

# Nursing Health Services Research Agenda for the 2020s

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# Nursing Health Services Research Agenda for the 2020s

*It is imperative to build greater awareness of nursing health services research among stakeholders, convey the importance of acting on the research agenda described in this report, and elicit the support of government and private organizations that fund health services research*

## Introduction and Context

The organization, financing and delivery of health care in the United States are facing increasing pressures arising from changes occurring throughout the broader society and from reforms aimed at transforming health care delivery systems. Changes in society are increasing the number of people who need health care and the types of care required. Many of these challenges are well-documented, such as the aging of the nation's 77 million baby boomers, many of whom have multiple co-morbid conditions that exacerbates their medical complexity and increases the intensity and cost of care they require. Similarly, growing numbers of younger-aged people have chronic disease and will live with these conditions for many years. Other challenges stem from sharp increases in suicide, substance abuse, behavioral health conditions, serious mental health disorders, and gun violence. Less well-known challenges involve the worsening health outcomes for childbearing women and their infants, with minority women bearing a disproportionate share of perinatal morbidity and mortality.<sup>1</sup> Still another challenge concerns the increasing costs of health care which ranks at or near the top of the most important problem facing individuals and families in the U.S.<sup>2</sup> Rising costs also mean that federal and state governments must allocate a greater share of their budgets to pay for health care, which reduces the amount of resources available for other worthwhile social programs. All of these pressures impact and stress health care delivery systems, most of which are organized predominantly around providing high cost specialty medical care to treat acute illnesses and cure diseases.

Beyond these societal-related challenges, the country's health care delivery systems are being transformed by various reforms that have intensified over the decade. These reforms aim to:

- Improve the efficiency with which health care delivery systems operate and hold systems accountable for costs and quality
- Expand access to health care
- Increase health education and disease prevention and address social and cultural determinants that negatively affect health and well-being<sup>3</sup>
- Change the way providers are paid by emphasizing the value of health care services over the volume of services provided

Responding to these reforms is causing substantial change and uncertainty within health care delivery organizations and is stimulating educators to examine whether the curricula of health professions are aligned with the direction of reforms. Over the foreseeable future, these societal pressures and health reforms will test health care delivery systems and the health workforce they employ, particularly nurses.

### **Nurses and Health Services Research**

The importance of engaging nurses in addressing these challenges and shaping the future of health care delivery during the 2020s cannot be overstated. As both the largest health workforce and the most trusted of all professions in the country,<sup>4</sup> nurses are the glue that hold health care systems together. Nurses make decisions about the use of costly resources, are involved in patient care around the clock, are inseparably connected to the quality and safety of care and are among the highest paid health professionals. They practice in tens of thousands of healthcare delivery organizations, in community settings, schools, prisons and in patients' homes taking care of people across the lifespan from birth through death. Nurses implement health care education and prevention programs, provide telehealth, and take care of millions of vulnerable people—those who are without health insurance, have low income, are dually enrolled in Medicare and Medicaid, are disabled, members of racial minority groups and live in rural and urban underserved areas. Nurses also educate the future workforce and conduct clinical and health services research to improve individual and population health and improve the delivery of health care.

Much of the research conducted by nurses focuses on clinical-related studies which seek to develop, test and refine nursing interventions aimed at improving symptom management of clinical conditions and improving patient outcomes. The National Institutes of Health National Institute of Nursing Research provides priority setting and funding for much of this research and has substantially increased the capacity of nurse scientists across the nation. In contrast, nursing health services research (NHSR)—the study of health care delivery and systems of care delivery, examination of structures, processes and outcomes of nursing care, evaluating nursing practice innovations and new models of care delivery<sup>5</sup>—has evolved more organically and largely through private initiatives. Briefly, key moments in the history of NHSR include:

- The career of Linda Aiken, who established the University of Pennsylvania Center for Health Outcomes and Policy Research (CHOPR) and has forged new paths in NHSR in its three decades of existence. Beginning with studies of the original Magnet hospitals and the outcomes of hospitalized patients with HIV/AIDS in the early 1990s, the work of CHOPR has unfolded into a rich international program of studies of quality of care, patient and nurse safety, and nurses' work environments on multiple continents. Their efforts have emphasized leveraging "natural experiments" in the management of nurse workforces and generating evidence to guide health policy. CHOPR has developed strong education programs and continues to train a critical mass of NHSR scholars at the doctoral and postdoctoral levels. Current and former collaborators and trainees include Eileen Lake, Doug Sloane, Sean Clarke, Jeffrey Silber, Chris Friese, Matthew McHugh and many others.

