a primary focus on Digital Healthcare examine the use of telemedicine or telehealth, including providing direct medical care and services using video conferencing or phone calls. [A total of 13 AHRQ primary care grants had a focus on telehealth, including the three described here. A table with all 13 of these grants is included in Appendix C: Telehealth.]

Patient Choice of Telemedicine Encounters (R01)

PI: Mary Reed
Organization: Kaiser Foundation Research Institute; Research Institute

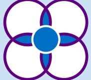
Examines the broad-scale implementation of telemedicine for primary care encounters within a healthcare system prior to the COVID-19 pandemic to understand how telemedicine compares in quality, care processes, and patient outcomes to in-person care; and to understand which patient characteristics are most closely associated with telemedicine utilization.

Read Research Profile #8

Evaluating the Impact of Telemedicine on Ambulatory Care (R01)

PIs: Michael Patrick Thompson; Chandy Skaria Ellimootil
Organization: University of Michigan at Ann Arbor; School of Medicine; Surgery

Uses a national cohort of Medicare beneficiaries to understand the impact of ambulatory care telemedicine visits on hospital admissions for ambulatory care-sensitive conditions (such as congestive heart failure, diabetes, and hypertension), and on healthcare spending.



A Clinical Trial to Validate an Automated Online Language Interpreting Tool with Hispanic Patients Who Have Limited English Proficiency (R01)

PI: Peter M. Yellowless
Organization: University of California at Davis; School of Medicine; Psychiatry

Tests and validates an automated online interpretation tool to improve access to high-quality mental health services for people with limited English proficiency. In this intervention, a trained mental health interviewer-researcher interviews a patient in Spanish, the interview is translated and transcribed using the automated translation tool, and then a video with embedded transcribed subtitles is viewed by the psychiatrist. The research team is testing diagnostic accuracy, inter-rater reliability, patient satisfaction, and language and syntax accuracy.

Diagnostic Centers of Excellence

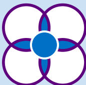
Two grants support the implementation of Diagnostic Centers of Excellence focused on using digital healthcare to reduce diagnostic errors and improve patient safety.

Diagnostic Safety Center for Advancing E-triggers and Rapid Feedback Implementation (DISCOVERI) (R18)

PI: Hardeep Singh

Organization: Baylor College of Medicine; School of Medicine; Internal Medicine

Develops a center that supports the implementation of surveillance and feedback systems to improve diagnostic safety in healthcare organizations. The center will work to accelerate the uptake of electronic trigger (e-trigger) tools, which mine large sets of clinical and administrative data to identify signals for likely adverse events. E-trigger algorithms can efficiently identify patterns of care indicating missed or delayed diagnoses in primary care as well as other settings.



DECODE: Diagnostic Excellence Center on Diagnostic Error (R18)

PIs: Ramin Khorasani; Ronilda Lacson

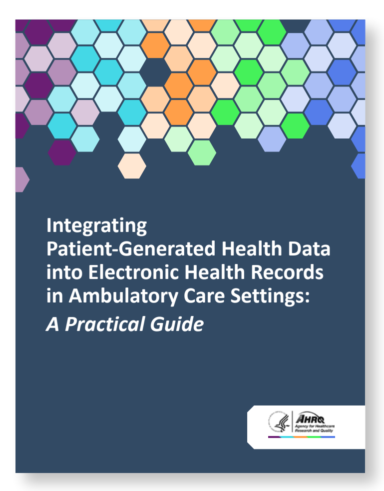
Organization: Brigham and Women's Hospital; Independent Hospital

Develops a Diagnostic Center of Excellence to reduce failures in timely performance of clinically necessary diagnostic imaging exams and interpretation errors. The team will implement information technology-enabled functions and workflows to enhance a clinical dashboard with improved EHR-integration and monitoring and learning capabilities to help reduce diagnostic errors and health disparities. In addition, they will provide opportunities for peer learning to reduce interpretive errors and convene a team of clinicians to develop consensus recommendations for the management of lung, prostate, pancreatic and adrenal cancers and embed the recommendations into the EHR.

Initiatives and Resources

Below we share an important resource related to digital healthcare in primary care that AHRQ developed in 2021.

Integrating Patient-Generated Health Data into Electronic Health Records in Ambulatory Care Settings: A Practical Guide



is designed to support ambulatory care settings in the design and implementation of patient-generated health data (PGHD) programs, with the goal of improving patient outcomes.

PGHD are “health-related data created, recorded, or gathered by or from parents (or family members or other caregivers) to help address a health concern.”[26] PGHD includes data reported in patient surveys or tracked in remote monitoring devices (i.e., health apps or wearable devices).

The guide includes tools and resources that support the planning, implementation, evaluation, and scaling of PGHD into ambulatory care settings.

Person-Centered Care

It is now recognized that high-quality primary care is "continuous, person-centered, relationship-based care."[27] Person-centered care builds on the earlier concept of patient-centered care – where patients and their families are partners in medical decision making, and care is personalized based on the patient's unique needs, preferences, and values.[28] Person-centered care goes one step further, by putting the focus on the individual in the full context of their community, family, and lived experience – rather than solely on their role as a patient receiving healthcare.

To broadly implement person-centered care, shifts are needed in the organization, financing, and delivery of care to support the provision of comprehensive, whole person care rather than disease focused care.[2] Providing person-centered care also requires strong and ongoing partnerships between primary care, public health, and communities[27] (see the section on **Public Health and Community Integration** as well). Engaging patients and families as partners in research is essential for helping to identify the research questions and health outcomes that are most relevant to them, and to redesign care to be responsive to the needs of those receiving the care.

This section of the report includes a summary of AHRQ's grants and a resource with a main focus on person-centered care.

Grants with a focus on health equity are indicated with this icon

Grants

There were 18 AHRQ primary care grants focused on person-centered care that were actively funded during FYs 2021 and 2022. This included eight R01s (Research Projects), four R18s (Research Demonstration and Dissemination Projects), two U18s (Research Demonstration / Cooperative Agreement), two R21s (Exploratory / Developmental Research Grants), one R03 (Small Research Grant), and one K01 (Research Career Program). There were an additional 18 grants with some focus on person-centered care, which are described in other sections of this report, including Digital Healthcare (5), Healthcare Systems and Infrastructure (4), Behavioral Health and Substance Abuse Disorders (4), Practice and Quality Improvement (3), Health Equity (1), and Public Health and Community Integration (1). Below are tables, organized by subtopics, which include short summaries of the 18 studies focused mainly on person-centered care. Subtopics include clinical decision supports for person-centered care, decision

aids, measures of shared-decision making, improving decision-making processes, patient-facing EHR-integrated tools, programs to improve person-centeredness, and other person-centered approaches to improving health.

Clinical Decision Supports for Person-Centered Care

Three grants focus on developing clinical decision support tools to help providers engage in person-centered care.

Scaling Interoperable Clinical Decision Support for Patient-Centered Chronic Pain Care (R18)

PIs: Christopher Albert Harle; George Ramzi Solloum

Organization: University of Florida; School of Medicine

Develops and tests a clinical decision support tool to help primary care clinicians work with their patients to choose a pain treatment approach that best balances the potential risks and benefits for the individual patient.

Read Emerging Research Spotlight #4

Clinical Decision Support for Collaborative Diet Goal Setting in Primary Care (R21)

PI: Marissa Burgermaster

Organization: University of Texas at Austin; School of Medicine, Public Health, and Preventive Medicine

Refines an existing health information technology tool that provides clinicians with data-driven guidance for personalized and collaborative diet goal setting. The research team will pilot test the tool with primary care providers in federally qualified health centers, with the goal of implementing clinical workflows to serve patients experiencing health disparities.

Scalable Decision Support and Shared Decision Making for Lung Cancer Screening (R18)

PI: Kensaku Kawamoto

Organization: University of Utah; School of Medicine

Adapts an existing tool, Decision Precision+, to analyze and synthesize relevant risk data and support shared decision-making related to lung cancer screening. This tool presents individually tailored information on the potential benefits and harms of screening, allowing patients and their primary care physicians to make informed and patient-centered decisions on whether to screen for lung cancer through low-dose computerized tomography testing.

Decision Aids

Two grants develop decision aids to support decision-making and promote person-centered care.

Patient Perspectives on Prescription Opioid Discontinuation: Understanding and Promoting Safe Transitions (R01)

PI: Clarissa Wen-Ling Hsu

Organization: Kaiser Foundation Research Institute

Investigates the experiences of patients and providers who have discontinued opioids for long term opioid therapy (LTOT). It develops a patient decision aid to support patients when discontinuing LTOT and pilot tests the decision aid with patients.

Patient-Centered Diabetes Education as an Integral Part of an Electronic Clinic Note Using the SEE-Diabetes Modules (R21)

PI: Min Soon Kim

Organization: University of Missouri—Columbia; School of Medicine

Develops an educational decision aid that enables older adults with diabetes to choose a diabetes self-management education and support strategy with the best potential to achieve clinical and health benefits for them. The project also refines and tests the decision aid for feasibility in primary care and diabetes specialty care settings, and for preliminary outcomes.

Measures of Shared-Decision Making

Two grants work to develop measures of shared decision-making (SDM).

SDMo – a Measure of the Occurrence of SDM in the Care of Patients with Chronic Conditions (R01)

PI: Ian Hargraves

Organization: Mayo Clinic Rochester

Develops a measure of shared decision making (SDM) occurrence and estimates the measure's reliability and validity. This new measure of SDM occurrence can help uncover how frequently SDM techniques are used in the care of patients with chronic conditions, and test associations between SDM and behavioral and physical health outcomes.

Development of a Shared Decision Making Support (SDM-S) Measure for Use with Team-based Care (R01)

PIs: Jennifer M. Elston Lafata

Organization: University of North Carolina Chapel Hill; School of Pharmacy

Develops valid patient-reported shared decision-making support (SDM-S) measures that incorporates four distinct SDM phases: choice awareness, consideration of alternatives/preferences, choice-making, and choice implementation. The researchers will then test the measures in four cancer care contexts (lung cancer screening, colorectal cancer screening, rectal cancer treatment, and prostate cancer treatment) to evaluate performance and acceptability among primary care and oncology patients.

Improving Decision-Making Processes

Three grants implement interventions to improve decision-making processes.

Validation of a Framework for Shared Decision-Making in Pediatrics (R03)

PI: Douglas J. Opel

Organization: Seattle Children's Hospital

Defines a framework for implementing SDM in pediatrics. The framework includes four steps: medical reasonableness, benefit-burden, preference sensitivity, and calibration. This grant assesses the applicability of the pediatric SDM framework on a range of medical decisions and child ages through observations of clinical encounters and post-encounter interviews with clinicians, parents, and adolescent patients. The research team will also assess the face and content validity of the framework through focus groups.

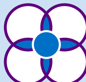
Comparing Family Decision Making Engagement in Telehealth Versus In-person Primary Care for Children with Chronic Conditions (R01)

PI: Ellen A. Lipstein

Organization: Cincinnati Children's Hospital Medical Center

Aims to compare the telehealth and in-person decision-making processes and outcomes in pediatric primary care for children with chronic conditions. This grant used a combination of family surveys, video recordings of healthcare visits, and qualitative interviews to understand experiences of decision-making during telehealth and in-person visits.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.



Integrating Costs into Shared Decision-Making for Heart Failure with Reduced Ejection Fraction (R01)

PI: Neal Workman Dicket

Organization: Emory University; School of Medicine, Internal Medicine

Investigates strategies to improve communication and shared decision-making related to a costly but medically effective drug to treat chronic heart failure with reduced ejection fraction. The grant explores how frequently cost is addressed in patient-provider encounters, examines the impact of different ways of framing information about the drug and its cost, and tests an intervention focused on integrating patient-specific costs into clinical encounters.

Patient-Facing EHR-Integrated Tools

Three grants develop patient-facing, EHR-integrated tools to support patients reporting outcomes or completing screenings.

i-Matter: Investigating an mHealth Texting Tool for Embedding Patient-Reported Data into Diabetes Management (R01)

PIs: Antoinette M. Schoenthaler; Devin M. Mann

Organization: New York University Grossman School of Medicine; School of Medicine, Internal Medicine

Evaluates the useability and efficacy of an innovative mobile health tool for managing diabetes care. The tool uses text-messaging to collect and share patient-reported outcomes and sends patients feedback and motivational messages based on the information they share. The platform also creates dynamic data visualizations of the patient's data, which is integrated into the electronic health record, and can be reviewed by their primary care clinicians during and between visits.

Read Research Profile #9

Mobile Patient-Reported Outcomes for Value and Effectiveness (mPROVE) (U18)

PI: Jane Jih

Organization: University of California, San Francisco; School of Medicine, Internal Medicine

Develops a mobile app for patient-reported outcomes and shared decision-making, integrates it with the EHR, and conducts a hybrid implementation-effectiveness trial to study its impact on quality of care and implementation outcomes among primary care patients.

Read Emerging Research Spotlight #5

Patient Outcomes Reporting for Timely Assessments of Life with Depression: PORTAL-Depression (U18)

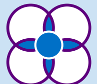
PI: Neda Laiteerapong

Organization: University of Chicago; School of Medicine, Internal Medicine

Implements the Computerized Adaptive Test for Mental Health (CAT-MH), a validated, adaptive test that measures depression symptoms through the patient portal and is integrated into the EHR. The study evaluates the effectiveness of conducting depression screening through the patient portal versus in-person collection during primary care visits. The researchers aim to assess whether using MyChart increases the number of uses of the MAT-HC screener by primary care patients, and whether use of the integrated MAT-HC screener in MyChart results in higher rates of remission in patients with major depressive disorder.

Programs to Improve Person-Centeredness

Three grants implement programs to improve person-centeredness.



Ready and Healthy for Kindergarten: A Primary Care Innovation to Promote a 360-degree View of Child Health (R18)

PI: Manuel E. Jimenez

Organization: RBHS-Robert Wood Johnson Medical School

Tests an online family wellness program that uses anticipatory guidance on health topics important to school readiness (for example, nutrition and physical activity) to introduce language and literacy skills to Latino dual language learners from families with a low income. The research team will first conduct a developmental evaluation to refine and optimize the program for implementation in primary care. They will then conduct a randomized control trial to test the effects of the program on child and parent outcomes, and a process evaluation to explore reach, implementation, and user experience.

Addressing Opioid Use Disorder in Older Adults Through Primary Care Innovation (OUD-PCI) (R18)

PIs: Steven Allen Crawford; Alexandra Lee Jennings; Zsolt J. Nagykaldi

Organization: University of Oklahoma Health Sciences Center

Implements a multi-faceted person-centered and scalable chronic management program in primary care practices. The program was systematically tailored to older adults and those with functional disabilities or increased social risks with the goal of increasing functioning and decreasing pain and adverse events.

Enhanced Care Planning and Clinical-Community Linkages to Comprehensively Address the Basic Needs of Patients with Multiple Chronic Conditions (R01)

PI: Alexander H. Krist

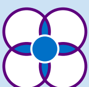
Organization: Virginia Commonwealth University; School of Medicine, Medicine

Implements and tests an enhanced care planning program to help patients manage multiple chronic conditions. The intervention includes the use of an enhanced care planning tool in primary care to screen patients for health behavior, mental health, and social needs. Working with a navigator, patients help prioritize their needs, create a care plan, and write a narrative to guide care; and then connects patients to needed resources in the community. The research team implemented a clinician-level randomized controlled trial to study how primary care clinicians participate in models for connecting patients to needed community services, and measures whether it improves their health outcomes.

Read Research Profile #10

Other Person-Centered Approaches to Improving Health

Two grants investigate other person-centered approaches to improving health.



Helping gEnerations Identify Risks (Heirs) to Health (R01)

PI: Heather Angier

Organization: Oregon Health & Science University; School of Medicine, Family Medicine

Identifies which parental factors (such their own health care receipt and burden of disease) are most strongly associated with children receiving recommended preventive health care (including recommended well-child visits and routine childhood vaccinations). The research team also explores how social determinants of health influence healthcare utilization for the whole family.

Read Research Profile #11

Prioritizing Quality Improvement for the Treatment of Psychiatric Disturbances Following Traumatic Brain Injury (K01)

PI: Jennifer S. Albrecht

Organization: University of Maryland Baltimore; School of Medicine, Public Health & Preventive Medicine

Assesses treatment options for patients with traumatic brain injury (TBI) who are experiencing psychiatric disturbances such as depression, anxiety, and post-traumatic stress disorder. The grant examines barriers and facilitators to treatments across patient groups, quantifies disparities in treatment patterns associated with psychiatric disturbances following TBI, and develops a priority list of patient-selected strategies to overcome barriers to the receipt of treatment for psychiatric disturbances following TBI. This project has implications for the care of patients with TBI in a primary care setting.

Initiatives and Resources

AHRQ's Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys help to build an understanding of patients' experience with healthcare as part of a larger overall effort to ensure that care is safe and centered on patients' needs.[29] There are several CAHPS® surveys focused on different areas of care. The CAHPS® Clinician & Group Survey, which was updated in 2021, is focused on primary and specialty care settings and is described below.

The CAHPS Clinician & Group Survey, asks patients to report on their experiences with providers and staff in primary and specialty care settings. Questions included in the survey are related to care accessibility, provider communication, care coordination, and interactions with staff. This survey was updated in 2021 to allow respondents to report about in-person, phone, and video visits.[30]

The results from CAHPS Clinician & Group Survey can be used by medical practices, health systems, State agencies, and others for the following purposes:[31]

- To help medical practices and health systems identify where practice improvement activities are needed, and evaluate the impact of existing improvement efforts,
- To give consumers information they can use to compare individual clinicians, medical practices, or medical groups, and choose where to get their care, and
- To allow State agencies or health systems to monitor the performance of physician practices, and reward those who provide high-quality care.

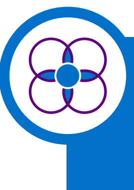
In addition to sharing the versions of the surveys themselves, AHRQ shares additional questions that can be added to the survey, including open ended questions; information and tools for administering the survey; and tools for comparing the survey data to aggregated results, improving patient experiences, and sharing CAHPS scores with patients.

Behavioral Health and Substance Use Disorders

Our nation faces a behavioral health crisis as mental health and substance use disorders are on the rise, while access to care for these conditions has become increasingly limited.[32] Behavioral health is an overarching term which includes "mental health and substance abuse conditions, life stressors and crises, stress-related physical symptoms, and health behaviors."[33] As primary care is the first point of entry into the healthcare system for many people, primary care clinicians are often in a good position to diagnose and treat these common conditions.[34] Evidence suggests that providing comprehensive behavioral health care within the primary care setting leads to improved care and reduced costs.[35] AHRQ defines behavioral health and primary care integration (also referred to as "behavioral health integration", "integrated care" and "collaborative care")[33] as:

"The care that results from a practice team of primary care and behavioral health clinicians, working together with patients and families, using a systematic and cost-effective approach to provide patient-centered care for a defined population."[33]

In addition to funding contracts and research grants focused on behavioral health and behavioral health integration, AHRQ hosts the [Academy for Integrating Behavioral Health and Primary Care](), and has developed several resources in this topic area. This section of the report includes a summary of AHRQ's primary care grants, initiatives, and resources with a main focus on behavioral health and behavioral health integration.



Grants with a focus on health equity are indicated with this icon

Grants

There were 9 AHRQ primary care grants actively funded during FYs 2021 and 2022 that focused mainly on behavioral health or behavioral health integration. This included four R01s (Research Projects), two R18s (Research Demonstration and Dissemination Projects), one R03 (Small Research Grant), one R21 (Exploratory/ Developmental Grant), and one K08 (Mentored Clinical Scientist Development Award). An additional nine grants included some focus on behavioral health content and are described in other sections of this report, including in Practice and Quality Improvement (6) and Person-Centered Care (3).

Below are tables, organized by subtopic, which include short summaries of the 9 studies focused mainly on behavioral health or behavioral health integration. The 3 subtopics include use of digital healthcare tools in behavioral health, substance use disorders, and behavioral health integration.

Behavioral Health Integration

Three studies focus on behavioral health integration.

Behavioral Health Integration in Community Health Centers and Hospital Emergency Department Utilization (R03)
PI: Kathleen Carey **Organization:** Boston University Medical Campus; School of Public Health Uses the existing variation in the level of behavioral health services provided in community health centers to examine if greater integration of behavioral health services in primary care settings leads to reductions in emergency department visits for behavioral health issues.
Implementation and Evaluation of an Evidence-Based Physical Activity Screening and Promotion Program in Six Primary Care Clinics (K08)
PI: Sarah Elizabeth Linke **Organization:** University of California, San Diego; School of Medicine; Family Medicine Looks at the barriers and facilitators of incorporating screening and counseling for insufficient physical activity into routine primary care visits with a referral to primary care behavioral health. This study builds on evidence that counseling to increase physical activity is more effective when delivered by behavioral health providers.

Impact of a Novel Community-Based Biobehavioral Chronic Pain Team Training Program (4PCP) on Practitioner and Patient Outcomes (R01)

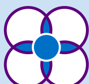
PI: Thomas C. Chelimsky

Organization: Virginia Commonwealth University; School of Medicine; Neurology

Looks at using a "biopsychosocial" approach to treating chronic pain rather than a "biopharmacologic" approach. This "biopsychosocial" approach treats chronic pain syndrome as a brain disorder, which has been reinforced though negative cognitive, emotional, and behavioral habits. In a previous pilot study, the researchers demonstrated that primary care practitioners were eager to implement this new approach, and those who did so had increased confidence with chronic pain management, reduced visit times, and improved patient pain. The primary care practices in this study will receive training from a paired psychologist and a physical therapist to build a clinical team. The study will examine if patient improvements can be sustained for 2 years and if increased practitioner confidence leads to a tapering of prescribed opioids.

Use of Digital Healthcare Tools in Behavioral Health

Three studies look at the use of digital healthcare tools in behavioral health, as described in the following table.

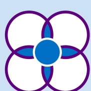


Using eHealth to Expand Access to Cognitive Behavioral Therapy for Insomnia in Hispanic Primary Care Patients (R01)

PI: Carmela Alcantara

Organization: Columbia University New York Morningside; Schools of Social Welfare/Work; Other Health Professions

Examines the effectiveness of an electronic health intervention to provide culturally adapted cognitive behavioral therapy to treat insomnia among Spanish-speaking Hispanic primary care patients with chronic insomnia.



TRANSFORM DEPCARE: A Theoretical Approach to Improving Patient Engagement and Shared Decision Making for Minorities in Collaborative Depression Care (R01)

PI: Nathalie Moise

Organization: Columbia University Health Sciences; School of Medicine; Internal Medicine

Examines if care manager technical assistance, provider education, and an automated shared decision-making process – with an interactive shared decision-making tool – improves clinician and patient participation in collaborative care to treat depression in primary care. Collaborative care in this study relies on care managers to provide antidepressant adherence counseling and/or psychotherapy.

Read Emerging Research Spotlight #6

Implementation of Digital Mental Health Tools in Ambulatory Care Coordination (R01)

PI: Emily Gardiner Lattie

Organization: Northwestern University at Chicago; Domestic Higher Education

Adapts a digital mental health platform and service model to improve access to, and coordination of, mental health services in ambulatory care.