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- Peter Buerhaus established postdoctoral programs in NHSR, initially at Harvard School of Public Health in the 1990s and later at Vanderbilt University School of Nursing. During the 2000s, he and Jack Needleman contributed seminal studies providing evidence of the association of hospital inpatient nurse staffing and patient outcomes, with five contributions designated as “Classics” by the Agency for Healthcare Research and Quality Patient Safety Network.
  - Established by Buerhaus and others in the latter 1990s, the Interdisciplinary Research Group on Nursing Issues (IRGNI) has evolved to become among the most influential interest groups within AcademyHealth, the nation’s largest association of health services and policy researchers. IRGNI organizes annual meetings that seek to build interdisciplinary collaborations, improve the capacity of the nursing workforce to provide safe and effective care, and address gaps in health services research that would benefit from nurses’ involvement.<sup>6</sup>
  - In 2005, Cheryl Jones and Barbara Mark at the University of North Carolina convened a national meeting of researchers to identify training needs to strengthen NHSR capacity, and develop and disseminate a NHSR agenda.<sup>5</sup> Numerous faculty have gained their preparation in NHSR at UNC-Chapel Hill under a NINR funded Ruth M. Kirschstein T-32 training program.
  - Also, in 2005, the Robert Wood Johnson Foundation launched a program to generate, disseminate, and translate research that is designed to help the public understand how nurses contribute to improving patient care quality. The Interdisciplinary Nursing Quality Research Initiative program supported 48 interdisciplinary teams of researchers who conducted rigorous studies linking nursing to patient care processes and outcomes. Interdisciplinary teams of researchers have produced nearly 100 research and evidence briefs.
  - In 2010 the Institute of Medicine (now the National Academy of Medicine, NAM) published The Future of Nursing: Leading Change, Advancing Health. The report focused largely on strengthening the capacity of the nursing workforce and provided recommendations aimed at improving nursing education, research, policy, and leadership.<sup>7</sup>
  - In 2019, the NAM convened a new committee, The Future of Nursing 2020-2030. This committee is focusing largely on the roles of nurses in addressing the social determinants of health (SDOH) that negatively affect health and well-being. A report is expected in December 2020.<sup>8</sup>

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## Overview of the Bozeman Meeting

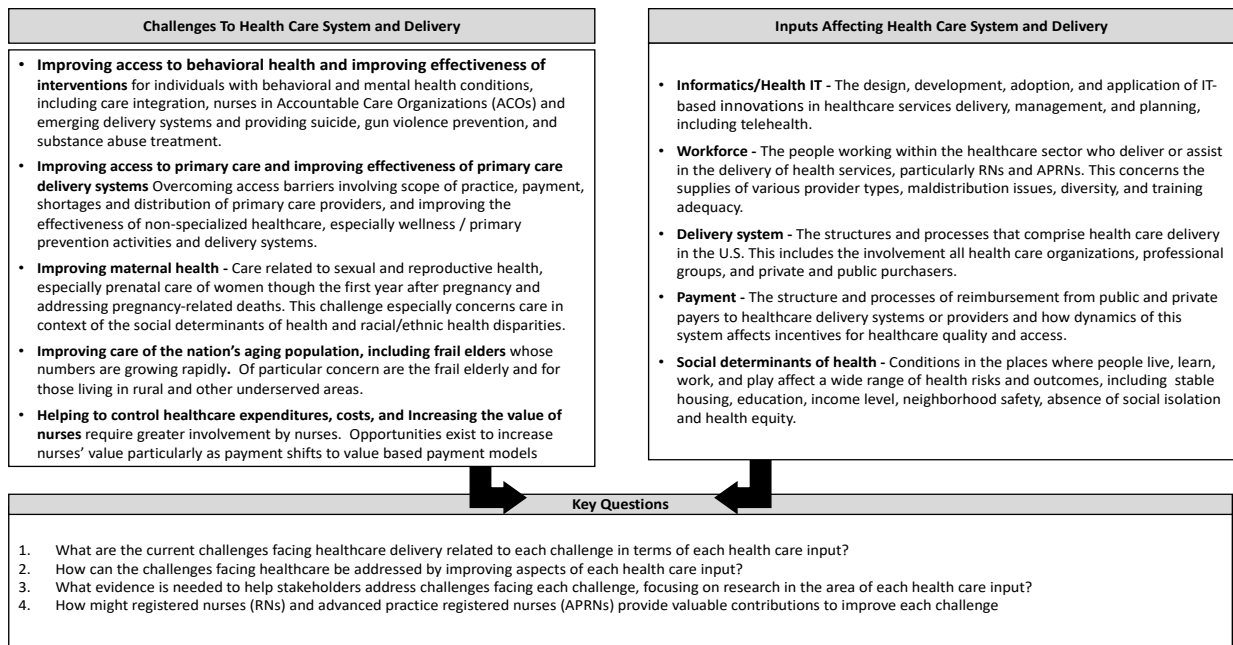
In light of the pressing societal problems affecting the nation's health, the reforms targeting health care delivery systems, the importance of nurses as providers, educators and researchers, and the evolution of NHSR, 38 experts in health services research met in Bozeman, Montana in July 2019 to discuss challenges facing health care delivery and develop a NHSR agenda for the 2020s. Participants included nurse and non-nurse experts with wide-ranging subject matter expertise in the fields of health services and social sciences, survey and outcomes research, informatics, health workforce research, economics and policy, as well as physicians, leaders in nursing education and public health, and nursing organization executives (Appendix One provides a list of meeting participants). Care was taken to avoid over-representing faculty from any university or research center. The meeting was planned and organized by Drs. Peter Buerhaus, Grant Martsof, Karen Donelan, Sean Clarke, Hilary Barnes, Heather Tubbs Cooley and Catherine (Katie) Cohen. Financial support was provided by the Gordon & Betty Moore Foundation, Montana State University College of Nursing, and Montana State University Office of the Vice President for Research and Economic Development.

Following a review of research agendas developed by public and private organizations that fund research, health services research and policy associations that advance the field and advocate for its funding, and health policy leaders, the meeting's planning leadership reached consensus on five challenges facing health care delivery where NHSR could make important contributions. These five challenges were used to structure the Bozeman meeting and focus participants on identifying the key research questions that, if acted upon over the next decade, will generate evidence needed to help:

1. Improve access to behavioral health and the effectiveness of interventions and services
2. Improve access to primary health care and improve the effectiveness of primary care delivery systems
3. Improve maternal health outcomes and the delivery of maternal health care
4. Improve the care provided to the nation's aging population, particularly frail adults
5. Control healthcare spending, reduce costs, and increase the value of nurses' contributions to improving health and health care delivery

Two or three participants were designated to lead the overview and discussion of key issues in each of the five challenges. Session leaders made brief presentations summarizing what is known about each challenge, identified gaps in knowledge, and offered insights into the role of nurses and opportunities and barriers they face conducting research. Following these presentations, participants were assigned to five "breakthrough" groups to discuss specific inputs that influence health care systems and care delivery. As shown in Figure 1, these inputs included informatics and health information technology, the nursing and larger health care workforce, healthcare delivery systems, payment, and SDOH.

Figure 1: Framework for Identifying a Nursing Health Services Research Agenda



Taking into account these inputs, participants were charged with identifying *the most important and feasible research questions that need to be answered by NHSR to address each of the five challenges over the next 10 years*. The breakthrough groups reported their work to the full group of meeting participants, which then engaged in a thorough discussion before voting on an initial list of the most important research questions to be undertaken for each of the challenges. On the last day of the meeting, the full group reviewed the list of research questions for each of the challenges to ensure the group's concurrence. Additionally, participants considered topics and ideas not covered in earlier sessions, identified target audiences and generated strategies for disseminating the meeting report.

## Recommendations

Based on small and large group discussions of gaps in knowledge and analysis of the inputs that influence health care delivery, the following questions were identified as the most feasible and important NHSR questions that need to be addressed in each of the five challenges during the 2020s.

### Challenge 1: Improve Access to Behavioral Health and the Effectiveness of Interventions and Services

The opioid epidemic, gun violence, drug addiction, alcoholism, and suicide are increasing problems confronting health care delivery systems. Better use of APRNs, registered nurses

(RNs) and many other non-physician providers represent important opportunities to help improve access to behavioral health and effectiveness of interventions and services.<sup>9,10</sup> Additionally, integrating behavioral and mental health care into the delivery of primary care, school health and geriatrics, as well as into accountable care organizations and emerging delivery systems is needed.