Substance Use Disorders

Three studies in this topic area focused on substance use disorders. In addition to the grants described in the table below, there were six grants focused on managing unhealthy alcohol use that are part of an *EvidenceNOW* initiative and are described in the Practice and Quality Improvement section, along with the other *EvidenceNOW* grants.

Two of the studies about substance use disorders described below focus on opioid use disorder. In addition to these, there are another eight AHRQ primary care grants funded during the 2021 and 2022 period that look at opioids - many of which focused on chronic pain and medication safety. The full list of the 10 opioid related grants is included in Appendix C: Opioids.

Group Well Child Care Intervention for Infants of Mothers in Treatment for Opioid Use Disorder (R18)

PIs: Neera Goyal; Vanessa L. Short

Organization: Alfed I. Du Pont Hospital for Children; Independent Hospital

Looks at the use of comprehensive group well child visits for mothers with opiate use disorder and their children. The group visits examined in this study allow for increased time with the pediatrician, peer-to-peer learning, and an enhanced focus on behavior change and self-care.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.

ECHO-F Model to Expand Medication Assisted Treatment in Rural Primary Care (R18)

PI: Julie G. Salvador

Organization: University of New Mexico Health Sciences Center; School of Medicine; Psychiatry

Uses the Extensions for Community Healthcare Outcomes (ECHO©) model, with additional supports as needed, to train primary care providers in rural New Mexico to provide medication to treat opioid use disorders.

Read Research Profile #12

Real-time Assessment of Dialogue in Motivational Interviewing Training (ReadMI) (R21)

PI: Paul J Hershberger

Organization: Wright State University; Schools of Medicine, Family Medicine

Develops and tests Real-time Assessment of Dialogue in Motivational Interviewing (ReadMI), a tool to help train primary care clinicians to effectively use motivational interviewing for drug and alcohol misuse intervention. Motivational interviewing (MI) is a strategy clinicians can use to help patients identify and change unhealthy behaviors. ReadMI uses natural language processing to provide low-cost analysis of MI discussions and give immediate feedback to clinicians.

Initiatives and Resources

AHRQ developed several resources and materials related to behavioral health and substance use disorders in primary care that were ongoing or new in 2021 and 2022. These resources and materials are described below with links to additional information or to the specific material.

The Academy for Integrating Behavioral Health and Primary Care, which was created in 2010, is a national resource and coordinating center focused on the integration of behavioral health and primary care.[36] The Academy's website serves as a centralized portal for information and materials on behavioral health integration – including a focus on using evidence-based practices to manage unhealthy alcohol use and opioid use disorder.[37] The portal includes several materials developed in 2021 and 2022, as described below.

- Materials developed by the ***EvidenceNOW*: Managing Unhealthy Alcohol Use** initiative
  - Unhealthy Alcohol Use Tools & Resources is an online compendium of tools and resources for clinicians and clinical teams, health system leaders, and patients to support the implementation of evidence-based approaches to manage unhealthy alcohol use.
  - The Overview of Medications Used in the Treatment of Alcohol Use Disorder and Frequently Asked Questions includes information about medications approved by the Food and Drug Administration (FDA) for treatment of alcohol use disorder to assist primary care clinicians.

- Implementing Screening and Treatment of Unhealthy Alcohol Use During COVID-19 is a blog post from AHRQ's Senior Staff Fellow Sebastian Tong, MD MPH on the increased need for screening and treatment for unhealthy alcohol use in primary care during the COVID-19 pandemic.

- Materials developed by the **AHRQ Older Adult Opioid Initiative**
  - Identifying and Testing Strategies for Management of Opioid Use and Misuse in Older Adults in Primary Care Practices: Opioid and Pain Management Tools and Resources. This set of tools and resources can be used for the management of opioids in older adults in primary care practices and includes descriptions, empirical evidence, applicability to older adults and/or primary care practices, and links to resources.
  - Management of Opioid Use and Misuse in Older Adults: High-Leverage Changes for Improvement is an infographic providing an overview of change strategies to improve the management of chronic pain and opioid use and misuse among older adults in primary care.

Many other products are currently available on the Academy website, and new resources are developed and shared regularly.

Six Building Blocks: A Team-based Approach to Improving Opioid Management in Primary Care – How-To-Implement Toolkit

This implementation guidance provides a roadmap for healthcare organizations to improve care treatment for patients using long-term opioid therapy to treat chronic pain.[38] After reviewing How-To-Implement Toolkit: Overview to determine which approach fits best, organizations can select the Fast-Track or Full Program Approach. Each approach includes implementation guides, a self-assessment tool, and additional resources.

Health Equity

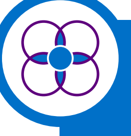
The Centers for Disease Control and Prevention (CDC) defines health equity as "the state in which everyone has a fair and just opportunity to attain their highest level of health."[39] Back in 2001, the Institute of Medicine (now the National Academy of Medicine) report Crossing the Quality Chasm: A New Health System of the 21st Century, called for making health care equitable in addition to being safe, effective, person-centered, timely, and efficient. Unfortunately, more than 20 years later, inequitable health outcomes persist across racial/ethnic and socioeconomic groups in the U.S.[40].

In 2021, the National Academy of Sciences, Engineering, and Medicine (NASEM) observed that "primary care is the only health care component where an increased supply is associated with better population health and more equitable outcomes."[27] Given this, efforts to increase access to primary care (through locating practices in the communities where patients live, expanded hours and telehealth options, and transformations in healthcare payment models) have the potential to improve health equity.[41] However, careful research, monitoring, and evaluation are needed to ensure that these efforts are effective and are not introducing new and unintended consequences.

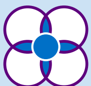
For twenty years, AHRQ has published the National Healthcare Quality and Disparities Report, which shows trends in health care disparities by race, ethnicity, and social determinants of heath.[42] AHRQ has also invested in a small number of primary care research grants focused on examining and addressing health inequities. This section of the report includes a summary of AHRQ's primary care grants and resources with a main focus on advancing health equity.

Grants

Seven AHRQ primary care grants actively funded during FYs 2021 and 2022 focused mainly on examining or addressing health inequities, including four R01s (Research Projects), two K01s (Research Career Programs), and one K08 (Clinical Investigator Award). Another 25 grants had at least some focus on health equity and are described elsewhere in this report, including in Healthcare Systems and Infrastructure (6), Practice and Quality Improvement (4), Digital Healthcare (3), Behavioral Health and Substance Use Disorders (3), Person-Centered Care (3), Primary Care Workforce (1), Public Health and Community Integration (1), and COVID-19 (1).



Grants with a focus on health equity can be found throughout the report, and are indicated with this icon

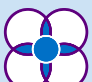


[Federally Qualified Health Centers and Care for Vulnerable Populations (R01)]

PI: Vicki Fung

Organization: Massachusetts General Hospital; Independent Hospital

Examines whether the Patient Protection and Affordable Care Act (ACA)-related funding increases for federally qualified health centers are associated with improvements in outpatient care; downstream clinical effects including emergency department visits, hospitalizations, and mortality; and total spending for Medicaid patients.



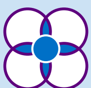
Examining The Impact of Healthcare Systems Changes on Healthcare Use and Health Outcomes for Children (R01)

PI: Sarah Beal

Organization: Cincinnati Children's Hospital Medical Center; Independent Hospital

Evaluates the impact of different delivery models on health outcomes for children in foster care and examines the factors that contribute to variations in healthcare use and health outcomes for these youth. The findings can be used to implement health delivery practice changes, often in primary care, to improve the health outcomes of these vulnerable youth.

Read Emerging Research Spotlight #7

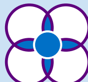


Reducing Use of Antibiotics Without a Prescription Among Outpatients in a Safety Net Healthcare System (R01)

PIs: Barbara Wells Trautner; Larisa Grigoryan

Organization: Baylor College of Medicine; School of Medicine; Internal Medicine

Examines how factors at the patient, healthcare system, and clinician encounter levels predict use of non-prescribed antibiotics by patients seen in safety net primary care clinics who are predominantly uninsured and often have low incomes. This work will result in the development of a communication tool designed to help clinics guide their patients toward safer antibiotic use.

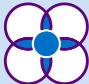


Leveraging Linked Data to Evaluate Social and Spatial Disparities in Contraception Access and Regional Program Impacts (K01)

PI: Jessica N Sanders

Organization: University of Utah

Uses a matched-control design to evaluate the impacts of a county-level contraceptive initiative on unintended pregnancies and birth outcomes at a population-level. The study will also use linked all-payer claims, electronic medical records, geospatial markers, demographic profiles, and birth certificates to identify regional disparities in family planning access and outcomes.

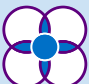


The Effect of Rurality and the COVID-19 Pandemic on Telemedicine and Preventive Healthcare Use (K01)

PI: Annie Elizabeth Larson

Organization: OCHIN, INC

Investigates the role of telemedicine in improving access to primary care for rural patients. The research team is looking at the frequency and type of preventive care visits, differences between urban and rural patients on uptake of telemedicine, and the effect of telemedicine on the quality and equity of care for chronic health conditions among rural and urban patients. Learn more about this study in a recent NCEPCR webinar: Using Large Datasets in Primary Care Research.

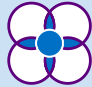


The Cost of Illness: The Impact of COVID-19 on Patient Financial Outcomes (K08)

PI: Nora V Becker

Organization: University of Michigan at Ann Arbor; School of Medicine; Internal Medicine

Examines "financial toxicity," or the financial consequences of illness. The grant first investigates which patient subgroups are at the highest risk of financial burden; then estimates the objective financial burden of a COVID-19 infection; and assess patients' subjective financial distress related to their illness. This study is focused on a topic integral to primary care.



Multi-State, Mixed-Methods Evaluation of the Uptake of New Direct Acting Antiviral Regimens for the Treatment of Hepatitis C Virus (R01)

PI: Karen M Clements

Organization: University of Massachusetts Medical School, Worcester

Uses claims analyses to examine uptake of newer and more effective direct-acting antiviral (DAA) treatment for hepatitis C virus among Medicaid populations across multiple states. The research team will also identify the patient, provider, and contextual factors that predict DAA treatment.

Initiatives and Resources

Since 2003, AHRQ has annually published the National Healthcare Quality and Disparities Report (NHQDR) to summarize the status of health and healthcare delivery in the US, identifying areas of strength, weaknesses, and disparities for access to and quality of healthcare. Quality is described in six categories in the report: patient safety, patient-centered care, care coordination, effective treatment, healthy living, and care affordability. The 2021 and 2022 NHQDRs are described in the tables below, along with some key findings.

2021 National Healthcare Quality and Disparities Report

The data reported in the 2021 NHQDR were collected in 2019 or earlier, prior to the start of the COVID-19 public health emergency. This report serves as a defining "snapshot" of where the US healthcare system stood prior to the start of the COVID-19 pandemic response.

Areas of improvement documented between the early 2000s and 2018 include:

- decreased death rates for HIV, heart disease, and colon cancer;
- more people under age 65 have health insurance coverage;
- decreased personal spending on health insurance and healthcare services for people under age 65 with public insurance;
- improvements in healthcare quality for Black, Hispanic, and American Indian and Alaska Native communities, although significant disparities still exist.

Areas of ongoing challenge include the following:

- Despite decreases in HIV death rates, including among Black people, the HIV death rate for Black people is still more than six times the rate for White people.
- Poor access to dental care and oral healthcare services are ongoing, particularly among people who have a low income or who live in rural areas.
- The opioid and mental health crisis have continued to worsen, including worsening suicide death rates between 2008 and 2018 and increased opioid-related emergency department visits between 2005 and 2018.

2022 National Healthcare Quality and Disparities Report

The data reported in the 2022 NHQDR were collected in 2020 and prior, and therefore include information on the first year of the COVID-19 public health emergency.

Some findings reported in the 2022 NHQDR include the following:

- While the percentage of people with health insurance coverage has increased overall, Hispanic groups, non-Hispanic American Indians, and Alaskan Natives are significantly less likely to have health insurance than other groups
- Life expectancy in the US decreased for the first time in 2020, because of the COVID-19 pandemic. This decline was worse for Hispanic and non-Hispanic Black groups than for non-Hispanic White groups, continuing to exacerbate health disparities between these groups. The leading cause of death in 2020 in the US was heart disease, cancer, COVID-19, and unintentional injuries. The most common unintentional injury was drug overdose, accidental falls, and motor vehicle accidents.
- While the number of workers in ambulatory healthcare settings significantly declined at the start of the COVID-19 public health emergency, employment in those settings has recovered. However, the number of healthcare workers continues to decrease in hospitals and nursing and residential care settings, particularly for the roles that require less educational attainment.

The 2022 NHQDR highlights four Special Emphasis topics that are priority issues for the Biden-Harris Administration, including maternal health, child and adolescent mental health, substance use disorders, and oral health.

Primary Care Workforce

Ensuring that everyone in the U.S. has access to high-quality primary care, as recommended by the National Academies of Sciences, Engineering and Medicine (NASEM)[27], requires a robust and stable primary care workforce. However, the U.S. currently faces a concerning shortage of primary care physicians, as well as an inequitable distribution of primary care clinicians (including physicians, nurse practitioners [NPs], and physician assistants [PAs]) across the country.[43]

The primary care physician workforce in the U.S. is shrinking,[44] with a projected shortage unable to meet patient demand by 2035.[45] The proportion of health care trainees who choose to focus on primary care has decreased in recent years, and primary care training disproportionally takes place in hospitals rather than in the community settings where primary care services mainly occur.[27, 44] In addition, there is wide variation in the proportion of primary care clinicians serving different areas across the U.S., resulting in growing gaps in access to care in medically underserved communities.[27]

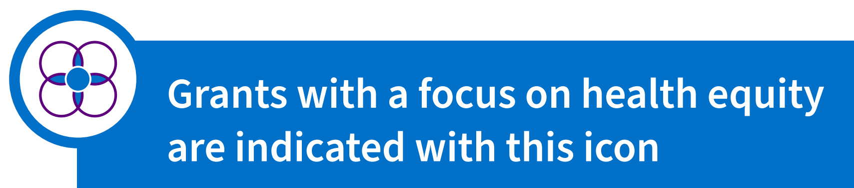
Unfortunately, the COVID-19 public health emergency exacerbated challenges with primary care workforce well-being, including increased workload, work-related stress, and emotional distress[46]. In 2022, more than half of family physicians reported symptoms of burnout.[47] In addition to the personal toll on physicians and their families, burnout has been found to lead to poorer quality of care, lower patient satisfaction, and decreased patient safety.[47-49] Low physician well-being, professional satisfaction and high burnout leads some clinicians to reduce their hours or leave practice altogether, further exacerbating workforce shortages.[47]

Research is needed to better understand how to effectively expand and diversify the primary care workforce, mitigate burnout, and to examine how to best support primary care teams in communities throughout the U.S. AHRQ has identified primary care workforce as a topic area of interest, although investments in 2021 and 2022 were limited to a small number of grants (including a conference), as described in this section. Studies that measure, track, and contribute to understanding the experience of the primary care workforce are necessary to ensure access to quality primary care.

Grants

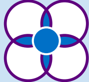
Four AHRQ primary care grants actively funded during FYs 2021 and 2022 were focused mainly on the primary care workforce. This included two R03s (Small Research Grants), one R13 (Support for Conferences and Scientific Meetings), and one K08 (Mentored Clinical Scientist Development Award). In addition to these four grants, one other grant included primary care workforce as a component, and is described in the Healthcare Systems and Infrastructure section.

Below are tables, organized by two subtopics, which include short summaries of the four studies focused mainly on the primary care workforce. Subtopics include expanding the primary care workforce with nurse practitioners and measuring individual and team factors affecting the primary care workforce.



Expanding the Primary Care Workforce with Nurse Practitioners

Two studies look at expanding the primary care workforce with a focus on nurse practitioners, as described in the following table.

Advancement of Research on Nurse Practitioners (ARNP): Setting a Research Agenda (R13)
PI: Lusine Poghosyan **Organization:** Columbia University Health Sciences; School of Nursing; Other Health Professions Organizes a research conference to advance research on NPs in primary care. The focus of the conference is on identifying barriers and facilitators affecting the NP workforce, strategies to overcome those challenges, and the development of a research agenda to produce evidence to support the expansion of NPs in primary care.
 The Role of Nurse Practitioners in Improving Access to Primary Care (R03)
PI: Hannah Toby Neprash **Organization:** University of Minnesota; School of Public Health; Public Health and Preventative Medicine Develops a national database of all-payer claims and electronic health record data to examine how much adding nurse practitioners to primary care teams increases access to care, particularly for patient populations that have traditionally faced barriers to access. Read Emerging Research Spotlight #8

Measuring Individual and Team Factors Affecting the Primary Care Workforce

Two studies focus on new measures of methods for measuring individual and team factors affecting the primary care workforce

Validation of the Primary Care Team Creativity Tool (PCTC) (R03)
PI: Yuna Swatlian Hiratsuka Lee **Organization:** Columbia University Health Sciences; School of Public Health; Public Health & Preventive Medicine Validates a newly developed survey tool focused on measuring primary care team creativity, measuring how well teams work together and generate novel and useful strategies to solve complex challenges in primary care.
Development and Validation of a Prediction Model to Address Physician Burnout (K08)
PI: Daniel Tawfik **Organization:** Stanford University; Domestic Higher Education Develops and validates a prediction model that uses existing operational data to identify primary care clinics at high-risk for clinician burnout. Read Research Profile #13

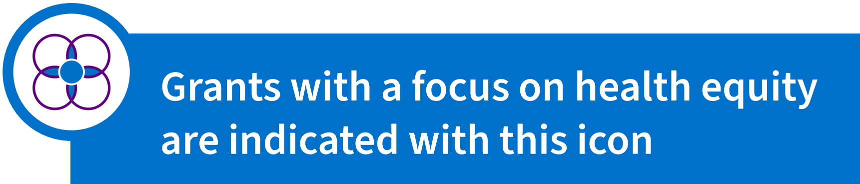
Initiatives and Resources

AHRQ did not have any new initiatives or resources related to primary care workforce during 2021 and 2022.

Public Health and Community Integration

The COVID-19 pandemic made clear the need to better connect primary care with public health to improve population health through coordination of efforts such as disease surveillance and contact-tracing. There is also growing awareness about the need for primary care practices to be closely integrated with a range of social service organizations within the community. Evidence shows that social determinants of health (SDOH) – the underlying social, economic, and environmental factors that impact health – drive as much as 80% of health outcomes.[50] SDOH include socioeconomic factors (e.g., education and income levels), neighborhood and built environment, social and family support, and community safety. Increasingly, primary care practices and healthcare systems are working to provide care that is responsive to SDOH, including integrating screening for social needs into clinical care services, and collocating or collaborating with community services.

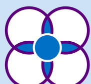
AHRQ prioritizes supporting clinical-community linkages to improve patients' access to care by connecting healthcare providers, public health agencies, and community organizations.[51] Through these connections, communities are better able to build strong partnerships to help fill gaps in services and promote healthy behaviors. While AHRQ has identified Public Health and Community Integration in primary care as a topic area of interest, their research investments in 2021 and 2022 with a main focus on this topic were limited to a small number of grants and resources described in this section.



Grants

Two AHRQ primary care grants actively funded during FYs 2021 and 2022 were mainly focused on public health and community integration, including one R36 (Dissertation Award) and one R18 (Research Demonstration and Dissemination Project). An additional seven grants had some focus on public health and community integration and are described elsewhere in this report depending on the main focus of the grant, including in Practice and Quality Improvement (2), Person-Centered Care (2), Healthcare Systems and Infrastructure (1), and Digital Healthcare (1).

Below is a table with summaries of the two primary care grants with a main focus on public health and community integration.



Patients' Decisions and Perspectives Regarding Healthcare-Based Social Risk Interventions (R36)

PI: Anna Steeves-Reece

Organization: Oregon Health & Science University; Overall Medicine

Assesses patient perspectives on a healthcare-based social risk intervention at healthcare sites, including primary care clinics, which links the EHR with a social risk screening tool to support the referral of Medicaid and Medicare patients to community resources to address their needs.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.

Using Social and Medical Data Integration to Improve Primary Care and Population Level Chronic Disease Prevention and Management (R18)

PIs: Danielle Marie Hessler-Jones; Caroline M Fitchenberg

Organization: University of California, San Francisco; School of Medicine; Family Medicine

Integrates a Community Information Exchange, a multi-organization data-sharing system designed to improve

care coordination, into the EHRs of three Federally Qualified Health Centers. The grant uses a human-centered design process to understand barriers and facilitators to effective implementation, identifies factors that influence the use and uptake of these EHR dashboards, and evaluates the impact on patient care and population health management.

Read Emerging Research Spotlight #9

Initiatives and Resources

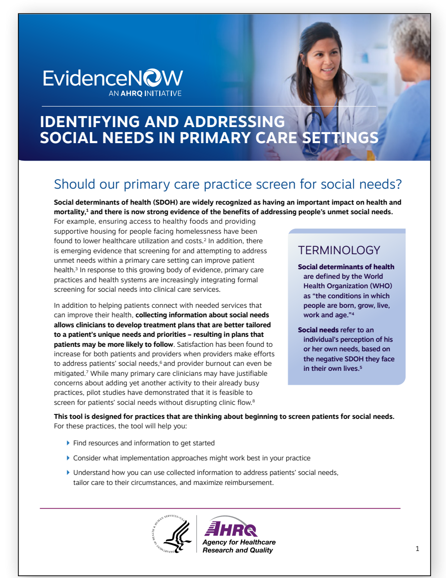
In addition to supporting clinical-community linkages, AHRQ works to help healthcare systems and clinicians build understanding of SDOH and the social needs of patients to improve healthcare. An ongoing AHRQ SDOH database and a resource on addressing social needs in primary care from 2021 are described below.

Social Determinants of Health Database

AHRQ's SDOH database helps to facilitate patient centered outcomes research by allowing researchers to find a range of well documented and readily linkable SDOH variables without needing to access multiple source files. The SDOH Database was updated in July 2022 and now includes data through 2020 at the county, ZIP code, and census tract levels. Variables in the files correspond to five key SDOH domains: social context (e.g., age and race), economic context (e.g., income), education, physical infrastructure (e.g., housing and transportation), and healthcare context (e.g., health insurance).

Identifying and Addressing Social Needs in Primary Care Settings

Collecting information about a patient's social needs can be used to help connect them to needed services available in the community, and also helps clinicians develop treatment plans that are tailored to the patient's unique needs and priorities. Social needs are what a patient perceives as what they need to address the negative SDOH they face. This tool is designed to help primary care practices start screening patients for social needs, and includes information about various screening tools and resources, different approaches for implementing social needs screening, and considerations for what practices can do with the social needs information they collect.



EvidenceNOW
AN AHRQ INITIATIVE

IDENTIFYING AND ADDRESSING SOCIAL NEEDS IN PRIMARY CARE SETTINGS

Should our primary care practice screen for social needs?

Social determinants of health (SDOH) are widely recognized as having an important impact on health and mortality,[1] and there is now strong evidence of the benefits of addressing people's unmet social needs. For example, ensuring access to healthy foods and providing supportive housing for people facing homelessness have been found to lower healthcare utilization and costs.[2] In addition, there is emerging evidence that screening for and attempting to address unmet needs within a primary care setting can improve patient health.[3] In response to this growing body of evidence, primary care practices and health systems are increasingly integrating formal screening for social needs into clinical care services.

In addition to helping patients connect with needed services that can improve their health, **collecting information about social needs allows clinicians to develop treatment plans that are better tailored to a patient's unique needs and priorities – resulting in plans that patients may be more likely to follow**. Satisfaction has been found to increase for both patients and providers when providers make efforts to address patients' social needs,[6] and provider burnout can even be mitigated.[7] While many primary care clinicians may have justifiable concerns about adding yet another activity to their already busy practices, pilot studies have demonstrated that it is feasible to screen for patients' social needs without disrupting clinic flow.[8]

TERMINOLOGY

Social determinants of health are defined by the World Health Organization (WHO) as "the conditions in which people are born, grow, live, work and age."[4]

Social needs refer to an individual's perception of his or her own needs, based on the negative SDOH they face in their own lives.[5]

This tool is designed for practices that are thinking about beginning to screen patients for social needs. For these practices, the tool will help you:

- Find resources and information to get started
- Consider what implementation approaches might work best in your practice
- Understand how you can use collected information to address patients' social needs, tailor care to their circumstances, and maximize reimbursement.

Agency for Healthcare Research and Quality

1

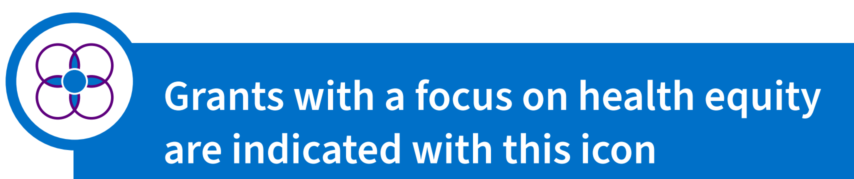
Additional Topic Areas

This section covers two additional topics that are of interest to AHRQ and are relevant for primary care researchers and clinicians: COVID-19 and Patient Safety. While most of the grants related to these topic areas are already included in the key topic areas covered in the previous section, the grants included in this section did not fit into any of the key topic areas.

COVID-19

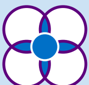
Both primary care practice and primary care research experienced unprecedented disruptions due to the COVID-19 public health emergency. During the height of the pandemic, many primary care practices understandably needed to put their full focus on providing care for patients, keeping their workforce safe, and surviving financially. This frequently meant that practice-based research was either delayed or severely curtailed during this time[52]. At the same time, however, the COVID-19 pandemic created new primary care relevant research questions and opportunities, including understanding the impacts of telehealth use on healthcare access, utilization, safety, and equity. New challenges have emerged for primary care and primary care research in the wake of COVID-19, including addressing the health impacts of social isolation, finding effective treatments for people living with long COVID, and dealing with increased shortages and burnout across the primary care workforce.

AHRQ supported the nation's response to COVID-19 through ongoing work in practice improvement, health systems research, and data and analytics.[53] AHRQ's specific response to COVID-19, included research grant awards, several blog posts by AHRQ leadership, and many relevant publications (found here).



Grants

A total of 11 AHRQ primary care grants funded in FYs 2021 and 2022 examine issues related to COVID-19. Four of these grants are COVID-19 Research Grant Awards, funded specifically to "explore essential questions about the delivery of healthcare" during the pandemic.[54] Among these four grants, described in the table below, two are new research projects [both R01s (Research Projects)], and two are supplemental funding to existing grants with a focus on COVID-19 [both R18s (Research Demonstration and Dissemination Projects)]. The additional seven primary care grants looking at issues related to COVID-19 are described in other topic area sections in this report [Practice and Quality Improvement (2), Health Equity (2), Healthcare Systems and Infrastructure (1), Digital Healthcare (1), and Person-Centered Care (1)]. A full table of the 11 COVID-19 related grants is included in Appendix C: COVID-19.



A Multi-Site Evaluation of Primary Care Accessibility and Utilization during COVID-19 (R01)

PIs: Raj M. Ratwani and Ethan A. Booker

Organization: Medstar Health Research Institute

Examines the impact of COVID-19 disruptions on access and utilization of primary care for patients in three healthcare systems. The study looks at which patients received care via which modalities (in-person, telehealth, or both); what subpopulations were disproportionately affected by disruptions in care; and the barriers and facilitators to telehealth across the three sites.

Quality, Safety, Value: Impact of Sudden Shift to Telehealth Due to COVID-19 Within Nurse-Led Care Models Located in Colorado Rural and Urban Communities (R01)

PI: Amy J. Barton

Organization: University of Colorado Denver; School of Nursing

Examines the impact of the sudden shift to telehealth for behavioral health, primary and prenatal care, and home visitation appointments, as a response to the COVID-19 pandemic, on innovative nurse-led care models used to provide care throughout Colorado. The research team considers utilization, both intended and unintended patient outcomes, as well as provider and patient experiences.

Read Research Profile #14

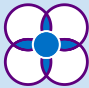
Integrating Patient-Reported Outcomes into Routine Primary Care: Monitoring Asthma Between Visits (R18)

PI: Robert Samuel Rudin

Organization: RAND Corporation

This supplemental project enhances a mobile health intervention for home monitoring of asthma symptoms between primary care visits by adding COVID-19 symptom screening and information. This supplemental project to an existing grant enhances a mobile health intervention for home monitoring of asthma symptoms with COVID-19 symptom screening and information. [Read about the parent study, with the same name as this supplemental grant, in the Digital Healthcare section of this report].

Read Emerging Research Spotlight #10



Partnership for Medication Safety in Primary Care and Telehealth during COVID-19 Public Health Crisis (R18)

PI: Yan Xiao

Organization: University of Texas Arlington

This supplemental grant evaluates the impact of changes in visit modalities due to COVID-19, such as the use of telehealth on access and safety. Based on the findings of this evaluation, the research team will develop practice guidelines to help primary care clinics provide safe and equitable care during disruptions brought on by the pandemic. [Read about the parent study PROMIS Learning Lab: Partnership in Resilience for Medication Safety in the Healthcare Systems and Infrastructure section of this report].

Initiatives and Resources

AHRQ funded the development of materials and resources to support primary care clinicians and researchers during COVID-19, and shared their lessons learned. As described below, this includes key take-aways from a primary care learning community, as well as learnings from the *EvidenceNOW: Managing Unhealthy Alcohol Use* initiative.

AHRQ's Primary Care COVID-19 Learning Community

AHRQ initiated a learning community in late 2020 to bring together the primary care community as it dealt with COVID-19, for the purpose of facilitating shared learning and peer support and surfacing promising responses. Participants included 250 professionals, including clinicians and other team members, researchers, policy makers, advocates, quality improvement professionals, and representatives from primary care-related organizations. The learning community came together through eight virtual meetings held across an 11-month period. In addition to expert presentations and panel discussions on select topics, each meeting included small or large group discussions for participants to share their experiences from the field.

Insights from the learning community, including lessons learned and primary care innovations in response to the pandemic, have been distilled in the summary publication Primary Care's Challenges and Responses in the Face of the COVID-19 Pandemic: Insights from AHRQ's Learning Community.

Conducting Primary Care Research During COVID-19

The *EvidenceNOW*: Managing Unhealthy Alcohol Use initiative (described in the Practice and Quality Improvement section of this report) was launched in 2019, shortly before COVID-19 disruptions upended the projects' research plans and timelines. The initiative leaders and grantees shared their challenges and lessons learned about conducting primary care research during this difficult time through publications, a webinar, and a blog.

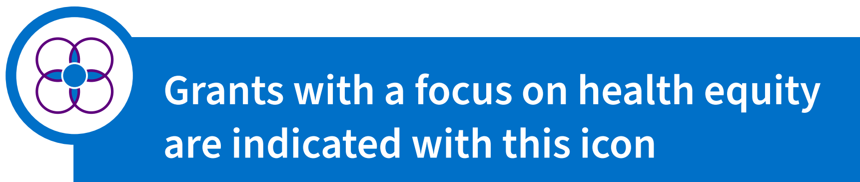
Insights from the learning community, including lessons learned and primary care innovations in response to the pandemic, have been distilled in the summary publication Primary Care's Challenges and Responses in the Face of the COVID-19 Pandemic: Insights from AHRQ's Learning Community.

- **Implementing Screening and Treatment of Unhealthy Alcohol Use During COVID-19** – this blog by Sebastian Tong, MD MPH – a family physician who had been serving as a Senior Staff Fellow at AHRQ, describes both the increased difficulty with conducting practice-based research during COVID-19, as well as the importance of screening for and treating unhealthy alcohol use during this time of increased stress and social isolation.
- **Primary Care Research During the COVID-19 Pandemic: Perspectives from AHRQ's Unhealthy Alcohol Use Grantees** – this webinar from March 2021, featuring two AHRQ grantees, discusses challenges and solutions during COVID-19 related to recruiting practices and maintaining their engagement, as well as data collection and human subjects' protections.
- **Primary Care Research Is Hard to Do During COVID-19: Challenges and Solutions** – this article outlines challenges faced across 15 research projects, and strategies to address these challenges. The authors recommended that researchers and funders embrace pragmatic and adaptive designs.
- **Barriers to Recruiting Primary Care Practices for Implementation Research During COVID-19: A Qualitative Study of Practice Coaches from the Stop Unhealthy (STUN) Alcohol Use Now Trial** – this article examines the barriers and facilitators for practice-based research during the COVID-19 pandemic through interviews with practice facilitators.

Patient Safety

Patient safety aims to prevent and reduce the potential risks, errors, and harms to patients that can occur during the provision of health care.[55] Threats to patient safety in primary care settings include diagnostic errors or delays; medication errors, including inappropriate or overprescribing; breakdowns in communication between clinicians and patients and families, or within clinical teams; and fragmentation of care.[56] In addition, many primary care patients continue to receive referrals for low-value screenings and tests that have been shown to have high rates of false-positive results.[57] This can set off a cascade of patient harms including anxiety, financial burden, and unnecessary treatments which can have their own physical harms. However, primary care also plays an important role in reducing common patient harms, such as preventing avoidable hospital admissions and readmissions.[58] As described in AHRQ's Guide to Improving Patient Safety in Primary Care Settings by Engaging Patients and Families, the strong and trusting relationships forged in primary care through patient and family engagement are essential for ensuring that care is safe and effective.[59].

AHRQ has funded many primary care grants related to patient safety as well as several patient safety resources for the primary care or ambulatory care setting, as described below.



Grants

A total of 30 AHRQ primary care grants funded in FYs 2021 and 2022 look at issues of patient safety, including reducing diagnostic errors, improving medication management, and antibiotic stewardship. All but three of these grants also had another topic focus and are described in other sections of this report [Practice and Quality Improvement (12), Digital Healthcare (9), Person-Centered Care (3), Behavioral Health and Substance Use Disorders (1), and Health Equity (1), and Primary Care Workforce (1)]. The three patient safety grants not already described in the key topic area sections are described in the table below, including two R18s (Research Demonstration and Dissemination Projects) and one R01 (Research Project). A full table of the 30 primary care grants with a focus on patient safety is included in Appendix C: Patient Safety.

Enhancing Antibiotic Stewardship in Primary Care (R01)

PI: Mark Herbert Ebell

Organization: University of Georgia; Public Health and Preventive Medicine

This observational study collects and examines data on the clinical presentation, evaluation, management, and outcomes for 1400 patients with lower respiratory tract infections. The research team will use the findings to develop tools primary care clinicians can use to effectively identify patients who are likely to have an uncomplicated treatment course. The goal is to help reduce inappropriate antibiotic prescriptions and the related costs and harms of inappropriate antibiotic use.

Watchful Waiting as a Strategy for Reducing Low-value Spinal Imaging (R18)

PI: Joshua J Fenton

Organization: University of California at Davis; Internal Medicine

Refines and evaluates a simulated intervention, which uses actors playing patients, to teach primary care physicians to build skills recommending watchful waiting to patients who request low-value and potentially harmful imaging for low back pain. This study has the potential to develop useful communication strategies that primary care physicians can use to steer patients aways from potentially harmful testing while maintaining the patient-doctor relationship.

Leveraging Evidence-based Practices for Ambulatory VTE Patients to be Safe with Direct Oral Anticoagulants: LEAVE Safe with DOACs (R18)

PI: Alok Kapoor

Organization: University of Massachusetts, Medical School Worcester; Internal Medicine

A multidisciplinary nonprofit organization recently published the direct oral anticoagulants (DOAC) Checklist for Optimal Care Transitions to elaborate the steps required to ensure a safe transition of care in ambulatory venous thromboembolism (VTE) patients. This project operationalizes the items of the Checklist to create a comprehensive care transition intervention that can be delivered by clinical pharmacists and a pharmacy technician. The care transition intervention will have the potential to prevent DOAC-related medication errors, improve the quality of care during care transitions, and increase patient knowledge and medication adherence

Initiatives and Resources

The Center for Quality Improvement and Patient Safety (CQuIPS) is the organizational center within AHRQ that works to improve the quality and safety of health care, and includes several AHRQ programs.[60] While the focus of AHRQ's patient safety programs and initiatives are broader than primary care, there are several recent resources that are primary care specific, which are described below. Additional AHRQ patient safety initiatives and resources can be found on AHRQ's website, including the Making Healthcare Safer III report, as well as several resources that are tailored specifically for the ambulatory care setting.

Healthcare-Associated Infections (HAI) Program

AHRQ's HAI program funds research and implementation projects that advance the science of HAI prevention, develop more effective approaches for reducing HAIs, and help frontline clinicians better understand how to apply proven methods to make care safer.[61]

- A recent primary care relevant resource from the HAI program is the Toolkit to Improve Antibiotic Use in Ambulatory Care. The Toolkit explains the Four Moments of Antibiotic Decision Making and how they can be applied in practice, with a focus on improving antibiotic stewardship, strategies for communicating with patients and families about antibiotic prescribing and follow-up, and best practices for diagnosing and managing infectious syndromes as well as allergies to antibiotics.[63],[64]

Patient Safety Network (PSNet)

AHRQ's PSNet is a searchable database of resources related to patient safety across healthcare settings. PSNet content includes publications, perspectives, innovations, toolkits, primers, trainings, and events – and can be searched using keywords and filters to narrow your results. A few examples of primary care relevant content from 2021 and 2022 on PSNET include:

- Primary Care and Patient Safety: Opportunities at the Interface: a Perspective from September 2022
- Patient Safety in the Ambulatory Care Setting; An Annual Perspective from August 2022
- Telehealth and Patient Safety: A Primer from December 2022

Patient Safety Organization (PSO) Program

AHRQ's PSO program oversees the listing process for PSOs, development and maintenance of the AHRQ Common Formats and the network of patient safety databases, and provides technical assistance to PSOs, providers and the public.[62]

- Common Formats for Event Reporting - Diagnostic Safety Version 1.0 – these standardized definitions and formats are designed to make it possible collect and compare patient safety information to improve learning about patient safety. While The Common Formats were developed for use by healthcare providers working with PSOs, they are available in the public domain to encourage their widespread adoption.[65, 66]

Calibrate DX: A Resource to Improve Diagnostic Decisions

This guide walks clinicians through steps and exercises to help them evaluate and improve their diagnostic performance. This guide is meant for all clinicians whose practice includes diagnosis, including primary care clinicians.

The Five Principles of Effective Primary Care-Base Care Coordination for Reducing Potentially Preventable Readmissions

These principles were developed based on a technical expert panel, an environmental scan, and key informant interviews (described here).

These principles were developed based on overarching concepts primary care practices can incorporate into their strategic management to help reduce hospital readmissions. The ways these are applied vary based on practices' patient population and resources, as well as other relevant local factors.

« 5. Appendix A: Approach and Methods

To understand and describe the scope of recent investments in primary care research, our team first developed a comprehensive list of AHRQ's primary care related grants and contracts with active funding during the Federal fiscal years 2021 and 2022 (October 2020 through September 2022).

We generated a list of 181 unique results from searches of AHRQ grants in the National Institutes of Health (NIH) RePORTER website with the term "primary care" included in the title and/or abstract. Conducting an additional search of AHRQ's grant database (using the same fiscal years and search term), our team identified two additional AHRQ grants with a primary care focus, which were added to the list. AHRQ also shared a list of 29 contracts they identified as potentially related to primary care and were funded during the same time period.

Expanding on a previously developed AHRQ definition,[1] in this report we define "primary care research" as that which meets at least one of the following criteria:

- **is conducted in a primary care setting;**
- **is about primary care patients, clinicians, or teams;**
- **is focused on a topic integral to the primary care setting; or**
- **has clear implications for the delivery of primary care.**

Using this definition of primary care research, the Abt team reviewed each grant and contract in this list to identify any that should be excluded (e.g., grants focused on surgical care without clear implications for a primary care setting). The AHRQ team reviewed Abt's recommended exclusions and by consensus, made the final determination about which grants and contracts should be removed. The final list included a total of 128 grants and 12 contracts.

Once we had a comprehensive list of AHRQ's primary care grants (including cooperative agreements) and contracts, the Abt team developed a database with information about each grant to allow for the analysis included in the Overview of AHRQ's Recent Investments in Primary Care Research section of this report.

For each grant, the Abt team coded the top three **key topic areas** using areas of focus and interest that AHRQ had identified for their draft primary care research agenda (see call out box). To do this, the Abt

team reviewed the description of each grant on the NIH RePORTER, and selected the key topic area that best matched the main focus of the grant. As relevant, we then added the second and third most relevant key topic areas (each unique grant was assigned either one, two, or three key topic areas depending on the foci of the grant). Inconsistencies among team members about which key topic areas should be assigned were resolved through discussion and consensus. The Abt team also added secondary codes for each grant to capture additional themes. These additional themes included areas of interest to AHRQ which were identified a priori, such as multiple chronic conditions, telehealth, and women's health/reproductive health, as well as themes identified through our review of the grants, including COVID-19, patient safety, opioids, and clinical decision support. We did not conduct a similar analysis of contracts due to the small number included in this report, limited available information, and the wide range of topics and purposes.

The short summaries of grants shared in the tables throughout this report were developed based on the descriptions provided in the NIH RePORTER. The Abt team reviewed AHRQ's website to identify the primary care relevant initiatives and resources developed in 2021 and 2022, and this search was augmented by information provided by AHRQ.

To select the grants to be highlighted in this report via Research Profiles and Emerging Research Spotlights, Senior Advisors to this report (Yalda Jabbarpour, MD; Medical Director of the Robert Graham Center for Policy Studies and Kevin Grumbach, MD; Professor of Family and Community Medicine at the University of California, San Francisco) reviewed the list of grants to identify which studies were most likely to have an impact on, or be of greatest interest to, the primary care field. The Abt team drafted these summaries based on information provided in the NIH RePORTER and grant publications. Our team shared each grant summary with the Principal Investigator (PI) to verify key information, validate our understanding of the study's approach and findings, and glean additional insights and lessons learned beyond those available in the published literature.

Key Topic Areas:

- **Practice and Quality improvement**
- **Healthcare Systems and Infrastructure (including payment)**
- **Digital Healthcare**
- **Person-Centered Care**
- **Behavioral Health and Substance Use Disorders**
- **Health Equity**
- **Primary Care Workforce**
- **Public Health and Community integration**

« 6. Appendix B: Other AHRQ Programs Relevant for Primary Care Research Audiences

The initiatives and resources described below are not primary care specific but are relevant for primary care audiences including researchers and clinicians.[c]

The Effective Health Care Program and Evidence-Based Practice Centers

The Effective Health Care (EHC) Program was started in 2003 to conduct patient-centered outcomes research and disseminate the findings widely.[67] AHRQ created the Evidence-Based Practice Centers (EPCs) to produce evidence reports for the EHC Program. The EPCs, which are located at universities, medical centers, and research institutions throughout the U.S., produce evidence reports to help patients and clinicians make informed healthcare decisions.[68]

Since it started, the EPC program has developed over 800 reports, covering a wide range of topics, including treatments for heart disease, cancer, and mental health conditions.[69] People can use a Products Search feature on the EHC Program website to search for materials on a wide range of topics (including research reports, systematic reviews, technical briefs, white papers, and more). A few primary care relevant materials from the 2021-2022 period include the following:

- AHRQ Evidence-Based Practice Center Program Research Gaps Summary: Primary Care (March 2022)
- Improving Rural Health Through Telehealth-Guided Provider-to-Provider Communication (Systematic Review; December 2022)
- Potential Harms Resulting from Patient-Clinician Real-Time Clinical Encounters using Video-based Telehealth: A Rapid Evidence Review (Research Protocol; December 2022)

[c] The programs described in this section were not included in the primary care research investment amounts in Section 2 Overview of AHRQ's Recent Investments in Primary Care Research.

U.S. Preventive Services
TASK FORCE

Under authorization from the U.S. Congress, AHRQ has convened and supported the U.S. Preventive Services Task Force (Task Force) since 1998. The Task Force is an independent, volunteer panel of national experts in prevention and evidence-based medicine that makes recommendations for primary care professionals about clinical preventive services.

The Task Force recommendations are for preventive services offered in primary care settings for patients without signs or symptoms of the condition of focus, including screenings (e.g., breast cancer screening), counseling services (e.g., tobacco cessation), and preventive medications (e.g., statins to prevent cardiovascular disease)). The Task Force reviews the best available evidence, and then assesses the strength of the evidence and considers the balance of benefits and harms to make their recommendations.[(70),(71)] The full list of recommendations can be found on the Task Force website.

In collaboration with The Association for Prevention Teaching and Research (APTR), AHRQ also offers health policy residency rotations in preventive medicine for preventive medicine and primary care residents. In this rotation residents get the chance to work closely with the Task Force members and AHRQ staff. This includes participation in scoping reviews for preventive services topics, conducting research on the epidemiology and burden of relevant preventable conditions, helping with the final drafting of recommendations, and attending Task Force meeting and calls.[(72)]

Patient-Centered Outcomes Research Clinical Decision Support

One way to put patient-centered outcomes research (PCOR) evidence into practice is through clinical decision support (CDS). AHRQ supports the development of CDS tools that are patient-centered, standards-based, publicly available, and shareable.[73] Some currently available AHRQ CDS tools and resources are described below.