*The following were recommended as the most important and feasible research questions that need to be addressed to increase nurses' ability to improve behavioral health.*

1. What are the emerging roles and functions of RNs and APRNs providing behavioral and mental health as health care delivery becomes increasingly value-based?
2. What are the behavioral health competencies needed for all nurses, RNs and APRNs?
3. What are the specific roles and functions of RNs and APRNs providing behavioral healthcare generally, and how do they vary by severity of behavioral health issues?
4. How is team-based care affecting the delivery of behavioral health care, and what is the role of the nurse? What is the optimal configuration of teams to provide effective behavioral health care, and what role(s) do nurses play in such teams?
5. How are hospitals and healthcare systems using nurses to address SDOH that negatively affect health and well-being? What is the role of nurses in addressing these SDOH?

*Other questions that received support among meeting participants, included:*

- What is the size of workforce shortages in behavioral health and the distribution of shortages by geography and type of provider?
- How is behavioral health care being provided in prisons, schools, community and other settings, and who is providing this care?
- How can the nursing workforce providing behavioral health care become more representative of the patients they serve?
- How effectively is telehealth being used to provide behavioral healthcare? How competent are nurses at providing telehealth and how well are nurses being educated and trained to provide behavioral telehealth?

## **Challenge 2: Improve Access to Primary Care and Improve the Effectiveness of Primary Care Delivery Systems**

Throughout the US, the need for primary care is growing faster than the capacity of primary care physicians alone to provide the required care.<sup>11</sup> In 2019 the federal government reported that 78 million people had inadequate access to primary care.<sup>12</sup> To increase access to primary care and improve the effectiveness of primary care delivery systems, public and private policymakers have recommended greater use of nurses, both at the advanced practice RN (APRN) and RN levels.<sup>13-15</sup> Preparing nurses to provide primary care has emerged as a national workforce priority.<sup>16</sup> This includes increasing nurses' ability to participate as members or coordinators of efficient, interdisciplinary teams - either by adapting nurses' skillsets<sup>17</sup> or adjusting staffing models to achieve higher efficiency.<sup>18</sup>

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*The following were recommended as the most important and feasible research questions that need to be addressed to improve access to primary care and improve the effectiveness of primary care delivery systems.*

1. How do we measure the value of primary care provided by nurses and measure their productivity in achieving desired primary care outcomes?
2. How do APRN scope of practice (SoP) restrictions imposed by organizations and health systems impact access to care and effectiveness of primary care delivery systems?
3. What are models of high-performing team-based primary care and how do RNs and APRNs contribute?
4. How can nurse practitioners' (NPs) transition into primary care practice be improved?
5. What are the innovations in training RNs for careers in primary care? How can effective innovations be replicated?

*Other questions that received support among meeting participants, included:*

- Assuming Congress agrees to eliminate “Incident-to” billing<sup>1</sup> in Medicare payment, what are the unintended negative and positive consequences for NPs, patients, and medical practices providing primary care?
- What are the emerging roles for nurses in value-based reform, and in providing healthcare in non-traditional delivery settings?
- What is the difference in education and skill sets between a DNP-prepared and MSN-prepared NP in providing primary care? How can their respective training models be used to improve primary care delivery?
- How do physician-NP supervision and physician-NP collaboration models affect access to primary care, costs and the effectiveness of primary care delivery systems?

### **Challenge 3: Improve Maternal Health Outcomes and the Delivery of Maternal Health Care**

A key challenge facing the health of the overall U.S. population is achieving high-quality care related to sexual and reproductive health.<sup>19</sup> This includes women’s prenatal care, through the first year after pregnancy and addressing pregnancy-related deaths, as well as care of neonates. Not only does the U.S. have high maternal mortality compared to other industrialized countries, recent evidence shows maternal mortality is increasing and there are stark disparities in maternal and neonatal mortality risk by race.<sup>1</sup> Understanding the underlying causes of poor maternal and neonatal health outcomes is critical, especially related to SDOH<sup>3</sup> and racial/ethnic health disparities. Further, numerous policy coalitions and research teams have established maternal

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<sup>1</sup> Medicare allows NPs and physician assistants to bill under the national provider identifier (NPI) of a supervising physician if certain conditions are met, a practice known as incident to billing. Medicare pays for services at 100 percent of the fee schedule rate when a service provided by and NP or PA is billed “incident to” and 85 percent of the fee schedule rate when the same service is billed under the NPI of the NP or PA who provided the service. MedPAC. Report to the Congress: Medicare and the health care delivery system. June 2019, Chapter 5, page 128.



health research agendas relevant to NHSR which creates opportunities for partnerships that may accelerate progress on NHSR to improve maternal health and health care.