The **Clinical Decision Support Innovation Collaborative (CDSiC)** produces resources and evidence to make clinical decision support more valuable and meaningful by bringing together the perspectives across a range of interested parties including patients and caregivers, clinicians, researchers, clinical decision support developers, informaticians, payers, and policymakers.[74] The CDSic has the following specific aims:

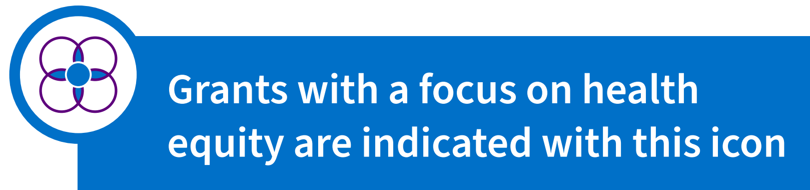
- Identify PCOR-based evidence that can be implemented using CDS
- Test and evaluate patient-centered CDS in real-world applications
- Disseminate findings and work to advance the field of patient-centered CDS

CDS Connect is a web-based platform that helps people who work in clinical decision support to identify evidence-based care, translate and codify information into an interoperable health information technology standard, and leverage tools to promote a collaborative model of CDS development.[75] CDS Connect includes a repository of CDS "artifacts" – meaning actionable medical knowledge (e.g., clinical practice guidelines and clinical quality measures) that have been translated into computable and interoperable decision support. These artifacts, which have been submitted by an array of organizations, are available in various forms and on a range of clinical topics.

The CEPI Evidence Discovery and Retrieval Project (CEDAR) is a standards-based application programming interface (API) that is designed to help users search, access, and use PCOR evidence across multiple repositories and programs within AHRQ's Center for Evidence and Practice Improvement (CEPI).

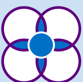
« 7. Appendix C: Additional Tables by Topic Area

In this section we include tables with grants complied from throughout the various sections of the report on Patient Safety, Telehealth, COVID-19, Clinical Decision Support, Women's Health / Reproductive Health, Opioids, and Multiple Chronic Conditions.



Patient Safety

The Table below includes all 30 AHRQ primary care grants from FYs 2021 and 2022 with a focus on patient safety. These grants are included in topic sections throughout the report, depending on the main focus of each grant, including Practice and Quality Improvement (12), Digital Healthcare (9), Person-Centered Care (3), Behavioral Health and Substance Use Disorders (1), and Health Equity (1), and Primary Care Workforce (1). In addition, this table includes the 3 grants included in the Patient Safety section.

 **Safety II Together: Coupling Teaming Science with Patient Engagement and Health Information Transparency to Coproduce Diagnostic Excellence (R18)**

PI: Sigall Bell

Organization: University of Texas Health Science Center Houston; Internal Medicine

Develops a Diagnostic Center of Excellence that uses teaming science and patient engagement to bring patients and healthcare providers together to reduce diagnostic errors and improve safety in ambulatory care.

Re-engineering Patient and Family Communication to Improve Diagnostic Safety Resilience (R18)

PIs: Kathleen Elizabeth Walsh; Christopher Paul Landrigan

Organization: Boston Children's Hospital

Develops a Diagnostic Center of Excellence focused on improving clinician-patient/family communication in pediatric outpatient settings.

Implementing Personalized Cross-Sector Transitional Care Management to Promote Care Continuity, Reduce Low Value Utilization, and Reduce the Burden of Treatment for High-Need, High-Cost Patients (R01)

PI: Sharon Hewner

Organization: State University of New York at Buffalo; School of Nursing

Tests a personalized, cross-sector, transitional care management model to improve care coordination across primary care and behavioral health settings using a health information exchange infrastructure.

Integrating Pharmacists into an Automated Discharge Process to Promote Comprehensive Medication Management (R18)

PI: Joel F. Farley

Organization: University of Minnesota

Examines pharmacist-provided comprehensive medication management to coordinate care for high-need/high-cost patients when they transition between the hospital and primary care settings. In this program, a health information exchange's automated electronic alert system notifies primary care sites when patients need pharmacist-provided comprehensive medication management after a hospital visit.

Closed Loop Diagnostics: AHRQ R18 Patient Safety Learning Laboratories (R18)

PIs: Russell Scott Phillips; James C Benneyan; Gordon David Schiff

Organization: Harvard Medical School

Uses systems engineering methods to reduce diagnostic errors by creating "closed loop systems" or systems that ensure diagnostics tests and referrals are completed, results are conveyed to patients and primary care providers, and patients inform primary care providers about changes in symptoms that could alter a diagnosis. This study designs, develops, tests, and refines this "closed loop system" for diagnostic tests and referrals.

PROMIS Learning Lab: Partnership in Resilience for Medication Safety (R18)

PI: Yan Xiao

Organization: University of Texas Arlington; School of Nursing

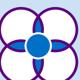
Creates the Partnership in Resilience for Medication Safety Learning Lab (PROMIS Lab) which promotes patient safety in primary care. The PROMIS Lab is intended to develop and test strategies to reduce medication-related harms in older adults.

Comprehensive Pediatric Hypertension Diagnosis and Management (R01)

PI: Michael L Rinke

Organization: Albert Einstein College of Medicine

Engages primary care pediatric practices to test different models of subspecialist involvement in pediatric hypertension diagnosis and management.



DECODE: Diagnostic Excellence Center on Diagnostic Error (R18)

PIs: Ramin Khorasani; Ronilda Lacson

Organization: Brigham and Women's Hospital; Independent Hospital

Develops a Diagnostic Center of Excellence to reduce failures in timely performance of clinically necessary diagnostic imaging exams and interpretation errors. The team will implement information technology-enabled functions and workflows to enhance a clinical dashboard with improved EHR-integration and monitoring and learning capabilities to help reduce diagnostic errors and health disparities. In addition, they will provide opportunities for peer learning to reduce interpretive errors, and convene a team of clinicians to develop consensus recommendations for the management of lung, prostate, pancreatic and adrenal cancers and embed the recommendations into the EHR.

Diagnostic Safety Center for Advancing E-triggers and Rapid Feedback Implementation (DISCOVERI) (R18)

PI: Hardeep Singh

Organization: Baylor College of Medicine; School of Medicine; Internal Medicine

Develops a center that supports the implementation of surveillance and feedback systems to improve diagnostic safety in healthcare organizations. The center will work to accelerate the uptake of electronic trigger (e-trigger) tools, which mine large sets of clinical and administrative data to identify signals for likely adverse events. E-trigger algorithms can efficiently identify patterns of care indicating missed or delayed diagnoses in primary care as well as other settings.

Averting Diagnostic Error Through Improved Recognition of Child Abuse (K08)

PI: Irit R. Rasooly

Organization: Children's Hospital of Philadelphia; Independent Hospital

Uses EHR data- and systems-analysis to develop CDS strategies that can identify and help diagnose child abuse in primary care settings. The research team is using EHR data to detect and validate markers of physical abuse to help identify children experiencing abuse; using EHR simulations to identify abuse-related diagnostic errors; and working to develop feasible, acceptable, and appropriate CDS strategies for improved child abuse detection and diagnosis.

Clinical Decision Support for Disseminating and Implementing Patient-Centered Outcomes Research (R18)

PI: Ronilda Lacson

Organization: Brigham and Women's Hospital; Independent Hospital

Aims to develop and validate CDS-consumable knowledge artifacts based on clinical evidence for imaging that can be widely adopted. In previous work, a multi-disciplinary team of clinicians and medical informaticists developed and graded artifacts to represent clinical evidence and made them publicly available. This study will assess the technical capability of standardized EHR syntax and formats (e.g., FHIR, CQL, and SNOMED CT) to use the knowledge artifacts for imaging CDS. Specifically, the team will look at CDS for using MRI to diagnose a second incidence of breast cancer, using CT scan for pulmonary embolism, and for physician education about the risk for pulmonary embolism. Results will help inform clinical decision making for diagnostic imaging in primary care.

Improving Medication Safety for Medically Complex Children with mHealth Across Caregiving Networks (R18)

PIs: Ryan J Coller; Nicole E Werner

Organization: University of Wisconsin—Madison; School of Medicine; Pediatrics

Develops an app (MedS@HOME) to improve medication safety for children with medical complexity. The app supports standardized medication management across the caregiving network to increase administration accuracy and reduce medication-related adverse events.

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

A Turn-Key EHR Simulation Program to Reduce Diagnostic Error in Ambulatory Care (R18)

PIs: Jeffery A Gold; Raj M Ratwani

Organization: Oregon Health & Science University; Domestic Higher Education

Develops a library of validated EHR-based simulations to improve diagnostic safety in ambulatory care. The research team is using a combination of administrative and claims data to identify diagnoses at risk for diagnostic error in ambulatory care settings and the EHR use errors associated with those errors. The researchers will use this data to develop simulations for five ambulatory care settings, including primary care, and validate the use of the simulation activities as a training tool to change EHR use patterns and reduce diagnostic errors.

Read Emerging Research Spotlight #2

Adaptation and Pilot Implementation of a Validated, Electronic Real Time Clinical Decision Support Tool for Care of Pneumonia Patients in 12 Utah Urgent Care Centers (R18)

PI: Nathan C. Dean

Organization: IHC Health Services Inc.; Non-Profit

Adapts an existing CDS tool containing guidelines for pneumonia ("ePNa") to urgent care centers. The research team is identifying barriers and facilitators to implementation and uptake of the ePNA tool, and testing it within urgent care centers by examining outcomes related to patient safety, antibiotic prescribing, and diagnoses without chest imaging. While this project is not primary care focused, it has implications for the coordination of care and follow-up care for patients with pneumonia by their primary care team.

Understanding CancelRx: Impact on Clinical Workflows, Medication Safety Risks, and Patient Outcomes (R21)

PI: Samantha Pitts

Organization: Johns Hopkins University; School of Medicine; Genetics

Conducts formative research on the development and optimization of CancelRx, an EHR functionality that sends electronic prescription cancellations from the EHR to pharmacies, to help reduce adverse drug events in ambulatory care settings

Patient Choice of Telemedicine Encounters (R01)

PI: Mary Reed

Organization: Kaiser Foundation Research Institute; Research Institute

Examines the broad-scale implementation of telemedicine for primary care encounters within a healthcare system prior to the COVID-19 pandemic to understand how telemedicine compares in quality, care processes, and patient outcomes to in-person care; and to understand which patient characteristics are most closely associated with telemedicine utilization.

Read Research Profile #8

Implementing Telemedicine to Improve Appropriate Antibiotic Prescribing for Acute Respiratory Tract Infections (R01)

PIs: Tamar Barlam; Mari-Lynn Drainoni

Organization: Boston Medical Center

Examines if telehealth visits can be used to improve the management of acute respiratory tract infections, including reducing inappropriate prescribing of antibiotics in ambulatory settings.

ExPERTS-PC: Engaging Patients in Event ReporTing for Safety in Primary Care (K08)

PI: Anjana Estelle Sharma

Organization: University of California, San Francisco; School of Medicine, Family Medicine

Develops a tool for patients to report adverse drug events (ADEs) to their ambulatory care teams. The research team will use natural language processing to identify the patient, caregiver, and healthcare team related causes of ADEs from the reports of a multistate Patient Safety Organization. Using the information about identified causes, the team will develop a prototype of a patient-initiated ADE reporting system using text messaging, and will conduct feasibility testing with patients, family members, and primary care clinic staff.

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

Enhanced Kidney Follow-Up for AKI Survivors in Care Transitions (the ACT Study) (R03)

PI: Erin Frazee Barreto

Organization: Mayo Clinic Rochester

This pilot feasibility trial evaluates a program that supports patients discharged from the hospital to home after an episode of acute kidney injury. The findings from this study can assist primary care clinicians with providing high-quality, well-coordinated, and patient-centered care for survivors of AKI.

Read Research Profile #1

Reframing Optimal Management of Pain and Opioids in Older Adults (R18)

PIs: Daniel William Berland; Christine Elizabeth Stanik

Organization: University of Michigan at Ann Arbor; School of Medicine, Internal Medicine

Implements practice improvements for safely prescribing opioids or alternative medications for pain management in older adults in primary care. The project takes a multi-faceted approach, including educating and supporting prescribers, academic detailing, and use of electronic health record technology.

Medical Reversals: De-Implementing Ineffective and Unsafe Treatments (R01)

PI: Pinar Karaca-Mandic

Organization: University of Minnesota; School of Public Health, Public Health & Preventive Medicine

Looks at the de-implementation of treatments that have been found to be ineffective or unsafe. The research team examines the differences in de-implementation across different physicians and health care delivery organizations, taking into account varying characteristics and market environments. While this project is not focused exclusively on primary care, the findings can be used to understand barriers and facilitators to de-implementing the use of ineffective and unsafe treatments and screenings in a primary care setting.

Implementation of Digital Mental Health Tools in Ambulatory Care Coordination (R01)

PI: Emily Gardiner Lattie

Organization: Northwestern University at Chicago; Domestic Higher Education

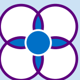
Adapts a digital mental health platform and service model to improve access to, and coordination of, mental health services in ambulatory care.

Patient Perspectives on Prescription Opioid Discontinuation: Understanding and Promoting Safe Transitions (R01)

PI: Clarissa Wen-Ling Hsu

Organization: Kaiser Foundation Research Institute

Investigates the experiences of patients and providers who have discontinued opioids for long term opioid therapy (LTOT). It develops a patient decision aid to support patients when discontinuing LTOT and pilot tests the decision aid with patients.



Helping gEnerations Identify Risks (Heirs) to Health (R01)

PI: Heather Angier

Organization: Oregon Health & Science University; School of Medicine, Family Medicine

Identifies which parental factors (such their own health care receipt and burden of disease) are most strongly associated with children receiving recommended preventive health care (including annual well-child visits and routine childhood vaccinations). The research team also explores how social determinants of health influence healthcare utilization for the whole family.

Read Research Profile #11

Prioritizing Quality Improvement for the Treatment of Psychiatric Disturbances Following Traumatic Brain Injury (K01)

PI: Jennifer S. Albrecht

Organization: University of Maryland Baltimore; School of Medicine, Public Health & Preventive Medicine

Assesses treatment options for patients with traumatic brain injury (TBI) who are experiencing psychiatric disturbances such as depression, anxiety, and post-traumatic stress disorder. The grant examines barriers and facilitators to treatments across patient groups, quantifies disparities in treatment patterns associated with psychiatric disturbances following TBI, and develops a priority list of patient-selected strategies to overcome barriers to the receipt of treatment for psychiatric disturbances following TBI. While this project is not primary care focused, it has implications for the care of patients with TBI in a primary care setting.

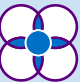
Development and Validation of a Prediction Model to Address Physician Burnout (K08)

PI: Daniel Tawfik

Organization: Stanford University; Domestic Higher Education

Develops and validates a prediction model that uses existing operational data to identify primary care clinics at high-risk for clinician burnout.

Read Research Profile #13



Reducing Use of Antibiotics Without a Prescription Among Outpatients in a Safety Net Healthcare System (R01)

PIs: Barbara Wells Trautner; Larisa Grigoryan

Organization: Baylor College of Medicine; School of Medicine; Internal Medicine

Examines how factors at the patient, healthcare system, and clinician encounter levels predict use of non-prescribed antibiotics by patients seen in safety net primary care clinics who are predominantly uninsured and often have low incomes. This work will result in the development of a communication tool designed to help clinics guide their patients toward safer antibiotic use.

Leveraging Evidence-based Practices for Ambulatory VTE Patients to be Safe with Direct Oral Anticoagulants: LEAVE Safe with DOACs (R18)

PI: Alok Kapoor

Organization: University of Massachusetts, Medical School Worcester; Internal Medicine

A multidisciplinary nonprofit organization recently published the direct oral anticoagulants (DOAC) Checklist for Optimal Care Transitions to elaborate the steps required to ensure a safe transition of care in ambulatory venous thromboembolism (VTE) patients. This project operationalizes the items of the Checklist to create a comprehensive care transition intervention that can be delivered by clinical pharmacists and a pharmacy technician. The care transition intervention will have the potential to prevent DOAC-related medication errors, improve the quality of care during care transitions, and increase patient knowledge and medication adherence.

Watchful Waiting as a Strategy for Reducing Low-value Spinal Imaging (R18)

PI: Joshua J Fenton

Organization: University of California at Davis; Internal Medicine

Refines and evaluates a simulated intervention, which uses actors playing patients, to teach primary care physicians to build skills recommending watchful waiting to patients who request low-value and potentially harmful imaging for low back pain. This study has the potential to develop useful communication strategies that primary care physicians can use to steer patients aways from potentially harmful testing while maintaining the patient-doctor relationship.

Enhancing Antibiotic Stewardship in Primary Care (R01)

PI: Mark Herbert Ebell

Organization: University of Georgia; Public Health and Preventive Medicine

This observational study collects and examines data on the clinical presentation, evaluation, management, and outcomes for 1400 patients with lower respiratory tract infections. The research team will use the findings to develop tools primary care clinicians can use to effectively identify patients who are likely to have an uncomplicated treatment course. The goal is to help reduce inappropriate antibiotic prescriptions and the related costs and harms of inappropriate antibiotic use.

Telehealth

The Table below includes all 13 AHRQ primary care grants from FYs 2021 and 2022 with a focus on telehealth. These grants are included in topic sections throughout the report, depending on the main focus of each grant, including Practice and Quality Improvement (4), COVID-19 (3), Digital Healthcare (2), Healthcare Systems and Infrastructure (1), Person-Centered Care (1), Behavioral Health and Substance Use Disorders (1), and Health Equity (1).

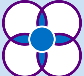
Comparing Family Decision Making Engagement in Telehealth Versus In-person Primary Care for Children with Chronic Conditions (R01)

PI: Ellen A. Lipstein

Organization: Cincinnati Children’s Hospital Medical Center

Aims to compare the telehealth and in-person decision-making processes and outcomes in pediatric primary care for children with chronic conditions. This grant used a combination of family surveys, video recordings of healthcare visits, and qualitative interviews to understand experiences of decision-making during telehealth and in-person visits.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.



Adapting Guideline Implementation to Local Environments (AGILE) in Primary Care After Telehealth Expansion (K01)

PI: Edmond Ramly

Organization: University of Wisconsin—Madison; School of Medicine, Family Medicine

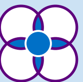
Aims to develop a customizable toolkit for implementing cardiovascular disease guidelines in primary care after telehealth expansion. The toolkit includes a menu of options to help practices address specific local barriers without requiring the engagement of an expert for a costly tailoring process.

Implementing Telemedicine to Improve Appropriate Antibiotic Prescribing for Acute Respiratory Tract Infections (R01)

PIs: Tamar Barlam; Mari-Lynn Drainoni

Organization: Boston Medical Center

Examines if telehealth visits can be used to improve the management of acute respiratory tract infections, including reducing inappropriate prescribing of antibiotics in ambulatory care settings.



Healthy Hearts for Michigan (HH4M): Providing Support to Improve the Heart Health and Help Reduce CVD Disparities by Engagement with Primary Care Practices (U18)

PIs: Anya Day; Theresa L Walunas

Organization: Altarum Institute

The Healthy Hearts for Michigan (HH4M) project establishes a statewide cooperative in Michigan to provide QI support to help primary care practices implement interventions to improve hypertension management and tobacco cessation. These efforts will be coupled with optimization of health IT and telehealth approaches to address barriers to access in rural parts of the State.

Screening and Management of Unhealthy Alcohol Use in Primary Care: Dissemination and Implementation of PCOR Evidence (R18)

PIs: Darren A. Dewalt; Daniel E Jonas

Organization: University of North Carolina Chapel Hill; School of Medicine, Internal Medicine

Aims to determine if primary care practice facilitation can support rapid dissemination and implementation of evidence-based screening, counseling, and medication assisted therapy (MAT) for unhealthy alcohol use. In addition, the research team aims to test if providing embedded telehealth services accelerates dissemination and implementation for practices with slower uptake.

Evaluating the Impact of Telemedicine on Ambulatory Care (R01)

PIs: Michael Patrick Thompson; Chandy Skaria Ellimootil

Organization: University of Michigan at Ann Arbor; School of Medicine; Surgery

Uses a national cohort of Medicare beneficiaries to understand the impact of ambulatory care telemedicine visits on hospital admissions for ambulatory care-sensitive conditions (such as congestive heart failure, diabetes, and hypertension), and on healthcare spending.

Patient Choice of Telemedicine Encounters (R01)

PI: Mary Reed

Organization: Kaiser Foundation Research Institute; Research Institute

Examines the broad-scale implementation of telemedicine for primary care encounters within a healthcare system prior to the COVID-19 pandemic to understand how telemedicine compares in quality, care processes, and patient outcomes to in-person care; and to understand which patient characteristics are most closely associated with telemedicine utilization.

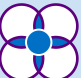
Read Research Profile #8

Tele-Recovery: Engaging Stakeholders to Adapt and Pilot Test a Scalable Transitional Rehabilitation Intervention for Older, Rural ICU Survivors (K08)

PIs: Scheunemann, Leslie Page

Organization: University of Pittsburgh at Pittsburgh; School of Medicine, Pediatrics

Tests a transitional care model, TeleRecovery, where a nurse practitioner and occupational therapist deliver telehealth-based rehabilitation services for older adults and their caregivers in rural areas after a transfer from the intensive care unit to home. The TeleRecovery teams work with home health providers to implement the patients' care plans until they are well enough to be managed in primary care.



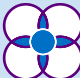
ECHO-F Model to Expand Medication Assisted Treatment in Rural Primary Care (R18)

PI: Julie G Salvador

Organization: University of New Mexico Health Sciences Center; School of Medicine; Psychiatry

Uses the Extensions for Community Healthcare Outcomes (ECHO©) model to train rural primary care clinicians to use medication-assisted treatment (MAT) to treat opioid use disorder.

Read Research Profile #12

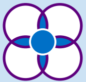


The Effect of Rurality and the COVID-19 Pandemic on Telemedicine and Preventive Healthcare Use (K01)

PIs: Annie Elizabeth Larson

Organization: OCHIN, INC

Investigates the role of telemedicine in improving access to primary care for rural patients. The research team is looking at the frequency and type of preventive care visits, differences between urban and rural patients on uptake of telemedicine, and the effect of telemedicine on the quality and equity of care for chronic health conditions among rural and urban patients.



A Multi-Site Evaluation of Primary Care Accessibility and Utilization During COVID-19 (R01)

PIs: Raj M Ratwani and Ethan A Booker

Organization: Medstar Health Research Institute

Examines the impact of COVID-19 disruptions on access and utilization of primary care for patients in three healthcare systems. The study looks at which patients received care via which modalities (in-person, telehealth, or both); what subpopulations were disproportionately affected by disruptions in care; and the barriers and facilitators to telehealth across the three sites.

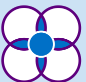
Quality, Safety, Value: Impact of Sudden Shift to Telehealth Due to COVID-19 Within Nurse-Led Care Models Located in Colorado Rural and Urban Communities (R01)

PI: Amy J Barton

Organization: University of Colorado Denver; School of Nursing

Examines the impact of the sudden shift to telehealth for behavioral health, primary and prenatal care, and home visitation appointments, as a response to the COVID-19 pandemic, on innovative nurse-led care models used to provide care throughout Colorado. The research team considers utilization, both intended and unintended patient outcomes, as well as provider and patient experiences.