*The following were recommended as the most important and feasible research questions that need to be addressed to improve maternal health outcome and health care.*

1. What is the current and future capacity of the nursing workforce to provide the full spectrum of women's health care along the reproductive life course (not just in the perinatal period)?
2. What are the maternal health outcomes that are directly and indirectly influenced by nurses and nursing practice?
3. How can evidence-based practices in maternal care be implemented consistently across care delivery settings?
4. Why are maternal mortality rates increasing overall in the US, and what accounts for the severe disparities in mortality rates between racial and ethnic groups?
5. What are the patterns and drivers of postpartum complications and deaths, and what can nurses do to address them?
6. What are the effects of hospital and obstetric unit closures on the delivery of maternal care and on the nursing workforce skilled in delivering this care?

*Other questions that received support among meeting participants, included:*

- How do nurse midwives deliver care throughout pregnancy compared to physicians? Are the difference between nurse midwives and physicians' practice patterns associated with scope-of-practice regulations?
- Does clinician implicit bias contribute to disparate maternal health outcomes? If so, what are the mechanism and scalable interventions to address implicit bias among clinicians, including nurses?
- How does state-level scope-of-practice regulations and employer-specific regulations affect APRNs' decisions regarding specialization in midwifery and women's health?
- How can graduate nurse education programs produce more certified nurse midwives and women's health nurse practitioners?

#### **Challenge 4: Improve Care of the Nation's Aging Population, Including Frail Adults**

The social and health ramifications associated with the nation's aging population are profound and unprecedented.<sup>20,21</sup> Due to co-morbid conditions, older adults generally have a higher demand for health care services than younger individuals and the nation's health care workforce is unprepared to address their needs.<sup>22</sup> Further, the increased need for health care often falls upon family and other informal caregivers whose own financial, physical and mental health are at risk.<sup>23</sup> Determining how to meet the health-related needs of older adults, particularly who are frail and those living in rural and in other underserved areas,<sup>24</sup> will present formidable challenges to health care delivery systems and clinicians over the 2020s and well beyond.<sup>25</sup>

*The following were recommended as the most important and feasible research questions that need to be addressed to improve care of the nation's aging population, including frail adults.*

1. What are the roles and composition of teams caring for older people and frail adults? How do nurses contribute to team-based care serving this population?
2. What are the knowledge and skills needed by nurses to work effectively with informal and unregulated care givers?
3. How do other countries care for their aging populations? What can be learned from other countries in how they use nurses to provide care for older adults? What is the SoP of nurses caring for older and frail adults in other countries?
4. How well educated and skilled are nurses in providing long-term care, home-based care, and care coordination? What can be done to prepare more nurses to work in non-acute settings?
5. How can collaboration be improved between nurses and public health and community partners to address SDOH?

*Other questions that received support among meeting participants, included:*

- Do new and emerging care delivery models and the use of information technology exacerbate or remedy racial and other disparities among older and frail adults?
- What are the evolving care needs of the aging population and how can care delivery models be developed to meet these needs?
- What are the care activities and services that nurses are providing and are these what are wanted by older adults? What are the care coordination needs of older adults and what can nurses do to improve coordination?
- How can nurse engagement in the development of health information technology be used to improve connections with older patients and team members?
- What are the skills and competencies needed by nurses to serve diverse aging communities?

### **Challenge 5: Help Control Healthcare Spending, Reduce Costs, and Increase the Value of Nurses' Contribution to Health and Health Care Delivery**

Rising health care spending (currently 17.9% of gross domestic spending or nearly 20 cents of every dollar spent in the U.S.) is a major problem facing individuals, families, public and private payers, and threatens to undermine the sustainability of health care delivery systems.<sup>26</sup> Achieving efficiency and cost reduction are priorities. Consequently, there is increasing experimentation with new models of care delivery, payment systems, consumer incentives and modifying health insurance premium and coverage options to lower costs.<sup>27</sup> Also, efforts to increase the value of health care services provided to patients (i.e., achieving desired outcomes at the lowest possible cost) are likely to accelerate over the 2020s.<sup>28</sup> Because nurse staffing and nurses' work environment have been linked to higher value care,<sup>29</sup> and because millions of nurses provide patient care across the care continuum,<sup>30</sup> it is essential to consider innovations that allow nurses to improve the value of health care services.<sup>31</sup> To increase the value of nurses' contributions, it is

crucial that nurses more deeply understand the factors that contribute to the costs of health care reimbursement and expenditures connected to nursing care.<sup>32</sup> During the 2020s, nurses can expect increasing pressure to measure and improve the value of nursing care in all practice settings, and that cost, price, and health care utilization will become increasingly transparent.

*The following were recommended as the most important and feasible research questions that need to be addressed to help control healthcare spending, reduce costs and increase the value of nurses.*

1. What are the drivers of variation in the productivity of individual nurses and can studying individual variation identify ways to improve nurse's contribution to value of services provided to patients and consumers?
2. What are examples of successful nurse-led innovations that improve the value of health care? What are the outcomes of such innovations? What are the elements of successful innovation models?
3. What are the contributions of nurses under a shared/alternative savings model of care delivery?
4. What impact do nurses have on addressing the SDOH that negatively affect health and well-being?
5. How are nurses contributing to or helping eliminate waste in the health care system? What are the financial, resource, ethical, and environmental dimensions of waste reduction? What forms of waste are of concern to nurses and how can systems empower nurses to reduce waste?

*Other questions that received support among meeting participants, included:*

- What are the data elements that researchers need to assess individual-level nursing costs and clinical outcomes?
- How is consolidation of the health care industry affecting the nursing workforce (e.g., earnings, employment, participation in the labor market, hours worked, practice patterns, relationships with physicians and patients, etc.)?
- How do nurses respond to economic or financial incentives? What types of incentives are effective?
- To what extent are APRNs participating in Medicare's Merit Based Incentive Payment System (MIPs) and how do they describe their experiences?

## Cross Cutting Issues and Questions

Over the course of the meeting, a number of cross cutting issues and questions emerged as each of the five challenges were discussed. These issues and questions illuminate the tensions, gaps, opportunities and barriers facing nursing educators, practitioners, researchers and policymakers.

### Cross Cutting Issues

- **Skills mismatch** - There is a mismatch between the skills that nurses need and the content of their nursing education. For example, nurses continue to be overly prepared for inpatient acute care and underprepared with the skills needed to provide primary, behavioral, and geriatric care in non-hospital settings, particularly in community and home settings.
- **Improved services to diverse communities** - The need to develop a diverse nurse workforce with the knowledge, skills, and competencies and cultural humility to serve an increasingly diverse public.
- **Increasing NHSR capacity** - The continuing need to produce a larger and more diverse community of nurses conducting NHSR.
- **Public health nursing** – Encouraging the re-emergence of the public health nurse, and preparing nurses for roles in community, home, and skilled nursing facilities as well as in providing palliative and hospice care.
- **Team configuration** - The need to identify the configuration of highly performing teams that include social workers, pharmacists, physicians, community workers, informal caregivers, and identify the areas in which nurses make the most important contributions to such teams.
- **Care integration** - Behavioral health needs to be integrated not just within the delivery of primary care, but within maternal, community, home and geriatric care.
- **Harmful regulations** - The ongoing negative impact on the efficiency, costs, and access to care associated with state, employer, and insurance restrictions placed on APRNs' SoP.
- **Stakeholder collaboration** - The need for increased collaboration between nursing, public health systems, and community partners.

### Cross Cutting Questions

- Historically, the nursing curriculum has been compartmentalized, with adult acute care dominating and other content considered “specialty”. In today’s context, what does the evolution of health care delivery systems suggest about adding content to nursing curricula that was once thought of as postgraduate/specialist knowledge but now needs to be incorporated into training for generalists (i.e. for all clinicians)?
- What is the role of the nurse in a value-based delivery and payment environment? What new roles will emerge? What is the value of a nurse as new health care delivery systems emerge?
- How can we measure the value of a nurse’s contribution to healthcare from societal and organizational perspectives?
- What is the nursing profession’s and the individual nurse’s role in addressing SDOH?
- How can and how should nurses address health disparities?