Read Research Profile #14



Partnership for Medication Safety in Primary Care and Telehealth During COVID-19 Public Health Crisis (R18)

PI: Yan Xiao

Organization: University of Texas Arlington

This supplemental grant evaluates the impact of changes in visit modalities due to COVID-19, such as the use of telehealth, on access and safety. Based on the findings of this evaluation, the research team will develop practice guidelines to help primary care clinics provide safe and equitable care during disruptions brought on by the pandemic. [Read about the parent study PROMIS Learning Lab: Partnership in Resilience for Medication Safety in the Healthcare Systems and Infrastructure section of this report].

COVID-19

The Table below includes all 11 AHRQ primary care grants from FYs 2021 and 2022 with a focus on COVID-19. These grants are included in the topic sections throughout the report, depending on the main focus of each grant, including Practice and Quality Improvement (2), Health Equity (2), Healthcare Systems and Infrastructure (1), Digital Healthcare (1), and Person-Centered Care (1). In addition, the 4 grants described in the COVID-19 section are included in the table below.

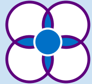
Comparing Family Decision Making Engagement in Telehealth Versus In-person Primary Care for Children with Chronic Conditions (R01)

PI: Ellen A. Lipstein

Organization: Cincinnati Children's Hospital Medical Center

Aims to compare the telehealth and in-person decision-making processes and outcomes in pediatric primary care for children with chronic conditions. This grant used a combination of family surveys, video recordings of healthcare visits, and qualitative interviews to understand experiences of decision-making during telehealth and in-person visits.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.



Adapting Guideline Implementation to Local Environments (AGILE) in Primary Care After Telehealth Expansion (K01)

PI: Edmond Ramly

Organization: University of Wisconsin—Madison; School of Medicine, Family Medicine

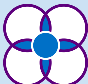
Aims to develop a customizable toolkit for implementing cardiovascular disease guidelines in primary care after telehealth expansion. The toolkit includes a menu of options to help practices address specific local barriers without requiring the engagement of an expert for a costly tailoring process

Implementing Telemedicine to Improve Appropriate Antibiotic Prescribing for Acute Respiratory Tract Infections (R01)

PIs: Tamar Barlam; Mari-Lynn Drainoni

Organization: Boston Medical Center

Examines if telehealth visits can be used to improve the management of acute respiratory tract infections, including reducing inappropriate prescribing of antibiotics in ambulatory care settings.

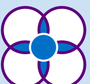


The Cost of Illness: The Impact of COVID-19 on Patient Financial Outcomes (K08)

PI: Nora V Becker

Organization: University of Michigan at Ann Arbor; School of Medicine; Internal Medicine

Examines "financial toxicity," or the financial consequences of illness. The grant first investigates which patient subgroups are at the highest risk of financial burden; then estimates the objective financial burden of a COVID-19 infection; and assess patients' subjective financial distress related to their illness. While this study is not primary care focused, it has implications for the care of patients with COVID-19 in a primary care setting.



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Evaluating the Impact of Telemedicine on Ambulatory Care (R01)

PIs: Michael Patrick Thompson; Chandy Skaria Ellimootil

Organization: University of Michigan at Ann Arbor; School of Medicine; Surgery

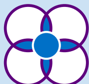
Uses a national cohort of Medicare beneficiaries to understand the impact of ambulatory care telemedicine visits on hospital admissions for ambulatory care-sensitive conditions (such as congestive heart failure, diabetes, and hypertension), and on healthcare spending.

Novel, High-Impact Studies Evaluating Health System and Healthcare Professional Responsiveness to COVID-19

PI: Rebecca Sarah Etz

Organization: Virginia Commonwealth University; Family Medicine

Examines the impact that COVID-19 had on primary care's digital healthcare expansion, using a set of surveys developed and implemented during the public health emergency.



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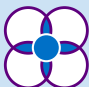

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PI: Yan Xiao

Organization: University of Texas Arlington

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Integrating Patient-Reported Outcomes into Routine Primary Care: Monitoring Asthma Between Visits (R18)

PI: Robert Samuel Rudin

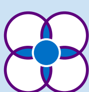
Organization: RAND Corporation

This supplemental project enhances a mobile health intervention for home monitoring of asthma symptoms between primary care visits by adding COVID-19 symptom screening and information. [Read about the parent study, with the same name as this supplemental grant, in the Digital Healthcare section of this report].

Read Emerging Research Spotlight #10

Clinical Decision Support

The Table below includes all 11 AHRQ primary care grants from FYs 2021 and 2022 with a focus on Clinical Decision Support. These grants are included in the topic sections throughout the report, depending on the main focus of each grant, including Practice and Quality Improvement (5), Digital Healthcare (3), Person-Centered Care (3).



DECODE: Diagnostic Excellence Center on Diagnostic Error (R18)

PIs: Ramin Khorasani; Ronilda Lacson

Organization: Brigham and Women's Hospital; Independent Hospital

Develops a Diagnostic Center of Excellence to reduce failures in timely performance of clinically necessary diagnostic imaging exams and interpretation errors. The team will implement information technology-enabled functions and workflows to enhance a clinical dashboard with improved EHR-integration and monitoring and learning capabilities to help reduce diagnostic errors and health disparities. In addition, they will provide opportunities for peer learning to reduce interpretive errors, and convene a team of clinicians to develop consensus recommendations for the management of lung, prostate, pancreatic and adrenal cancers and embed the recommendations into the EHR.

Averting Diagnostic Error Through Improved Recognition of Child Abuse (K08)

PI: Irit R. Rasooly

Organization: Children's Hospital of Philadelphia; Independent Hospital

Uses EHR data- and systems-analysis to develop CDS strategies that can identify and help diagnose child abuse in primary care settings. The research team is using EHR data to detect and validate markers of physical abuse to help identify children experiencing abuse; using EHR simulations to identify abuse-related diagnostic errors; and working to develop feasible, acceptable, and appropriate CDS strategies for improved child abuse detection and diagnosis.

Adaptation and Pilot Implementation of a Validated, Electronic Real Time Clinical Decision Support Tool for Care of Pneumonia Patients in 12 Utah Urgent Care Centers (R18)

PI: Nathan C. Dean

Organization: IHC Health Services Inc.; Non-Profit

Adapts an existing CDS tool containing guidelines for pneumonia ("ePNa") to urgent care centers. The research team is identifying barriers and facilitators to implementation and uptake of the ePNA tool, and testing it within urgent care centers by examining outcomes related to patient safety, antibiotic prescribing, and diagnoses without chest imaging. While this project is not primary care focused, it has implications for the coordination of care and follow-up care for patients with pneumonia by their primary care team.

Identify, Teach and Treat (IT2): Automating Clinical Decision Pathways for the Care of Women (U18)

PIs: Kimberly Sue Kenton; Steven Persell

Organization: Northwestern University at Chicago; Schools of Medicine, Internal Medicine

This project's multi-level implementation strategy aims to improve care for urinary incontinence for women in primary care through systematic and equitable screening, supporting patient-centered decision making for selecting treatment options, and accelerating the uptake of evidence-based nonsurgical treatment modalities. This project will take place in the largest health system in Illinois, with 65 primary care practices and 327 primary care physicians.

Improving Recognition and Management of Hypertension in Youth: Comparing Approaches for Extending Effective CDS for Use in a Large Rural Health System (R18)

PIs: Elyse Olshen Kharbanda; Catherine Pastorius Benziger

Organization: HealthPartners Institute

Compares high and low intensity interventions to implement an EHR-linked clinical decision support in rural primary care practices to provide evidence-based clinical care recommendations for blood pressure management in youth.

Assessing the Use of Practice Facilitation to Optimize Scale Up of CDS for Hypertension Management (R18)

PIs: Hang Pham-Singer; Saul B. Blecker

Organization: Fund for Public Health in New York, Inc.

Examines if receiving practice facilitation would improve the use of a hypertension-focused CDS to effectively improve blood pressure control rates in small primary care practices.

Implementation of Electronic Health Screening in Primary Care to Improve STI Testing (R18)

PI: Fahd Aqeeb Ahmad

Organization: Washington University; School of Medicine; Pediatrics

Integrates an electronic risk assessment tool into four pediatric primary care clinics to help identify adolescents at-risk for sexually transmitted infections (STIs) during annual preventive maintenance visits.

Read Research Profile #2

Prevent Diabetes Mellitus (PreDM) Clinical Decision Support Intervention in Community Health Centers (R18)

PI: Matthew James O'Brien

Organization: Northwestern University at Chicago; School of Medicine, Internal Medicine

Evaluates a CDS-based intervention to improve care at community health centers for patients with prediabetes.

Scaling Interoperable Clinical Decision Support for Patient-Centered Chronic Pain Care (R18)

PIs: Christopher Albert Harle; George Ramzi Solloum

Organization: University of Florida; School of Medicine

Adapts an existing clinical decision support tool, AHRQ's Pain Manager for pain treatment shared decision-making between primary care clinicians and their patients, for clinics in a research consortium. They aim to increase adoption of the adapted Pain Management tool and investigate its impact on patient outcomes, pain, and physical function in a multisite pragmatic trial.

Read Emerging Research Spotlight #4

Clinical Decision Support for Collaborative Diet Goal Setting in Primary Care (R21)

PI: Marissa Burgermaster

Organization: University of Texas at Austin; School of Medicine, Public Health, and Preventive Medicine

Refines an existing health information technology tool that provides clinicians with data-driven guidance for personalized and collaborative diet goal setting. The research team will pilot test the tool with primary care providers in federally qualified health centers, with the goal of implementing clinical workflows to serve patients experiencing health disparities.

Shareable, Interoperable Clinical Decision Support for Older Adults: Advancing Fall Assessment and Prevention Patient-Centered Outcomes Research Findings into Diverse Primary Care Practices (ASPIRE) (U18)

PIs: Patricia C. Dykes; Robert J. Lucero

Organization: Brigham and Women's Hospital

Aims to develop a shareable, standards-based fall prevention software to improve the implementation of a clinical decision support program into primary care settings using Fall Care Managers to promote fall prevention decision-making.

Women's Health / Reproductive Health

The Table below includes all 11 AHRQ primary care grants from FYs 2021 and 2022 with a focus on women's health or reproductive health. These grants are included in topic sections throughout the report, depending on the main focus of each grant, including Practice and Quality Improvement (8), Healthcare Systems and Infrastructure (1), Behavioral Health and Substance Use Disorders (1), and Health Equity (1).

Group Well Child Care Intervention for Infants of Mothers in Treatment for Opioid Use Disorder (R18)

PIs: Neera Goyal; Vanessa L Short

Organization: Alfed I. Du Pont Hospital for Children; Independent Hospital

Looks at the use of comprehensive group well child visits for mothers with opiate use disorder and their children. The group visits examined in this study allow for increased time with the pediatrician, peer-to-peer learning, and an enhanced focus on behavior change and self-care.

Learn more about this study in a recent NCEPCR webinar: Qualitative Methods Used in AHRQ Funded Primary Care Research.

The Community Health Center - Reproductive Life Plan (CHC-RLP) Project (R03)

PI: Lisa Marie Masinter

Organization: Alliance Chicago

Aims to use structured reproductive health assessments, known as reproductive life plans, embedded in the EHR to improve reproductive health care for women in a primary care setting.

EHR-based Screening and Intervention for Intimate Partner Violence (R18)

PIs: Leslie A. Lenert; Alyssa Ann Rheingold

Organization: Medical University of South Carolina; School of Medicine, Public Health & Preventive Medicine

Evaluates the implementation of an EHR-based decision support program to support universal screening of women for intimate partner violence (IPV) in primary care clinics. The decision support program includes a referral to a national IPV counseling hotline for those who screen positive.

Identify, Teach and Treat (IT2): Automating Clinical Decision Pathways for the Care of Women (U18)

PIs: Kimberly Sue Kenton; Steven Persell

Organization: Northwestern University at Chicago; Schools of Medicine, Internal Medicine

This project's multi-level implementation strategy aims to improve care for urinary incontinence for women in primary care through systematic and equitable screening, supporting patient-centered decision making for selecting treatment options, and accelerating the uptake of evidence-based nonsurgical treatment modalities. This project will take place in the largest health system in Illinois, with 65 primary care practices and 327 primary care physicians.

Empowering Women and Providers for Improved Care of Urinary Incontinence: EMPOWER Study (U18)

PIs: Adonis K Hijaz; Goutham Rao

Organization: University Hospitals of Cleveland

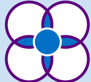
Uses an integrated, multilevel approach to address key barriers to diagnosing and managing urinary incontinence in primary care. The approach will be implemented across a large network of primary care practices, and include large-scale screening, empowering patients to discuss urinary incontinence with their providers, provider education and training, practice facilitation through nurse navigation, and a "chatbot" to support patient self-management. The project will also implement a system-based strategy for streamlined referrals and treatment.

Improving Primary Care Understanding of Resources and Screening for Urinary Incontinence to Enhance Treatment (PURSUIT) (U18)

PIs: Alayne Denise Markland; Elizabeth Camille Vaughan

Organization: University of Alabama at Birmingham; School of Medicine, Internal Medicine

Aims to improve access for women Veterans in the southeastern U.S. to evidence-based, nonsurgical treatment for urinary incontinence. The study will compare the effectiveness of the interactive treatment modality with or without additional urinary incontinence clinical expertise delivered via telehealth in 62 primary care practices that treat women Veterans. Participating practices will receive practice facilitation support, training, and health information technology assistance. Researchers will explore women Veterans' and providers' perceptions of remote urinary incontinence treatment to advise future scalability.



A Practice-based Intervention to Improve Care for a Diverse Population of Women with Urinary Incontinence (U18)

PIs: Anger, Jennifer Tash

Organization: University of California, San Diego; School of Medicine, Urology

Aims to improve the quality of urinary incontinence care provided to a diverse population of women in primary care, with the goals of improving care and reducing the need for specialty care. Three Southern California medical groups (a total of 60 clinics) will participate in a practice-based incontinence intervention. The intervention will be led by a "clinical champion dyad" including a primary care provider and urologist/urogynecologist from each medical group and will include physician education and performance feedback, electronic decision support, patient education from dedicated advanced practice providers (APPs), and an electronic referral service.

Bridging Community-based Continence Promotion and Primary Care (U18)

PIs: Heidi Wendell Brown; Kathryn E Flynn; Joan Marie Neuner

Organization: University of Wisconsin—Madison; School of Medicine

Tests an intervention for increasing the proportion of patients who are screened and offered treatment for urinary incontinence in 50 primary care practices. The intervention, called UI Assist, includes screening, education, and evidence-based treatment. The research team will also compare implementation of UI Assist alone or in combination with partnership building to help practices overcome barriers to intervention implementation.

Implementation of Electronic Health Screening in Primary Care to Improve STI Testing (R18)

PI: Fahd Aqeeb Ahmad

Organization: Washington University; School of Medicine; Pediatrics

Integrates an electronic risk assessment tool into four pediatric primary care clinics to help identify adolescents at-risk for sexually transmitted infections (STIs) during annual preventive maintenance visits.

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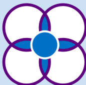


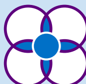
Reproductive Care in the Safety Net: Women's Health After Affordable Care Act Implementation (EVERYWOMAN) (R01)

PI: Erika K. Barth Cottrell

Organization: OCHIN, Inc.

Studies the impact of Affordable Care Act and Medicaid expansion on reproductive healthcare provided in community health centers, including examining what individual-, clinic-, and State-level factors are associated with improved reproductive health provision.

Read Research Profile #5



Leveraging Linked Data to Evaluate Social and Spatial Disparities in Contraception Access and Regional Program Impacts (K01)

PI: Jessica N Sanders

Organization: University of Utah

Uses a matched-control design to evaluate the impacts of a county-level contraceptive initiative on unintended pregnancies and birth outcomes at a population-level. The study will also use linked all-payer claims, electronic medical records, geospatial markers, demographic profiles, and birth certificates to identify regional disparities in family planning access and outcomes.

Opioids

The Table below includes all 10 AHRQ primary care grants from FYs 2021 and 2022 with a focus on opioid use. These grants are included in topic sections throughout the report, depending on the main focus of each grant, including Person-Centered Care (3), Behavioral Health and Substance Use Disorders (3), Practice and Quality Improvement (2), Healthcare Systems and Infrastructure (1), and Digital Healthcare (1).

Impact of a Novel Community-based Biobehavioral Chronic Pain Team Training Program (4PCP) on Practitioner and Patient Outcomes (R01)

PI: Thomas C Chelimsky

Organization: Virginia Commonwealth University; School of Medicine; Neurology

Looks at using a "biopsychosocial" approach to treating chronic pain rather than a "biopharmacologic" approach. This "biopsychosocial" approach treats chronic pain syndrome as a brain disorder, which has been reinforced though negative cognitive, emotional, and behavioral habits. In a previous pilot study, the researchers demonstrated that primary care practitioners were eager to implement this new approach, and those who did so had increased confidence with chronic pain management, reduced visit times, and improved patient pain. The primary care practices in this study will receive training from a paired psychologist and a physical therapist to build a clinical team. The study will examine if patient improvements can be sustained for 2 years and if increased practitioner confidence leads to a tapering of prescribed opioids.

Group Well Child Care Intervention for Infants of Mothers in Treatment for Opioid Use Disorder (R18)

PIs: Neera Goyal; Vanessa L Short

Organization: Alfed I. Du Pont Hospital for Children; Independent Hospital

Looks at the use of comprehensive group well child visits for mothers with opiate use disorder and their children. The group visits examined in this study allow for increased time with the pediatrician, peer-to-peer learning, and an enhanced focus on behavior change and self-care.

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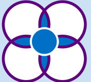

ECHO-F Model to Expand Medication Assisted Treatment in Rural Primary Care (R18)

PI: Julie G Salvador

Organization: University of New Mexico Health Sciences Center; School of Medicine; Psychiatry

Uses the Extensions for Community Healthcare Outcomes (ECHO©) model, with additional supports as needed, to train primary care providers in rural New Mexico to provide medication to treat opioid use disorders.

Read Research Profile #12

Addressing Opioid Use Disorder in Older Adults Through Primary Care Innovation (OUD-PCI) (R18)

PIs: Steven Allen Crawford; Alexandra Lee Jennings; Zsolt J. Nagykaldi

Organization: University of Oklahoma Health Sciences Center

Implements a multi-faceted person-centered and scalable chronic management program in primary care practices. The program was systematically tailored to older adults and those with functional disabilities or increased social risks with the goal of increasing functioning and decreasing pain and adverse events.

Scaling Interoperable Clinical Decision Support for Patient-Centered Chronic Pain Care (R18)

PIs: Christopher Albert Harle; George Ramzi Solloum

Organization: University of Florida; School of Medicine

Adapts an existing clinical decision support tool, AHRQ's Pain Manager for pain treatment shared decision-making between primary care clinicians and their patients, for clinics in a research consortium. They aim to increase adoption of the adapted Pain Management tool and investigate its impact on patient outcomes, pain, and physical function in a multisite pragmatic trial.

Read Emerging Research Spotlight #4

Patient Perspectives on Prescription Opioid Discontinuation: Understanding and Promoting Safe Transitions (R01)

PI: Clarissa Wen-Ling Hsu

Organization: Kaiser Foundation Research Institute

Investigates the experiences of patients and providers who have discontinued opioids for long term opioid therapy (LTOT). It develops a patient decision aid to support patients when discontinuing LTOT and pilot tests the decision aid with patients.

PROMIS Learning Lab: Partnership in Resilience for Medication Safety (R18)

PI: Yan Xiao

Organization: University of Texas Arlington; School of Nursing

Creates the Partnership in Resilience for Medication Safety Learning Lab (PROMIS Lab) which promotes patient safety in primary care. The PROMIS Lab is intended to develop and test strategies to reduce medication-related harms in older adults.

ExPERTS-PC: Engaging Patients in Event ReporTing for Safety in Primary Care (K08)

PI: Anjana Estelle Sharma

Organization: University of California, San Francisco; School of Medicine, Family Medicine

Develops a tool for patients to report adverse drug events (ADEs) to their ambulatory care teams. The research team will use natural language processing to identify the patient, caregiver, and healthcare team related causes of ADEs from the reports of a multistate Patient Safety Organization. Using the information about identified causes, the team will develop a prototype of a patient-initiated ADE reporting system using text messaging, and will conduct feasibility testing with patients, family members, and primary care clinic staff.

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

Reframing Optimal Management of Pain and Opioids in Older Adults (R18)

PIs: Daniel William Berland; Christine Elizabeth Stanik

Organization: University of Michigan at Ann Arbor; School of Medicine, Internal Medicine

Implements practice improvements for safely prescribing opioids or alternative medications for pain management in older adults in primary care. The project takes a multi-faceted approach, including educating and supporting prescribers, academic detailing, and use of electronic health record technology.

Prescription Drug Monitoring Program Integration in the Electronic Health Record (R21)

PI: Daniel M Hartung

Organization: Oregon State University; School of Pharmacy; Other Health Professions

Evaluates how integrating Oregon's electronic registry of controlled-substance prescription dispensing data (prescription drug monitoring program) into the EHR of primary care clinics impacts provider use of registry data and prescribing behavior.

Multiple Chronic Conditions

The Table below includes all 9 AHRQ primary care grants from FYs 2021 and 2022 with a focus on multiple chronic conditions (also referred to as multimorbidity). These grants are included in the topic sections throughout the report, depending on the main focus of each grant, including Digital Healthcare (4), Person-Centered Care (3), Healthcare Systems and Infrastructure (1), and Behavioral Health and Substance Use Disorders (1).

Care Transitions App for Patients with Multiple Chronic Conditions (R01)

PIs: Lipka Samal; Patricia C Dykes

Organization: Brigham and Women's Hospital; Independent Hospital

Develops and tests the effectiveness of an app to support care transitions between the hospital, home, and primary care clinic to reduce post-discharge adverse events. The app contains a digital post-discharge transitional care plan, modules for multiple chronic conditions, relevant lab values, education specific to the patient's prescribed medications, and a functionality that allows patients to ask questions to support their recovery goals.

Care System Analytics to Support Primary Care Patients with Complex Medical and Social Needs (R18)

PI: Richard W Grant

Organization: Kaiser Foundation Research Institute; Research Institute

Develops and tests an EHR-based dashboard to help clinical teams ensure patients with multiple chronic conditions and socially determined barriers to care receive high-quality primary care.

Read Emerging Research Spotlight #1

Improving Medication Safety for Medically Complex Children with mHealth Across Caregiving Networks (R18)

PIs: Ryan J Coller; Nicole E Werner

Organization: University of Wisconsin—Madison; School of Medicine; Pediatrics

Develops an app (MedS@HOME) to improve medication safety for children with medical complexity. The app supports standardized medication management across the caregiving network to increase administration accuracy and reduce medication-related adverse events

Learn more about this study in a recent NCEPCR webinar: Innovative Use of Technology for Primary Care Delivery.

Using Smart Devices to Implement an Evidence-based eHealth System for Older Adults (R18)

PIs: David H Gustafson; Marie-Louise Mares

Organization: University of Wisconsin—Madison; Biomedical Engineering/College of Engineering; Engineering

Implements a smart-system (a smart speaker plus display) version of an existing Elder Tree intervention – a program that supports the self-management of health for older adults with multiple chronic conditions. This grant tests a smart-system version compared to the computer-based system on outcomes, including quality of life, hospital readmission, and medication adherence. While this project is not primary care focused, it has implications for the care of older adults who are being medically managed in a primary care setting.

SDMo – a Measure of the Occurrence of SDM in the Care of Patients with Chronic Conditions (R01)

PI: Ian Hargraves

Organization: Mayo Clinic Rochester

Develops a measure of SDM occurrence and estimates the measure's reliability and validity. This new measure of SDM occurrence can help uncover how frequently SDM techniques are used in the care of patients with chronic conditions (including primary care), and test associations between SDM and behavioral and physical health outcomes.

Addressing Opioid Use Disorder in Older Adults Through Primary Care Innovation (OUD-PCI) (R18)

PIs: Steven Allen Crawford; Alexandra Lee Jennings; Zsolt J. Nagykaldi

Organization: University of Oklahoma Health Sciences Center

Implements a multi-faceted person-centered and scalable chronic management program in primary care practices. The program was systematically tailored to older adults and those with functional disabilities or increased social risks with the goal of increasing functioning and decreasing pain and adverse events.

Enhanced Care Planning and Clinical-Community Linkages to Comprehensively Address the Basic Needs of Patients with Multiple Chronic Conditions (R01)

PI: Alexander H. Krist

Organization: Virginia Commonwealth University; School of Medicine, Medicine

Implements and tests an enhanced care planning program to help patients manage multiple chronic conditions. The intervention includes the use of an enhanced care planning tool in primary care to screen patients for health behavior, mental health, and social needs. Working with a navigator, patients help prioritize their needs, create a care plan, and write a narrative to guide care; and then connects patients to needed resources in the community. The research team implemented a clinician-level randomized controlled trial to study how primary care clinicians participate in models for connecting patients to needed community services, and measures whether it improves their health outcomes.

Read Research Profile #10

Implementation of Digital Mental Health Tools in Ambulatory Care Coordination (R01)

PI: Emily Gardiner Lattie

Organization: Northwestern University at Chicago; Domestic Higher Education

Adapts a digital mental health platform and service model to improve access to, and coordination of, mental health services in ambulatory care.

Implementing Personalized Cross-Sector Transitional Care Management to Promote Care Continuity, Reduce Low Value Utilization, and Reduce the Burden of Treatment for High-Need, High-Cost Patients (R01)

PI: Sharon Hewner

Organization: State University of New York at Buffalo; School of Nursing

Tests a personalized, cross-sector, transitional care management model to improve care coordination across settings using a health information exchange infrastructure.

« 8. Appendix D: Grant Summaries

Research Profiles

This section includes summaries of selected studies that have at least some relevant publications and findings to report.

- **P1 Does A New Care Model Improve Care for Patients with Acute Kidney Injury After Hospital Discharge?** (PI: Barreto)
- **P2 Using an Electronic Screening Tool to Identify Adolescents at Risk for STIs** (PI: Ahmad)
- **P3 Using Veterans Health Administration Data to Understand How Primary Care Team Configuration and Stability Impact Quality** (PI: Hysong)
- **P4 Impacts of Changes in Payment Policy on Access to Primary Care for People with Low Incomes** (PI: Fung)
- **P5 Assessing the Impact of the Affordable Care Act on Reproductive Health Care** (PI: Cottrell)
- **P6 Understanding the Combined Impact of Healthcare Delivery and Payment Reform Models** (PI: Adler-Milstein)
- **P7 Understanding the Relationship Between Proximity and Utilization of Patient-Centered Medical Homes** (PI: Bell)
- **P8 Do Telemedicine Visits Provide Similar Patient Quality and Safety as In-Person Visits?** (PI: Reed)
- **P9 Using a Mobile Health Tool to Improve Patient-Centered Care for Patients with Type 2 Diabetes** (PIs: Schoenthaler and Mann)
- **P10 Improving Clinical-Community Linkages in Primary Care for Patients with Multiple Chronic Conditions** (PI: Krist)
- **P11 Identifying Ways to Improve Preventative Care for Children** (PI: DeVoe)
- **P12 Using a Televideo-based Training Model for Providers to Expand Treatment for Opioid Use Disorder in Rural New Mexico** (PI: Salvador)
- **P13 Developing a Prediction Model to Identify Health Clinics at High-Risk for Clinician Burnout** (PI: Tawfik)
- **P14 Is Telehealth Effective for Providing Nurse-Led Healthcare to Vulnerable Populations in Colorado?** (PI: Barton)

P1: Does A New Care Model Improve Care for Patients with Acute Kidney Injury After Hospital Discharge?

This grant funded the implementation of a pilot feasibility trial evaluating a program that supports patients discharged from the hospital to home after an episode of acute kidney injury. The program is designed to improve patient kidney health, knowledge, and safety, while filling gaps in care and improving quality.

Study Overview

Problem: Survivors of acute kidney injury (AKI) are at increased risk of re-hospitalization and poor health, due in part to gaps in the kidney-focused care and education provided during their care transition after discharge from the hospital.

Main Objective: To evaluate the Acute Kidney Injury in Care Transitions (ACT) program, a new care model for patients to improve quality, outcomes, and experiences of the care provided to AKI survivors after discharge from the hospital.

Approach: The research team is conducting a pilot feasibility clinical trial to determine the feasibility and acceptability of the ACT program and the preliminary efficacy of ACT on clinical and patient-reported outcomes. Outcomes include hospital readmissions, recurrent episodes of AKI, and kidney function after discharge, as well as quality of life. The intervention uses electronic indicators to identify AKI survivors, then connects them with nurse educators and care coordinators prior to discharge from the hospital, and a follow-up visit with a clinician and pharmacist within 14 days after discharge. Feasibility and acceptability are assessed with mixed methods to evaluate the perspectives of patients and clinicians.

Results: Early results published from this study show that patients and clinicians find the ACT intervention to be feasible and scalable, and that it addresses gaps in care for AKI survivors. Multidisciplinary care teams are able to extend the capacity for monitoring kidney health among AKI survivors.[1,2] Findings on the program's impact on clinical and patient-reported outcomes are forthcoming and can be found here.

Primary Care Relevance

In a primary care setting, these data could assist clinicians with providing more high-quality, well-coordinated, and patient-centered care for survivors of AKI. The multidisciplinary approach which involves nurses and pharmacists alongside physicians and advanced practice providers appears feasible and is an attractive way to leverage the expertise of the entire care team.[3]

AHRQ Primary Care Priority Area

Research on management of clinical areas unique to primary care, such as multiple chronic conditions, preventive care, undifferentiated syndromes, or behavioral and mental healthcare that is integrated within primary care.

PI Name: Erin Frazee Barreto, PharmD, RPh

Grant Title: Enhanced kidney follow-up for AKI survivors in Care Transitions (the ACT Study)

Organization Name: Mayo Clinic Rochester

Grant Type: R03 (Small Research Grant)

Grant Period: 05/1/2021 – 04/30/2023

Topic Areas: Practice and Quality Improvement, Healthcare Systems/ Infrastructure, Patient Safety

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[1] Barreto EF, Schreier DJ, May HP, Mara KC, Chamberlain AM, Kashani KB, et al. Incidence of Serum Creatinine Monitoring and Outpatient Visit Follow-Up among Acute Kidney Injury Survivors after Discharge: A Population-Based Cohort Study. Am J Nephrol. 2021;52(10-11):817-26.

[2] Schreier DJ, Rule AD, Kashani KB, Mara KC, Kane-Gill SL, Lieske JC, et al. Nephrotoxin Exposure in the 3 Years following Hospital Discharge Predicts Development or Worsening of Chronic Kidney Disease among Acute Kidney Injury Survivors. Am J Nephrol. 2022;53(4):273-81.

[3] Barreto EF, May HP, Schreier DJ, Meade LA, Anderson BK, Rensing ME, Ruud KL, Kattah AG, Rule AD, McCoy RG, Finnie DM, Herges JR, Kashani KB; ACT Study Group. Development and Feasibility of a Multidisciplinary Approach to AKI Survivorship in Care Transitions: Research Letter. Can J Kidney Health Dis. 2022 Mar 6;9:20543581221081258. doi: 10.1177/20543581221081258. PMID: 35284082; PMCID: PMC8905052.

P2: Using an Electronic Screening Tool to Identify Adolescents at Risk for STIs

This study aims to adapt an electronic sexually transmitted infections (STIs) risk assessment tool for implementation during pediatric primary care visits.

Study Overview

Problem: Adolescents have high rates of STIs, including gonorrhea, chlamydia, and HIV. Unfortunately, they often do not receive STI screening during pediatric primary care visits, increasing the risk of undiagnosed STIs. This leads both to significant spread in the population and avoidable medical complications.

Main Objective: To identify adolescents at risk for STIs and provide testing by implementing electronic STI risk assessment in pediatric primary care settings.

Approach: This study will implement a STI risk assessment tool in three pediatric primary care clinics in the St. Louis metropolitan area, which has a high incidence of STIs. The assessment tool, which was initially developed for use in the emergency department, is completed by the patient and includes a branch-logic questionnaire along with a clinical decision support tool. Once completed, the patient's responses and STI testing recommendations are integrated into the electronic health record, allowing the clinical team to easily identify patients at risk for STIs and arrange for testing and follow-up.

For this study, the research team is:

- Adapting the electronic STI risk assessment tool and clinical workflows to support successful implementation in pediatric clinics;
- Implementing use of the tool in three pediatric clinics; and
- Assessing changes in STI testing and treatment in the three pediatric clinics after implementation.

Results: Identified barriers to STI screening and testing adolescents included clinicians' perception of STI risk, time constraints during visits, and lack of clinic capacity to conduct testing.[1] In initial testing of the electronic risk assessment tool, the research team found that primary care physicians and clinical staff as well as adolescents liked the tool and found it easy to use.[2] Qualitative interviews revealed that physicians and clinic staff thought the tool would fit well into their existing primary care workflows.[2] Patients, physicians, and clinical staff also believed the private nature of the tool would help adolescents share sensitive information with their physician, particularly when a parent is present.[2]

Additional findings are forthcoming. Publications can be found here.

Primary Care Relevance

Adapting an electronic STI risk assessment tool for use in a primary care setting has the potential to significantly improve STI care for adolescents.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Fahd Ahmad, MD, MSCI

Grant Title: Implementation of Electronic Health Screening in Primary Care to Improve STI Testing

Organization Name: Washington University

Organization Type; Department: School of Medicine; Pediatrics

Grant Type: R18 (Research Demonstration and Dissemination Project)

Grant Period: 09/30/2019 – 09/30/2023

Topic Areas: Practice and Quality Improvement, Digital Healthcare, Women's Health/ Reproductive Health

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[1] Ahmad FA, Dickey V, Tetteh EK, Foraker R, McKay VR. The Use of the Consolidated Framework for Implementation Research to Understand Facilitators and Barriers to Sexually Transmitted Infection Screening in Primary Care. Sex Transm Dis. 2022 Sep 1;49(9):610-615. doi: 10.1097/OLQ.0000000000001656. Epub 2022 Jun 2. PMID: 35649512.

[2] Ahmad FA, Chan P, McGovern C, Dickey V, Foraker R, McKay V. Adapting an Electronic STI Risk Assessment Program for Use in Pediatric Primary Care. J Prim Care Community Health. 2023 Jan-Dec;14:21501319231172900. doi: 10.1177/21501319231172900. PMID: 37199386; PMCID: PMC10201180.

P3: Using Veterans Health Administration Data to Understand How Primary Care Team Configuration and Stability Impact Quality

This study uses a large, diverse national sample of primary care teams to examine the impact of different team configurations.

Study Overview

Problem: Although the effectiveness of primary care teams is well documented, the impact of different types of care team configurations on the quality of care is not well understood.

Main Objective: To examine the relationship between the configuration of the primary care team and the stability of the care provided.

Approach: The research team used a large, national dataset from the Veterans Health Administration (VHA) to study the effectiveness of different primary care team configurations. First, the research team convened a panel of experts to select and prioritize a set of primary care performance measures. The panel reviewed existing performance measures and drew upon evidence-based methodology from organizational psychology normally used for developing performance measurement systems (Productivity Measurement and Enhancement System, or ProMES) to select a curated set of metrics that represented high quality primary care. The panel selected sixteen performance indicators encompassing three fundamental dimensions of primary care: access, patient-health care team partnerships, and technical quality. The research team used a subset of these indicators as the outcomes of the study.

Next, the research team built a dataset with measures of clinical performance, team configuration, and team and role stability for a sample of nearly 6,000 primary care teams from more than 1,000 VHA healthcare centers nationwide. The researchers computed team configurations for each team using network analysis. The researchers then used hierarchical linear models to test the relationship between clinical performance measures and adherence to recommended team configurations, team stability, and the stability of team leadership over time.

Results: In preliminary findings, the research team found that different team characteristics were associated with different quality and access outcomes. In most cases, teams with more full-time equivalent personnel appeared to have better outcomes. In addition, teams with high levels of churn in the nursing role – where the nurse role is always filled, though by different nurses over time – tended to have worse outcomes. The team used these findings to assemble a Primary Care Team-Based Care Toolkit to help primary care teams work more effectively.

Final results and publications from this study are forthcoming and will be posted here.

Primary Care Relevance

This study aims to develop clear guidance on the best primary care team configurations for effectively providing high-quality and patient-centered care.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Sylvia J. Hysong, PhD

Grant Title: Impact of Team Configuration and Team Stability on Primary Care Quality

Organization Name: Baylor College of Medicine

Organization Type; Department: School of Medicine, Internal Medicine

Grant Type: R01 (Research Project)

Grant Period: 07/6/2018 – 4/30/2023

Topic Areas: Practice and Quality Improvement, Healthcare Systems/ Infrastructure

P4: Impacts of Changes in Payment Policy on Access to Primary Care for People with Lower Incomes

This study examines the impact of primary care provider payment policy on outpatient care, clinical events, and medical spending.

Study Overview

Problem: People who are eligible for both Medicare and Medicaid, referred to as "dually eligible beneficiaries," are a medically vulnerable population with high medical care costs. Dually eligible beneficiaries also often have inadequate access to high quality care.

Main Objective: To identify the effects of the temporary Affordable Care Act increases in Medicaid payment rates for primary care providers in 2013 and 2014, which increased payment rates for dually eligible beneficiaries by up to 25%.

Approach: The research team is using Medicare claims data to compare primary care visit rates for beneficiaries who were eligible for increased primary care payments to a control group of Medicare beneficiaries with lower incomes in the same geographical area who were not eligible for increased payments. The team is also examining differences in the proportion of primary care providers' Medicare patients who are dually eligible before and after the policy change in States with temporary or extended fee bumps (i.e., States that continued payment increases after 2014) versus minimal change in payments.

Results: To date, findings from this study show that relative rates of primary care visits for dually eligible beneficiaries did not increase overall during the years with a reimbursement increase compared with the control group, although there was wide variation across States. In addition, primary care providers' caseloads of dually eligible beneficiaries declined between 2011 and 2017 and were not consistently associated with the payment change.[1] These findings indicate that administrative and implementation barriers may have limited the effects of the reimbursement increase.[2] Additional publications for this study are expected. Current and future publications can be found here.

Primary Care Relevance

Findings from this study can help policymakers consider how to best improve primary care access and utilization for Medicare beneficiaries with lower incomes.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Vicki Fung, PhD

Grant Title: Medicaid Payment Policy and Access to Care for Dual Eligible Beneficiaries

Organization Name: Massachusetts General Hospital

Grant Type: R01 (Research Project)

Grant Period: 09/01/2016 - 08/31/2023

Topic Areas: Healthcare Systems/ Infrastructure, Health Equity

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[1] Fung, V., McCarthy, S., Price, M., Hull, P., Lê Cook, B., Hsu, J., & Newhouse, J. P. (2021). Payment discrepancies and access to primary care physicians for dual-eligible Medicare-Medicaid beneficiaries. Medical care, 59(6), 487.

[2] Fung, V., Price, M., Hull, P., Lê Cook, B., Hsu, J., & Newhouse, J. P. (2021). Assessment of the patient protection and affordable care act's increase in fees for primary care and access to care for dual-eligible beneficiaries. JAMA network open, 4(1), e2033424-e2033424.

P5: Assessing the Impact of the Affordable Care Act on Reproductive Health Care

This study examines the impact of the Affordable Care Act and Medicaid expansion on the reproductive health care provided in community health centers.

Study Overview

Problem: Reproductive health is a central component of preventive care. Despite the evidence of its importance and effectiveness, there are well-documented disparities in access to and utilization of reproductive health care services, especially among racial and ethnic minorities and people with lower incomes. The Affordable Care Act (ACA) sought to increase access to vital reproductive care services through the expansion of Medicaid coverage. However, only 31 States voluntarily expanded Medicaid, and the impact of expansion on reproductive services is not well understood.

Main Objective: 1) To use the natural experiment of Medicaid expansion in some States but not others, to better understand the impact of the ACA on access to comprehensive preventive, contraceptive, and pregnancy-related care; and 2) To examine the essential role community health centers in the US play in connecting women to quality reproductive health care.

Approach: The study uses electronic health record (EHR) data from the ADVANCE clinical data research network (CDRN) and community data. The research team uses patient-level data for over 3 million patients to examine the provision and utilization of reproductive services before and after Medicaid expansion, and between expansion and non-expansion states. The team also uses EHR data to identify the individual, clinic, and state-level factors associated with reproductive health care. In addition, the research team collects qualitative data to understand patient and provider perspectives on access to reproductive care in community health centers.

Results: The research team found that five out of six key preventive care services (screening for HIV, cervical cancer, and chlamydia; and vaccination for HPV and influenza) increased at community health centers in both expansion and non-expansion states after the expansion of Medicaid, but remain low across the board.[1] The research team also found that community health centers play an important role in providing the most effective contraceptive methods for women with lower incomes.[2] These and additional publications from the grant are posted here.

Primary Care Relevance

Findings from this study show that the policies that fund health centers and expand coverage for reproductive health services in primary care settings are effective ways to ensure ongoing access to equitable reproductive health care.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Erika L. Barth Cottrell, PhD, MPP

Grant Title: Reproductive care in the safety net: Women's health after Affordable Care Act implementation (EVERYWOMAN)

Organization Name: OCHIN, INC

Grant Type: R01 (Research Project)

Grant Period: 08/01/2017 – 09/30/2022

Topic Areas: Health Equity; Women's Health/ Reproductive Health

[1] Hatch, B., Hoopes, M., Darney, B.G., Marino, M., Templeton, A.R., Schmidt, T., Cottrell, E. (2021). Impacts of the affordable care act on receipt of women's preventive services in community health centers in medicaid expansion and nonexpansion states. Womens Health Issues. 31(1):9-16. doi: 10.1016/j.whi.2020.08.011.

[2] Darney B.G., Biel F.M., Oakley J., Rodriguez M.I., Cottrell, E.K. (2022). US "safety net" clinics provide access to effective contraception for adolescents and young women, 2017-2019. American Journal of Public Health. 112(S5):S555-S562. doi: 10.2105/AJPH.2022.306913.

P6: Understanding the Combined Impact of Healthcare Delivery and Payment Reform Models

This study examines the combined impact of primary care organization participation in multiple healthcare delivery and payment reform models on care quality and value.

PI Name: Julia Adler-Milstein, PhD

Grant Title: Synergies and Sequencing in Delivery and Payment Reform: Understanding What Works

Organization Name: University of California, San Francisco

Organization Type; Department: School of Medicine, Internal Medicine

Grant Type: R01 (Research Project)

Grant Period: 09/01/2017 – 08/31/2023

Topic Areas: Healthcare Systems/ Infrastructure

Study Overview

Problem: Multiple delivery and payment reform efforts seek to reduce healthcare costs and improve quality in the U.S. The impacts of these voluntary programs, including Medicare and Medicaid Electronic Health Record Incentive Programs (known as “Meaningful Use”), Patient-Centered Medical Home (PCMH) programs, and Accountable Care Organizations (ACOs), have each been studied. However, little is known about the cumulative impact of the participation by primary care organizations in multiple programs.

Main Objective: To better understand the patterns of participation by primary care organizations in care delivery and payment reform models, and the impact of participation in a combination of programs on care quality and value.

Approach: In this longitudinal observational study, the research team combined secondary datasets to examine the participation of primary care practices in Meaningful Use, PCMH, and/or ACO programs from 2009-2017, and looked at practice characteristics related to participation. The research team is also using Medicare claims data to assess the impact of model participation on the patient outcomes expected to improve under these programs, such as adherence to evidence-based care, reductions in avoidable hospitalizations, and reductions in spending.

Results: Out of over 56,000 primary care organizations in the study, 50% participated in one delivery or payment reform program over the study period, 13% participated in two programs; and 1% participated in all three.[1] Primary care organizations that are larger, have more primary care providers, have younger providers, and those with more Medicare patients are more likely to participate in more than one program.[1] In addition, participation in more than one program did not seem to provide synergistic benefits: combined participation in the three programs was associated with small increases in adherence to diabetes guidelines and lower spending on acute care, but participation in single programs was associated with similar benefits.[2] The researchers suggest that greater synergistic impacts may be possible if future healthcare reform programs have better aligned requirements and goals.

Publications can be found here.

Primary Care Relevance

This research helps to better understand the impact of multiple delivery and payment reform efforts on primary care. Results can help guide the design and alignment of future policy efforts to improve healthcare quality and reduce costs.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

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[1] Adler-Milstein, J., Linden, A., Bernstein, S., Hollingsworth, J., & Ryan, A. (2022). Longitudinal participation in delivery and payment reform programs among US Primary Care Organizations. Health services research, 57(1), 47–55. https://doi.org/10.1111/1475-6773.13646.

[2] Adler-Milstein, J., Linden, A., Hollingsworth, J. M., & Ryan, A. M. (2022). Association of primary care engagement in value-based reform programs with health services outcomes: participation and synergies. JAMA Health Forum, 3(2), e220005. https://doi.org/10.1001/jamahealthforum.2022.0005.

P7: Understanding the Relationship Between Proximity and Utilization of Patient-Centered Medical Homes

This study examines the association between where pediatric Medicaid patients in South Carolina live and their use of patient-centered medical homes (PCMHs) instead of hospitals for health care.

PI Name: Nathaniel Bell, PhD

Grant Title: Effect of the patient-centered medical home on geographic and racial disparities in health care access

Organization Name: University of South Carolina at Columbia

Organization Type: School of Nursing

Grant Type: R03 (Small Research Grant)

Grant Period: 09/01/2019 – 08/31/2022

Topic Areas: Healthcare Systems/ Infrastructure

Study Overview

Problem: Patient-centered medical homes (PCMHs) provide primary care using a model designed to put patients at the center of care that is comprehensive, coordinated, accessible, safe, and high-quality. In South Carolina, PCMHs participating in Medicaid Managed Care are available across the State. However, PCMHs are generally concentrated in only four counties, and 10% of the State's Medicaid population does not have a PCMH in the county where they live. Little is known about how much travel distance impacts the use of PCMHs.