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- How can nurses better position themselves to influence the development of health technologies for the benefit of patients and health care delivery?
  - What will be the impact of health systems reorganization and consolidation on access to care, the cost and price of health care, and the nursing workforce?
  - How can those conducting NHSR become familiar with international approaches and experiences to generate new and innovative solutions for the US context?
  - How can NHSR move to more consortium-based and collaborative research models to answer critical questions that cannot and should not be answered in a disciplinary silo?
  - How can NHSR better engage with research stakeholders—including communities, healthcare delivery systems, professional societies, and educational programs—to generate evidence that stakeholders need and want the most?

## Meeting Deliverables and Dissemination

The overall goal of the meeting was to develop an agenda for NHSR for the 2020s that will help nurses increase access to primary and behavioral healthcare, improve maternal health outcomes, provide better care for the nation's aging population, and control healthcare spending, reduce costs, and increase the value of nurses' contributions to improving health and health care delivery. The meeting planning leadership, together with participants, identified three deliverables: 1) Prepare a manuscript for publication in a well-regarded journal that describes the NHSR research agenda and identifies the reasons why acting on this research agenda is important to the nation, healthcare delivery and education organizations, patients and consumers, vulnerable populations, and to the nursing profession itself; 2) Publish blogs and editorials summarizing the five challenges and the NHSR agenda participants constructed to address each challenge; and 3) Develop and implement a dissemination action plan to increase awareness of the NHSR agenda among:

- Federal and state public organizations and agencies concerned with healthcare delivery and health services and outcomes research
- Health care foundations who value the role nurses, educators, and those conducting NHSR play in improving health care and health outcomes
- Health services research and policy associations
- Quality of care organizations and associations
- Educational leaders, such as deans of schools of nursing, public health, medicine, directors of departments of health services and outcomes research, departments of health policy and management and others
- Organizations and associations representing the professional interests of nurses, physicians, healthcare delivery organizations, consumers, and healthcare journalists
- Non-university institutions concerned with healthcare, including Think-Tanks, independent research organizations, foundations, etc.

## Conclusion

The Bozeman meeting was organized to bring leaders from a variety of disciplines and health care backgrounds to discuss five challenges facing health care delivery in the United States and develop a NHSR agenda to address these challenges. The meeting is a first step in focusing attention on these challenges. Ideally, as the 2020s unfold, a follow-up meeting will be convened to assess whether and how the agenda is advancing NHSR, examine whether material improvements are being made to help address the five challenges that have been the focus of this report, and update and modify the agenda to guide future NHSR.

Finally, it is imperative to build greater awareness of NHSR among stakeholders, convey the importance of acting on the NHSR agenda described in this report, and elicit the support of government and private organizations that fund health services research. It is hoped that researchers and students in nursing, the social sciences, and in health services and outcomes research adopt this agenda and use it to focus their program of research to increase access to primary and behavioral healthcare, improve maternal health outcomes, provide better care for the nation's aging population, control costs, and healthcare expenditures, and increase the value of nurses' contributions to health and health care delivery.