Main Objective: To better understand the impact of where a patient lives on their use of a PCMH instead of a hospital for care.

Approach: The research team used pediatric medical claims data in South Carolina from the years 2016-2018 to identify PCMH enrollment and examine proximity to a PCMH versus a hospital for children with pre-existing ADHD (2,959 Medicaid beneficiaries) and asthma (6,390 Medicaid beneficiaries). Using primary care quality indicators, such as the number of avoidable emergency department encounters, the researchers then examined the relationship between travel distance and utilization rates.

Results: The research team found that low rates of uninsured and low poverty rates are the most consistent indicators of PCMH availability in a county.[1] Among children in the ADHD cohort enrolled at a PCMH, the researchers found that avoidable emergency department use decreased as proximity to a PCMH improved relative to a hospital.[2] This evidence suggests that the distance between patients and PCMHs plays a role in PCMH use — at least for pediatric groups with certain pre-existing conditions. This finding may also help to explain disappointing results in prior PCMH research studies that lacked geographic information for patients. Publications from this grant are posted here.

Primary Care Relevance

This research helps to better understand how travel distance impacts PCMH utilization. Findings could lead to policy reform to establish guidelines to increase access to PCMHs among Medicaid patients.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

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[1] Bell N, Wilkerson R, Mayfield-Smith K, Lòpez-De Fede A. Community social determinants and health outcomes drive availability of patient-centered medical homes. Health Place. 2021 Jan;67:102439. doi: 10.1016/j.healthplace.2020.102439. Epub 2020 Nov 16. PMID: 33212394.

[2] Bell N, Lòpez-De Fede A, Cai B, Brooks J. Geographic proximity to primary care providers as a risk-assessment criterion for quality performance measures. PLoS One. 2022 Sep 6;17(9):e0273805. doi: 10.1371/journal.pone.0273805. PMID: 36067180; PMCID: PMC9447909.

P8: Do Telemedicine Visits Provide Similar Quality and Safety as In-Person Visits?

This study helps to build understanding about the quality of care, potential benefits, and the future role of telemedicine in primary care settings.

Study Overview

Problem: More patients are using telemedicine visits for primary care, which reduces barriers to care such as transportation, childcare, and the need to take time off from work. However, before the COVID-19 pandemic there had been little research comparing the quality and effectiveness of telemedicine to in-person visits.

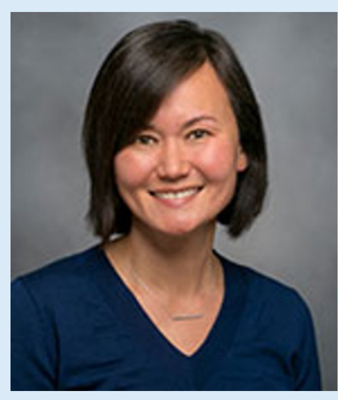
Main Objective: To understand which patient characteristics are associated with telemedicine utilization, and to understand how telemedicine compares in quality, care processes, and patient outcomes to in-person care.

Approach: To collect information about technology usability, convenience, and patient-reported outcomes for telemedicine visits in primary care, the research team conducted surveys with patients (700 pre-pandemic and 1,000 post pandemic) and interviews with clinicians and organizational leaders. The research team is also using electronic health record data in northern California from the multi-year study period to examine rates of prescribing and ordering, follow-up visits, and emergency department visits following telemedicine preventative care visits compared to in-person visits.

Results: Prior to the COVID-19 pandemic, the research team found that patients who were female, under 40, and had access to high-speed internet selected telemedicine visits more often.[1] In addition, Black patients were more likely than patients of other races to choose to have a telemedicine visit.[1] Researchers also found that there were lower rates of prescribing and higher rates of follow-up office visits for patients with telemedicine visits compared to patients with in-person visits, but there were no significant differences in emergency visits or hospitalizations.[2]

During the pandemic, the research team found that Black and Hispanic patients, patients living in neighborhoods with lower internet access, and patients living in neighborhoods with lower socioeconomic status were more likely to schedule telephone visits than video visits.[3] Patients more likely to schedule video visits included people 65 or older, those with prior experience having video visits, and those visiting their usual primary care provider.[3] Rates of medication prescriptions and laboratory/imaging orders were higher for patients with video visits compared to patients with telephone visits. Rates of follow-up office visits, emergency department visits, and hospitalizations were lower following video visits compared to telephone visits, but these outcomes were rare across all telemedicine visits.[4]

Publications from this study can be found here.



PI Name: Mary Reed, DrPH

Grant Title: Patient choice of telemedicine encounters

Organization Name: Kaiser Foundation Research Institute

Grant Type: R01 (Research Project)

Grant Period: 05/15/2018 - 2/29/2024

Topic Areas: Digital Healthcare, Person-Centered Care, Telehealth

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[1] Reed ME, Huang J, Graetz I, Lee C, Muelly E, Kennedy C, Kim E. Patient Characteristics Associated With Choosing a Telemedicine Visit vs Office Visit With the Same Primary Care Clinicians. JAMA Netw Open. 2020 Jun 1;3(6):e205873. doi: 10.1001/jamanetworkopen.2020.5873. PMID: 32585018; PMCID: PMC7301227.

[2] Reed M, Huang J, Graetz I, Muelly E, Millman A, Lee C. Treatment and Follow-up Care Associated With Patient-Scheduled Primary Care Telemedicine and In-Person Visits in a Large Integrated Health System. JAMA Netw Open. 2021 Nov 1;4(11): e2132793. doi: 10.1001/jamanetworkopen.2021.32793. PMID: 34783828; PMCID: PMC8596201.

[3] Huang J, Graetz I, Millman A, Gopalan A, Lee C, Muelly E, Reed ME. Primary care telemedicine during the COVID-19 pandemic: patient's choice of video versus telephone visit. JAMIA Open. 2022 Jan 19;5(1):ooac002. doi: 10.1093/jamiaopen/ooac002. PMID: 35146380; PMCID: PMC8822408.

[4] Huang J, Gopalan A, Muelly E, Hsueh L, Millman A, Graetz I, Reed M. Primary care video and telephone telemedicine during the COVID-19 pandemic: treatment and follow-up health care utilization. Am J Manag Care. 2023 Jan 1;29(1):e13-e17. doi: 10.37765/ajmc.2023.89307. PMID: 36716159.

Primary Care Relevance

Findings from this study demonstrate that while there are some differences in primary care treatment via telemedicine compared with in-person care, negative outcomes were rare. Use of telemedicine shifted dramatically during the COVID-19 pandemic, with some gaps in equitable use of video telemedicine.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

P9: Using a Mobile Health Tool to Improve Patient-Centered Care for Patients with Type 2 Diabetes

This study tests a mobile health tool for collecting and sharing patient-reported outcomes as a part of everyday clinical practice, and ultimately, whether the tool improves care and outcomes for individuals with type 2 diabetes.

Study Overview

Problem: Much of clinical practice for type 2 diabetes focuses on addressing the impacts of the disease on a patient's physical health. Inclusion of the patients' perspective of their health and functional status and understanding what outcomes they most desire is less common, but necessary for improving care.

Main Objective: To evaluate the usability and efficacy of a mobile health tool that incorporates patients' perspective into the clinical management of type 2 diabetes.

Approach: This study will implement an innovative mobile health tool for managing diabetes care (i-Matter). The tool uses text-messaging to collect and share patient-reported outcomes and sends patients feedback and motivational messages based on the information they share. The platform also creates dynamic data visualizations of the patient's data, which is integrated into the electronic health record, and can be reviewed by their primary care clinicians during and between visits.

In the first phase of the study, the research team will use qualitative methods to evaluate the usability, performance, and workflow integration of the i-Matter tool in meeting the needs of clinicians and patients. In the second phase, the research team will randomize 282 participants to receive either usual care for diabetes or care supplemented with the i-Matter tool. Outcomes include mean reduction in blood sugar levels, changes in patient adherence to lifestyle and medication recommendations, and patient-provider communication.

Results: While the study is ongoing, the research team has published results from an analysis on longitudinal user engagement data. Analyses revealed three distinct subgroups of patients used the i-Matter tool: a low-engaged group, a moderately engaged group, and a highly engaged group, with the latter being the largest.[1] Future analyses will determine whether these engagement patterns impact patients' behavioral and clinical health outcomes. If so, engagement patterns can be used to identify patients in need of additional support.

Current and future publications from this grant will be posted here.

Primary Care Relevance

This project has the potential to harness the use of technology, such as the mobile phone and electronic health record, to support the delivery of high-quality patient-centered care for patients with type 2 diabetes in primary care settings.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

PI Name: Antoinette M. Schoenthaler, EdD

Grant Title: i-Matter: Investigating an mHealth texting tool for embedding patient-reported data into diabetes management

Organization Name: New York University Grossman School of Medicine

Organization Type: School of Medicine; Internal Medicine

Grant Type: R01 (Research Project)

Grant Period: 09/01/2018 – 06/30/2024

Topic Areas: Person-Centered Care, Digital Healthcare, Practice and Quality Improvement

[1] Mandal, S., Belli, H. M., Cruz, J., Mann, D., & Schoenthaler, A. (2022). Analyzing user engagement within a patient-reported outcomes texting tool for diabetes management: engagement phenotype study. JMIR Diabetes, 7(4), e41140. https://doi.org/10.2196/41140.

P10: Improving Clinical-Community Linkages in Primary Care for Patients with Multiple Chronic Conditions

This study tests an innovative model for including primary care clinicians in systems to connect patients with multiple chronic conditions to needed community resources.

PI Name: Alexander H Krist; MD, MPH

Grant Title: Enhanced Care Planning and Clinical-Community Linkages to Comprehensively Address the Basic Needs of Patients with Multiple Chronic Conditions

Organization Name: Virginia Commonwealth University

Organization Type; Department: School of Medicine; Family Medicine

Grant Type: R01 (Research Project)

Grant Period: 03/05/2019 - 02/01/2024

Topic Areas: Person-Centered Care, Public Health and Community Integration, Practice and Quality Improvement, Multiple Chronic Conditions

Study Overview

Problem: Medical care to manage multiple chronic conditions (MCC) is unlikely to be effective for patients who are struggling to meet their basic needs, such as having stable housing and enough to eat.

Main Objective: To examine how primary care clinicians can participate in new models for connecting patients with needed community services, and measure whether doing so improves patient outcomes.

Approach: In In this clinician-level randomized controlled trial, 60 clinicians from the Virginia Ambulatory Care Outcomes Research Network (ACORN) were randomized to provide either usual care (the control group) or enhanced care planning with clinical-community linkage support (the intervention group) for 600 patients with uncontrolled MCC. In the intervention group, patients were first screened for health behavior, mental health, and social needs using an enhanced care planning tool. Then, clinical navigators helped patients prioritize their needs and create care plans to help guide the care team. Next, clinical navigators and community health workers worked to connect patients with needed resources in the community. Six months and two years after enrollment, the research team assessed MCC health outcomes and patient-reported physical health, mental health, and social wellbeing outcomes. The research team also conducted medical record reviews, patient surveys, field observations, and semi-structured interviews with patients, clinicians, and community stakeholders to understand how contextual influences impacted the implementation and effectiveness of the intervention.

Results: The research team has learned that patient navigation services do not require a large time commitment or intensive training. However, due to current demands on primary care teams, most practices require additional staff or resources to be able to provide these services.[1] Patients report being less comfortable discussing social needs that are not health-related with their primary care team, such as finances, housing, and transportation. Yet, they are willing to discuss their needs when a strong relationship with the clinician already exists, there is adequate time provided for this discussion, and the practice ensures referrals to helpful community services.[2]

Additional results from this study are forthcoming. Publications from this grant will be posted here.

Primary Care Relevance

This study helps to inform efforts to include primary care clinicians in the growing number of Accountable Health Care-like systems as a strategy to address mental health and social needs.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

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[1] Hinesley JLG, Brooks EM, O'Loughlin K, Webel B, Britz J, Kashiri PL, Scheer J, Richards A, Lavallee M, Sabo RT, Huebschmann AG, Krist AH. Feasibility of Patient Navigation for Care Planning in Primary Care. J Prim Care Community Health. 2022 Jan-Dec;13:21501319221134754. doi: 10.1177/21501319221134754. PMID: 36348571; PMCID: PMC9647277.

[2] O'Loughlin K, Shadowen HM, Haley AD, Gilbert J, Lail Kashiri P, Webel B, Huebschmann AG, Krist AH. Patient Preferences for Discussing and Acting on Health-Related Needs in Primary Care. J Prim Care Community Health. 2022 Jan-Dec; 13:21501319221115946. doi: 10.1177/21501319221115946. PMID: 35920033; PMCID: PMC9358340.

P11: Identifying Ways to Improve Preventive Care for Children

This study examines parental and child level information to identify ways to improve rates of preventive care, including vaccinations, for children.

Study Overview

Problem: Many children are not receiving adequate preventive healthcare. This includes missing yearly well-child visits, and not being up-to-date on recommended vaccinations, screenings, and assessments.

Main Objective: To identify which parental factors are most strongly associated with children receiving recommended preventive care and explore how social determinants of health influence healthcare utilization for the whole family.

Approach: The research team conducted qualitative interviews with approximately 30-40 parents to understand their perceptions towards preventive care and learn what barriers could be addressed to make it easier for their children to receive recommended care. Using electronic health record data from over 2 million patients, including over 350,000 children from 18 states, the researchers analyzed health, healthcare factors, and social determinants of health for both parents and children. The research team used a sequential mixed-methods approach to conduct analyses based on qualitative insights.

Results: To date, findings from this study show that parents who participate in preventive care themselves are more likely to bring their children in for routine well-child visits.[1] In addition, children are more likely to be up-to-date on routine vaccinations if their parents receive regular vaccinations.[2] Additional publications for this study are expected. Current and future publications can be found here.

Primary Care Relevance

Findings from this study help inform potential primary care interventions to improve the access and utilization of children's recommended healthcare by improving the preventive healthcare for parents.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Jennifer DeVoe, MD, DPhil

Grant Title: Helping gEnerations Identify Risks (Heirs) to Health

Organization Name: Oregon Health & Science University

Organization Type; Department: School of Medicine; Family Medicine

Grant Type: R01 (Research Project)

Grant Period: 07/01/2019-04/30/2023

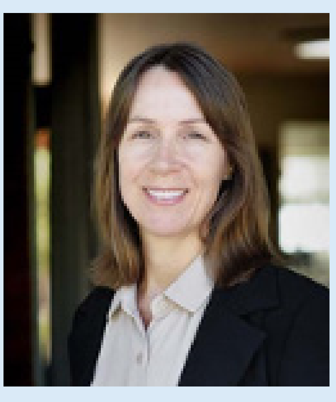
Topic Areas: Person Centered Care, Health Equity

1 Angier, H., Kaufmann, J., Heintzman, J., O'Malley, J., Moreno, L., Giebultowicz, S., & Marino, M. (2022). Association of Parent Preventive Care with their Child's Recommended Well-Child Visits. Academic Pediatrics, 22(8), 1422-1428.

2 Kaufmann, J., DeVoe, J. E., Angier, H., Moreno, L., Cahen, V., & Marino, M. (2022). Association of parent influenza vaccination and early childhood vaccinations using linked electronic health record data. Vaccine, 40(49), 7097-7107.

P12: Using a Televideo-based Training Model for Providers to Expand Treatment for Opioid Use Disorder in Rural New Mexico

This study examined the feasibility of using the Extensions for Community Healthcare Outcomes (ECHO©) model to train primary care providers in rural New Mexico to provide medications for opioid use disorders (MOUD).



PI Name: Julie G Salvador, PhD

Grant Title: ECHO-F Model to Expand Medication Assisted Treatment in Rural Primary Care

Organization Name: University of New Mexico Health Sciences Center

Organization Type; Department: School of Medicine; Psychiatry

Grant Type: R18 (Research Demonstration and Dissemination Project)

Grant Period: 08/01/2017 - 01/31/2023

Topic Areas: Behavioral Health and Substance Use Disorders, Digital Healthcare, Telehealth, Opioids

Study Overview

Problem: Opioid use is the main driver of overdose deaths – which are increasing at an alarming rate across the country. Effective treatment of opioid use disorder in New Mexico is hampered by severe shortages in the primary care workforce and by how much of the State is rural. The ECHO© model has been used to build clinician capacity for implementing best practices for a range of health conditions, but its use for expanding access to behavioral health is less well explored.

Main Objective: To use the ECHO© model, with additional supports as needed, to train primary care providers in rural New Mexico to provide MOUD for patients with opioid use disorder.

Approach: Using the ECHO© model, the research team aimed to train 240 providers (plus additional clinic staff) in 80 clinics on how to implement MOUD.[1] The ECHO© model is a televideo-based strategy for remotely training health care providers using both didactic and problem-based learning. MOUD is an evidence-based approach that uses medication combined with psychosocial and community-based supports to treat opioid use disorder. The research team monitored participating providers' implementation benchmarks, and provided support as necessary for providers who were not able to reach benchmarks. Inferential analysis was used to understand the feasibility of accomplishing implementation benchmarks and logistic regression analyses were conducted to assess the relationship between participation and dichotomous achievement measures.

Results: To date, published results from this study have shown positive feedback from clinicians on the ECHO© MOUD curriculum, but varying rates of participation in sessions. Consistently reported barriers to attending trainings were provider's clinical duties and lack of time to participate.[1,2] The study has also found that attending more ECHO© MOUD sessions is associated with clinicians making more progress towards providing MOUD (such as completing the required training and paperwork), starting to prescribe buprenorphine to treat opioid use disorder, and adding more patients onto buprenorphine treatment.[3] Findings regarding the effectiveness of the program for patients are forthcoming. Publications can be found here.

[1] Salvador JG, Bhatt SR, Jacobsohn VC, Maley LA, Alkhafaji RS, Rishel Brakey H, Myers OB, Sussman AL. Feasibility and acceptability of an online ECHO intervention to expand access to medications for treatment of opioid use disorder, psychosocial treatments and sOupports. Subst Abus. 2021;42(4):610-617. doi: 10.1080/08897077.2020.1806184. Epub 2020 Aug 19. PMID: 32814005; PMCID: PMC8552422.

[2] Salvador J, Bhatt S, Fowler R, Ritz J, James R, Jacobsohn V, Brakey HR, Sussman AL. Engagement With Project ECHO to Increase Medication-Assisted Treatment in Rural Primary Care. Psychiatr Serv. 2019 Dec 1;70(12):1157-1160. doi: 10.1176/ appi.ps.201900142. Epub 2019 Aug 22. PMID: 31434561; PMCID: PMC8552451.

[3] Salvador J, Rishel Brakey H, Alkhafaji RS, Fuentes J, McWethy M, Rombach L, Abeyta R, Martinez J, Sussman A, Myers O. Participation in ECHO is Associated with Expanding Buprenorphine Treatment in Rural Primary Care for Patients with Opioid Use Disorder. Poster session presented at NAPCRG Annual Meeting; November 2022; Phoenix, Arizona.

Primary Care Relevance

Findings from this grant inform the feasibility of using the ECHO© model to expand access to medications for opioid use disorders through primary care in rural and high need/low resource settings.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

P13: Developing a Prediction Model to Identify Health Clinics at High-Risk for Clinician Burnout

This study develops and validates a model to identify health clinics at high-risk for clinician burnout, which could inform practice improvement efforts to prevent burnout before it occurs.

PI Name: Daniel Tawfik, MD, MS

Grant Title: Development and Validation of a Prediction Model to Address Physician Burnout

Organization: Stanford University

Grant Type: K08 (Mentored Clinical Scientist Development Award)

Grant Period: 09/30/2020-09/29/2025

Topic Areas: Primary Care Workforce, Digital Healthcare, Patient Safety

Study Overview

Problem: Over 500,000 physicians in the United States experience symptoms of burnout at any given time. In addition to the impacts on affected clinicians, burnout also negatively affects quality of care and patient safety. Unfortunately, there is currently no reliable method to proactively identify high-risk clinics and intervene before burnout occurs.

Main Objective: To develop and validate a prediction model that uses existing operational data to identify clinics at high-risk for clinician burnout.

Approach: Researchers are creating a database with practice-specific metrics from Stanford primary care clinics, including electronic health record (EHR) usage measures. Using a machine learning approach, the research team will use the data to develop a model to quantify the risk for clinician burnout and identify clinics at high risk. The research team will then conduct a qualitative assessment to refine the prediction model and then seek to demonstrate the model's predictive validity at the clinic level based on routinely administered surveys measuring clinician burnout.

Results: To date, researchers have identified two practice-specific operational domains that relate to wellbeing and risk of burnout that could be quantified in a machine learning model alongside EHR measures. The first factor is the effect of people leaders – when leaders are available at expected times, and feedback is effective, predictable, and respectful, employees are more likely to feel a sense of psychological safety and are less likely to feel emotional exhaustion and burnout.[1] Second, healthcare workers who are more likely to be at high-risk for burnout include women physicians, midcareer physicians, healthcare workers with adult children, and healthcare workers working less than full-time.[2] Additional study findings are forthcoming. Current and future publications can be found here.

Primary Care Relevance

This project has the potential to develop and implement a model that can predict which primary care clinics are at high-risk of burnout before it negatively affects clinicians and patients. This will allow burnout interventions to be tailored to the specific needs of the clinics. Additionally, with a better understanding of which clinic factors impact burnout, leaders can work to proactively make system-level changes to support clinician well-being.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

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[1] Tawfik, D. S., Adair, K. C., Palassof, S., Sexton, J. B., Levoy, E., Frankel, A., Leonard, M., Proulx, J., & Profit, J. (2023). Leadership behavior associations with domains of safety culture, engagement, and health care worker well-being. Joint Commission Journal on Quality and Patient Safety, 49(3), 156–165. https://doi.org/10.1016/j.jcjq.2022.12.006.

[2] Tawfik, D. S., Shanafelt, T. D., Dyrbye, L. N., Sinsky, C. A., West, C. P., Davis, A. S., Su, F., Adair, K. C., Trockel, M. T., Profit, J., & Sexton, J. B. (2021). Personal and professional factors associated with work-life integration among US physicians. JAMA Network Open, 4(5), e2111575. https://doi.org/10.1001/jamanetworkopen.2021.11575.

P14: Is Telehealth Effective for Providing Nurse-Led Healthcare to Vulnerable Populations in Colorado?

This study examined the impact of the shift in healthcare to telehealth, as a response to the COVID-19 pandemic, on innovative nurse-led care models used to provide care throughout Colorado.

Study Overview

Problem: Due to the public health emergency from the COVID-19 pandemic, there was a sudden shift to using telehealth to provide healthcare. In Colorado, nurse-led models of care are used to deliver behavioral health, primary care, prenatal care, and home visitation to rural and economically vulnerable populations. The impacts of the abrupt and unexpected shift to telehealth on nurse-led models of care are unknown.

Main Objective: To evaluate the impacts of the sudden shift to telehealth at the onset of the COVID-19 pandemic on nurse-led care for vulnerable patients across Colorado.

Approach: The research team of nurse scientists used claims data, surveys, and interviews in a mixed methods approach to evaluate telehealth implementation on statewide utilization of nurse-led models of care, patient outcomes, and patient and provider experiences.

Results: To date, findings from this study show that across three different nurse-led care models in Colorado, patients who were Hispanic and those living in rural areas were more likely to use phone rather than video telehealth visits.[1] Additional results from patient surveys showed that those who had video telehealth visits had higher trust in the service provided than those who had phone visits. Provider surveys across the State showed consistent positive responses to the ease of use of telehealth with their patients.[1]

Additional study findings are expected. Publications can be found here.

Primary Care Relevance

Findings from this study help inform how well telehealth approaches impact primary care access and utilization for the most vulnerable patients.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Amy Barton PhD, RN, FAAN, ANEF

Grant Title: Quality, Safety, Value: Impact of sudden shift to telehealth due to COVID-19 within Nurse-led care models located in Colorado rural and urban communities

Organization Name: University of Colorado Denver

Organization Type: School of Nursing

Grant Type: R01 (Research Project)

Grant Period: 01/01/2021-12/31/2022

Topic Areas: Digital Healthcare, Healthcare Systems/ Infrastructure

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[1] Barton AJ, Amura CR, Willems EL, Medina R, Centi S, Hernandez T, Reed SM, Cook PF. Patient and Provider Perceptions of COVID-19-Driven Telehealth Use From Nurse-Led Care Models in Rural, Frontier, and Urban Colorado Communities. J Patient Exp. 2023 Jan 25;10:23743735231151546. doi: 10.1177/23743735231151546. PMID: 36741820; PMCID: PMC9893383.

Emerging Research Spotlights

This section includes descriptions of selected studies that do not yet have publications or findings.

S1 Developing a Dashboard to Help Clinical Teams Prioritize and Manage Vulnerable Patients with Multiple Chronic Conditions (PI: Grant)

S2 Using EHR-Based Simulations to Reduce Diagnostic Errors in Ambulatory Care Settings (PIs: Gold and Ratwani)

S3 Implementing and Evaluating the Use of a Mobile Health Tool to Help Address Medication Non-Compliance (PI: Snyder)

S4 Does Support for CDS Implementation Increase the Use of Patient-Centered Care to Treat Chronic Pain in Primary Care? (PIs: Harle and Salloum)

S5 Developing a Mobile Tool to Improve Self-Care and Shared Decision-Making for Patients with Chronic Conditions (PI: Jih)

S6 Can an Electronic Shared Decision-Making Tool Increase the Uptake of Collaborative Care for Racial and Ethnic Minority Patients with Depression? (PI: Moise)

S7 Identifying How to Improve Health Outcomes for Children in Foster Care (PI: Beal)

S8 Understanding How Nurse Practitioners Improve Access to Primary Care (PI: Neprash)

S9 Using Integrated Social and Medical Risk Data Dashboards to Improve Chronic Disease Management and Prevention (PIs: Hessler-Jones and Fichtenberg)

S10 Enhancing a Mobile Health App for Patient Asthma Symptom Monitoring During the COVID-19 Pandemic (PI: Rudin)

S1: Developing a Dashboard to Help Clinical Teams Prioritize and Manage Vulnerable Patients with Multiple Chronic Conditions

This study will use advanced analytics to identify patients with multiple chronic conditions and socially determined barriers to care, and then develop and test an EHR-based dashboard to help clinical teams ensure these patients receive high-quality primary care.

What is the research about?

People living with multiple chronic conditions (MCC) often experience barriers to receiving the high-quality, evidence-based primary care they need due to the various social, behavioral, and economic factors they face. For this project, the research team is using advanced analytics to identify which patients with MCC are at highest risk for facing socially determined barriers to care. The team is then developing an electronic health record (EHR) based dashboard that can be used by clinical teams to prioritize their most vulnerable MCC patients and help manage their care. The research team will evaluate the use of this dashboard in three Kaiser Permanente organizations providing care in lower income communities: Richmond, CA; Rainier Valley, WA; and Aurora, CO. The team will use transparent analytics and design the dashboard in such a way that it can be adapted and used in different clinical settings.

Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

The dashboard created through this grant will be able to be adapted by various primary care health systems to reduce barriers to care for patients who are both socially and medically complex.

AHRQ Primary Care Priority Area

Research on management of clinical areas unique to primary care, such as multiple chronic conditions, preventive care, undifferentiated syndromes, or behavioral and mental healthcare that is integrated within primary care.

PI Name: Richard W. Grant, MD, MPH

Grant Title: Care System Analytics to Support Primary Care Patients with Complex Medical and Social Needs

Institution: Kaiser Foundation Research Institute

Grant Type: R18 (Research Demonstration and Dissemination Project)

Grant Period: 09/30/2019 – 09/29/2023

Topic Areas: Digital Healthcare; Public Health and Community Integration; Practice and Quality Improvement; Multiple Chronic Conditions

S2: Using EHR-Based Simulations to Reduce Diagnostic Errors in Ambulatory Care Settings

This project will develop a library of EHR-based simulations that can be used to train clinicians to change their EHR use patterns and improve diagnostic safety in ambulatory care settings.

What is the research about?

Diagnostic errors are often caused by clinicians not being able to access or synthesize the complex medical information they need for medical decision making. Making diagnoses in an ambulatory care setting requires processing information collected over a long period of time, across multiple individual encounters, and across transitions of care. Use of electronic health records (EHRs) can contribute to diagnostic errors, often because of system design issues and poor user training for clinicians. Simulation is a powerful tool that can be used to both systematically study the ways EHRs contribute to diagnostic errors, and train clinicians to prevent them.

For this grant, the research team will use a combination of administrative and claims data to identify diagnoses at risk for diagnostic error in ambulatory care settings and the EHR use errors associated with those errors. The researchers will use this data to develop simulations for five ambulatory care settings and validate the use of the simulation activities as a training tool to change clinician EHR use patterns and reduce diagnostic errors. The simulations library the research team develops (including simulation materials, scripts, and EHR charts) will be shared via an online repository along with applications that will allow the simulations to be loaded into all major EHR systems for broad dissemination and implementation.

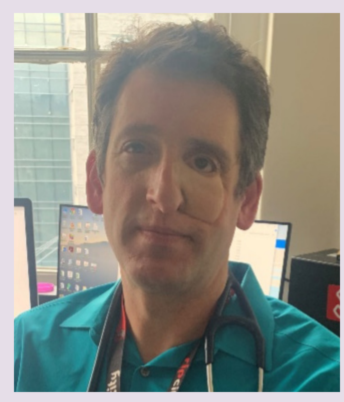
Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

The library of validated EHR-based simulation exercises that this project plans to develop has the potential to train clinicians in ambulatory care settings to change their EHR use patterns and reduce diagnostic errors.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.



PI Name: Jeffrey Gold, MD

CoPI Name: Raj Ratwani, PhD, MPH

Grant Title: A Turn-Key EHR Simulation Program to Reduce Diagnostic Error in Ambulatory Care

Organization: Oregon Health & Science University

Grant Type: R18 (Research Demonstration and Dissemination Projects)

Grant Period: 09/30/2019 – 08/31/2024

Topic Areas: Digital Healthcare; Practice and Quality Improvement

S3: Implementing and Evaluating the Use of a Mobile Health Tool to Help Address Medication Non-Adherence

This study is implementing and evaluating the use of a mobile health tool for collecting patient-reported outcomes (PROs) in community pharmacies to address medication non-adherence.

What is the research about?

Dispensed prescription histories and claims data typically are used to identify medication non-adherence in ambulatory care settings. However, collecting PROs via mobile health applications offers new opportunities for understanding and addressing medication issues and non-adherence.

This study adapted and is testing PatientToc™, a previously developed mobile health software for collecting PROs in primary care, for use in community pharmacies to address medication non-adherence. First, the study team partnered with pharmacies in Indiana, Minnesota, and Wisconsin to conduct a pre-implementation developmental formative evaluation to understand existing workflows and practices for identifying medication non-adherence in community pharmacies, and to identify potential barriers and facilitators to implementing PatientToc™. Based on the information collected, the team created an implementation toolkit. Next, the study team worked with one pharmacy in each state to implement PatientToc™ and conduct a plan-do-study-act cycle to refine the toolkit and implementation facilitation plans. The team then spread implementation of PatientToc™, using the updated toolkit, to 3-5 locations per state. Finally, the team will conduct a rigorous evaluation using interviews, observational data, and administrative data to understand the impact of implementing PatientToc™ in community pharmacies on the quality of care and patient health outcomes.

Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

Community pharmacies may be in a better position than primary care clinicians for resolving medication issues and non-adherence, allowing patients to benefit from prescribed medications as intended by their primary care providers.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

PI Name: Margie Snyder, PharmD, MPH

Grant Title: An Evaluation of the Spread and Scale of PatientToc from Primary Care to Community Pharmacy Practice for the Collection of Patient-Reported Outcomes

Institution: Purdue University

Grant Type: R18 (Research Demonstration and Dissemination Projects)

Grant Period: 04/01/2019 – 03/31/2024

Topic Areas: Digital Healthcare; Person-centered care

S4: Does Support for CDS Implementation Increase the Use of Patient-Centered Care to Treat Chronic Pain in Primary Care?

This grant develops and tests a clinical decision support (CDS) tool to help primary care clinicians work with their patients to choose a pain treatment approach that best balances the potential risks and benefits for the individual patient.

What is the research about?

The research team is providing tailored implementation support for primary care clinics to use an existing interoperable CDS tool (Pain Manager) for shared decision making to treat chronic pain. The researchers are then examining if the tailored implementation support increases the adoption of the CDS tool and use of shared decision making (SDM). In addition, the research team is collecting data and feasibility information to prepare for a multi-site pragmatic trial to test the effectiveness of Pain Manager, with implementation support, to increase SDM and improve patient-reported pain and physical function outcomes.

CDS describes a range of tools that are used to help support decision-making in the clinical workflow. These tools are often integrated into the electronic health record, and can include alerts or reminders for clinicians, clinical guideline information, condition-specific order sets, diagnostic support, or other tools.

SDM is a collaborative process in which patients and clinicians work together to make healthcare decisions informed by evidence; the care team's knowledge and experience; and the patient's values, goals, preferences, and circumstances.

Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

This study has the potential to develop and disseminate clinical decision support technology that can be used in primary care to help clinicians work with patients to choose safe and patient-centered care options to treat chronic pain.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

PI Name: Christopher A. Harle; PhD

CoPI Name: Ramzi G. Salloum, PhD

Grant Title: Scaling Interoperable Clinical Decision Support for Patient-Centered Chronic Pain Care

Organization: University of Florida

Organization Type: School of Medicine

Grant Type: R18 (Research Demonstration and Dissemination Projects)

Grant Period: 09/13/2021 – 8/31/2024

Topic Areas: Person-Centered Care, Practice and Quality Improvement, Digital Healthcare

S5: Developing a Mobile Tool to Improve Self-Care and Shared Decision-Making for Patients with Chronic Conditions

This study develops and tests a strategy for collecting patient-reported outcomes from people living with chronic disease, and then integrating the data into primary care workflows to support self-care and shared decision making.

What is the research about?

The collection and sharing of patient-reported outcomes (PROs) – such as symptoms of depression, anxiety, mood, sleep, and cognitive function – can give people living with chronic conditions helpful information for understanding and managing their own health. In addition, clinical teams can use PROs to support shared decision-making with patients as they jointly develop and revise care plans. The widespread availability of mobile phones allows researchers to collect PRO data when and where people experience symptoms.

In this study, the research team will develop a smart phone app for patients to share PROs in English and Chinese. Using the app, patients living with one or more chronic disease will report on their physical and mental health-related quality of life (using the PROMIS-29). The research team will integrate patients' responses into the University of California, San Francisco's electronic health record (EHR). To support use of the PROs within the primary care workflow, the team will use SMART-on-FHIR technology to highlight the patient's PRO results within the EHR encounter without requiring an additional login or search by the clinician. The research team will conduct participatory design sessions, field testing, workflow prototyping, and pilot testing of the app with patients, clinicians, and clinic staff.

The research team will also conduct a single-arm prospective interventional feasibility and acceptability study with 30 patients to evaluate implementation and the effectiveness of the app on improving patient outcomes.

Results from this study are forthcoming. Publications will be posted here.

Primary Care Relevance

This study will develop and test a strategy for collecting PROs from a diverse population of patients with chronic disease, and then seamlessly integrate the data into primary care workflows to support self-care and shared decision making.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Jane Jih, MD, MPH, MAS

Grant Title: Mobile Patient-Reported Outcomes for Value and Effectiveness (mPROVE)

Organization: University of California, San Francisco

Organization Type; Department: School of Medicine; Internal Medicine

Grant Type: U18 (Research Demonstration / Cooperative Agreement)

Grant Period: 09/01/2019 – 08/31/2024

Topic Areas: Person-Centered Care; Digital Healthcare, Practice and Quality Improvement

S6: Can an Electronic Shared Decision-Making Tool Increase the Uptake of Collaborative Care for Racial and Ethnic Minority Patients with Depression?

This study examines an approach for improving clinician and patient participation in collaborative care to treat depression among people from racial and ethnic minority groups.

What is the research about?

Using implementation science and user centered design methods, the research team will design a multi-level intervention for sustaining collaborative care models. This will include developing and refining an interactive SDM tool to help patients and clinicians decide together if collaborative care for depression is the right treatment approach for the patient. Using a provider level cluster randomized control trial in 5 primary care clinics, the research team will assess the effectiveness of the strategy (technical assistance for care managers, provider education, and an automated SDM process for patients) on provider behavior and patient enrollment in collaborative care, as well as patient adherence to depression treatment and impact on depressive symptoms.

Collaborative care for depression in primary care incorporates depression care managers who provide antidepressant adherence counseling and/or psychotherapy for patients. Collaborative care has been found to greatly improve depression remission, particularly for people from racial and ethnic minority groups, as well as reduce mortality and healthcare costs. However, clinician referral rates to collaborative care and patient engagement rates remain low.

SDM is a collaborative process in which patients and clinicians work together to make healthcare decisions informed by evidence, the care team's knowledge and experience, and the patient's values, goals, preferences, and circumstances. Family members and caregivers also play an important role in SDM.

Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

This study has the potential to produce a scalable electronic SDM (eSDM) tool to effectively improve the sustainability of collaborative care programs.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

PI Name: Nathalie Moise; MD, MS

Grant Title: TRANSFORM DEPCARE: A Theoretical Approach to Improving Patient Engagement and Shared Decision Making for Minorities in Collaborative Depression Care

Organization: Columbia University Health Sciences

Organization Type; Department: School of Medicine; Internal Medicine

Grant Type: RO1 (Research Project)

Grant Period: 09/30/2017 – 7/31/2023

Topic Areas: Behavioral Health and Substance Use Disorders, Person-Centered Care, Digital Healthcare

S7: Identifying How to Improve Health Outcomes for Children in Foster Care

This study evaluates the impact of different healthcare delivery models on health outcomes for children in foster care and examines the factors that contribute to variations in healthcare use and health outcomes for these youth.

What is the research about?

Children in foster care experience worse physical and behavioral health outcomes than other children. The health risks for children in foster care are further compounded due to the frequent communication failures between the healthcare and child welfare systems.

This study uses linked child welfare and electronic health record data from the past 12 years for over 9,000 patients, as well as Medicaid claims data and child and caregiver health status reports for a subset of 200 patients. This data will be used to compare healthcare use and outcomes for patients engaged in different models of care: mandated healthcare visits at the time of foster care placement alone; mandated visits, primary care, and specialty care all delivered in the same healthcare system; and coordinated information sharing between the healthcare system and the child welfare system. The research team also seeks to identify how child welfare system factors (e.g., foster care placement), caregiver characteristics (e.g., perceptions of healthcare), and child characteristics (e.g., diagnoses, age, and race) impact a child's healthcare use and health outcomes over time.

Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

This study will help identify which healthcare delivery models work best to care for children in foster care, and which factors are the greatest drivers of healthcare use and outcomes for these children. These findings can be used to implement health delivery practice changes, often in primary care, to improve the health outcomes of these vulnerable youth.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.

PI Name: Sarah J. Beal, PhD

Grant Title: Examining the Impact of Healthcare Systems Changes on Healthcare Use and Health Outcomes for Children in Foster Care

Institution: Cincinnati Childrens Hospital Medical Center

Grant Type: R01 (Research Project)

Grant Period: 09/30/2022–07/31/2027

Topic Areas: Health Equity, Healthcare Systems and Infrastructure

S8: Understanding How Nurse Practitioners Increase Access to Primary Care

This study looks at how much adding nurse practitioners to primary care teams increases access to care, particularly for patient populations that have traditionally faced barriers to access.

What is the research about?

The increasing prevalence of nurse practitioners (NPs) on primary care teams has the potential to improve access to care. This study will examine changes in access to care for new patients after a NP joins a primary care practice.

The research team will use a database of all-payer claims and electronic health record data from a nationwide sample of primary care clinicians to analyze access to care. This dataset allows the research team to see who provided the health care services in addition to who billed for the care; construct measures of access based on scheduling data; and compare patient care across all payers (including Medicaid patients and commercially insured patients).

To measure access, the research team will look at changes in the share of visits provided to new patients, with a focus on uninsured patients; patients on Medicaid; and patients who self-identify as Black, Indigenous, or as a person of color. The team will also examine changes to wait times for appointments, the share of visits provided on evenings and weekends, and the share of walk-in visits.

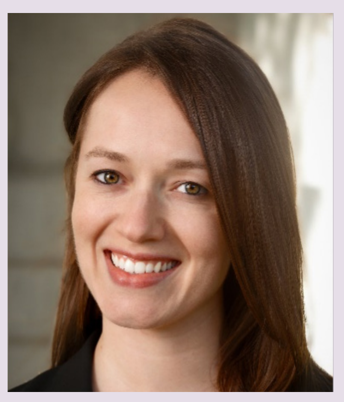
Results from this study are forthcoming. Publications from this grant will be posted here.

Primary Care Relevance

This study will help the field of primary care quantify how much adding an NP to a primary care team helps to improve access to care and reduce access disparities.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.



PI Name: Hannah Neprash, PhD

Grant Title: The Role of Nurse Practitioners in Improving Access to Primary Care

Institution: University of Minnesota

Organization Type: School of Public Health

Grant Type: R03 (Small Research Grants)

Grant Period: 04/01/2022 – 03/31/2024

Topic Areas: Primary Care Workforce, Health Equity

S9: Using Integrated Social and Medical Risk Data Dashboards to Improve Chronic Disease Management and Prevention

This project will enhance and evaluate the impacts of dashboards sharing integrated social and medical risk data to improve coordination between clinical and community settings.

What is the research about?

San Diego's Community Information Exchange (CIE) is a data-sharing system that allows health clinics and social service organizations to share information about patients' social risk factors and use of social services with the goal of improving care coordination for vulnerable patients. The CIE allows primary care clinicians to refer patients to needed social services (such as food banks, housing support services, benefits assistance, or medical-legal partnerships) and take relevant social risk factor information into consideration at the point of care when developing treatment plans.

A Centers for Disease Control and Prevention (CDC) grant is supporting the integration of the CIE platform into the electronic health systems of three federally qualified health centers (FQHCs) to facilitate referrals between the clinics and social service agencies. This AHRQ grant builds on that effort by enhancing the CIE tool and evaluating its impact on effectiveness of the CIE for cross sector care coordination in both clinical and community settings. The research team is first identifying key barriers and facilitators among stakeholders to using social risk data, and then using that information to refine the CIE dashboards. The research team is then conducting a mixed-method evaluation to examine the adoption and impacts of these improved CIE dashboards.

Results from this study are forthcoming. Future publications from this grant will be posted here.

Primary Care Relevance

The CIE is a national model for innovative multi-sector care coordination. Findings from this evaluation will help inform similar efforts across the country to integrate social and medical services in primary care to improve health outcomes for vulnerable patients.

AHRQ Primary Care Priority Area

Harnessing data and technology to conduct research on characteristics of primary care that may influence patient outcomes, such as whole person care, care coordination, continuity of care, and comprehensiveness of care.

Project Team: Danielle Hessler-Jones (PI); Caroline Fichtenberg, Karis Grounds, Nicole Blumenfeld, Laura Gottlieb, Yuri Cartier, Matt Pantell

Grant Title: Using social and medical data integration to improve primary care and population level chronic disease prevention and management

Organizations: University of California, San Francisco; 2-1-1 San Diego

Grant Type: R18 (Research Demonstration and Dissemination Project)

Grant Period: 09/30/2019 – 09/29/2023

Topic Areas: Public Health and Community Integration, Digital Healthcare, Person-Centered Care

S10: Enhancing a Mobile Health App for Patient Asthma Symptom Monitoring During the COVID-19 Pandemic

This supplemental project to an existing grant enhances a mobile health intervention for home monitoring of asthma symptoms with COVID-19 symptom screening.

What is the research about?

People living with asthma faced new and daunting risks during the COVID-19 pandemic. First, the potential respiratory complications of a COVID-19 infection can be especially dangerous for people living with asthma. In addition, getting routine care and filling prescriptions to manage a chronic condition became more difficult during the pandemic.

In their primary AHRQ grant, this research team is scaling a mobile health (mHealth) intervention to collect and monitor asthma symptoms between primary care visits. This intervention includes the use of a mHealth app through which patients regularly report their asthma symptoms. The intervention also includes a corresponding model to help clinics routinely monitor the patient-reported outcomes collected via the app.

For this COVID supplemental grant, the research team is enhancing the mHealth app to include screening for COVID-19 symptoms and to disseminate COVID-19 related health information to patients. In addition, the team worked to identify how to most effectively recruit patients to participate in the mHealth intervention during the pandemic. Finally, the team is using electronic health record data to identify which patients are most likely to benefit from home monitoring of asthma symptoms.

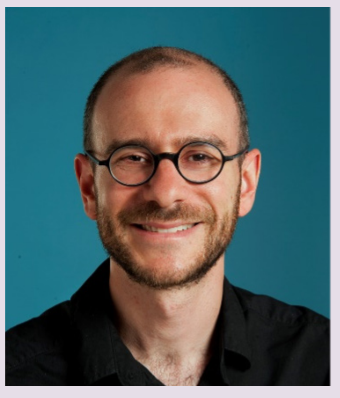
Results from this study are forthcoming. Current and future publications from this grant will be posted here.

Primary Care Relevance

This study will help build an understanding about how to use mobile health technology to keep patients with chronic conditions safe and minimize strain on critical care capacity during future COVID-19 surges or similar events.

AHRQ Primary Care Priority Area

Research to improve primary care, including regarding quality, access and affordability, the workforce, care delivery models, financing, digital healthcare, person-centeredness, and health equity.



PI Name: Robert S. Rudin, PhD

Grant Title: Integrating Patient-Reported Outcomes into Routine Primary Care: Monitoring Asthma Between Visits

Organization: RAND Corporation

Organization Type: Research Institute

Grant Type: R18 (Research Demonstration and Dissemination Project)

Grant Period: 09/30/2018 – 04/30/2023

Topic Areas: COVID-19, Digital Healthcare; Practice and Quality Improvement

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