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## References

1. Petersen EE, Davis NL, Goodman D, et al. Vital signs: Pregnancy-related deaths, United States, 2011–2015, and strategies for prevention, 13 States, 2013–2017. Center for Disease Control and Prevention. Morbidity and Mortality Weekly Report (MMWR). 2019;68(18):7. <https://www.cdc.gov/mmwr/volumes/68/wr/mm6818e1.htm>
2. Pew Research Center. Public's 2019 priorities: Economy, health care education and security all near top of list. 2019 <https://www.people-press.org/2019/01/24/publics-2019-priorities-economy-health-care-education-and-security-all-near-top-of-list/>
3. Centers for Disease Control and Prevention. Social Determinants of Health: Know what affects health. 2019. <https://www.cdc.gov/socialdeterminants/index.htm>
4. Brennan, M. Nurses again outpace other professions for honesty and ethics. Gallup. 2019 <https://news.gallup.com/poll/245597/nurses-again-outpace-professions-honesty-ethics.aspx>
5. Jones CB, Mark BA. The intersection of nursing and health services research: An agenda to guide future research. Nursing Outlook. 2005;53(6):9.
6. Squires A, Germack H, Muench, U. The interdisciplinary research group on nursing issues: Advancing health services research. Journal of Nursing Regulation. 2019;10(2): 55-59.
7. Institute of Medicine. The future of nursing: Leading change, advancing health. Washington, DC. The National Academies Press. 2011.
8. National Academy of Medicine. The future of nursing 2020-2030. 2019. <https://nam.edu/publications/the-future-of-nursing-2020-2030/>
9. Chapman SA, Phoenix BJ, Hahn TE, Strod DC. Utilization and economic contribution of psychiatric mental health nurse practitioners in public behavioral health services. American Journal of Preventive Medicine. Supplement. 2018;54(6S3):S243-S249.
10. Delaney KR, Vanderhoef D. The psychiatric mental health advanced practice registered nurse workforce: Charting the future. Journal of the American Psychiatric Nurses Association. 2019;25(11):11-18.
11. Bodenheimer T, Bauer L. Rethinking the primary care workforce — An expanded role for nurses. The New England journal of Medicine 2016;375(11):1015-7. doi: 10.1056/NEJMp1606869
12. Health Resources and Services Administration. Designated health professional shortage areas. 2019. <https://data.hrsa.gov/topics/health-workforce/shortage-areas>
13. National Governors Association. The role of nurse practitioners in meeting increasing demand for primary care. Washington, D.C. National Governors Association. 2012.
14. Federal Trade Commission.. Policy perspectives. Competition and the regulation of advanced practice nurses. March 2014. <https://www.ftc.gov/reports/policy-perspectives-competition-regulation-advanced-practice-nurses>
15. UnitedHealth Group. 2019 [https://www.unitedhealthgroup.com/content/dam/UHG/PDF/2018/UHG-Primary-Care-Report-2018.pdf?utm\\_](https://www.unitedhealthgroup.com/content/dam/UHG/PDF/2018/UHG-Primary-Care-Report-2018.pdf?utm_)

16. Bodenheimer T, Mason D. Registered nurses: Partners in transforming primary care. New York, NY. Josiah Macy Jr. Foundation. 2017.
17. Van Houtven CH, Hastings SN, Colón-Emeric C. A path to high-quality team-based care for people with serious illness. *Health Affairs*. 2019;38(6):934-940. doi:10.1377/hlthaff.2018.05486
18. Ku L, Frogner BK, Steinmetz E, Pittman P. Community health centers employ diverse staffing patterns, which can provide productivity lessons for medical practices. *Health Affairs*. 2015; 34(1):95-103. <https://doi.org/10.1377/hlthaff.2014>.
19. Auerbach DI, Pearson ML, Taylor D, et al. Nurse practitioners and sexual and reproductive health services: An analysis of supply and demand. RAND Corporation. 2012.
20. West LA, Cole S, Goodkind D, He W. U.S. Census Bureau. 65+ in the United States: June 2014. Report Number P23-212. <https://www.census.gov/library/publications/2014/demo/p23-212.html>
21. Rowe JW, Berkman, L, Fried L, et al. Preparing for better health and health care for an aging population: A vital direction for health and health care. September 19, 2016. Discussion paper. National Academy of Medicine. <https://nam.edu/preparing-for-better-health-and-health-care-for-an-aging-population-a-vital-direction-for-health-and-health-care/>
22. Spetz J, Dudley N. Consensus-based recommendations for an adequate workforce to care for people with serious illness. *Journal of the American Geriatrics Society*. 2019;67(S2):S392-S399.
23. Bell JF, Whitney RL, Young HM. Family caregiving in serious illness in the United States: Recommendations to support an invisible workforce. *Journal of the American Geriatrics Society*. 2019;67(S2):S451-S456. doi: 10.1111/jgs.15820.
24. Meit M, Knudson A, Gilbert T, et al. The 2014 update of the rural-urban chartbook. Bethesda, MD: Rural Health Reform Policy Research Center, October 2014. <https://ruralhealth.und.edu/projects/health-reform-policy-research-center/pdf/2014-rural-urban-chartbook-update.pdf>
25. Donelan K, Spetz J, Berrett-Abebe J. et.al. , Health workforce roles in care management and social needs assessment in primary care and geriatric practices. *Health Affairs* (June 2019);38(6):941-949. <https://doi.org/10.1377/hlthaff.2019.00030>
26. Frist B, Hamberg M. Understanding the burning platform of health care spending growth. *Health Affairs Blog* 2019. <https://www.healthaffairs.org/doi/10.1377/hblog20190320.106452/full/>
27. Handley N, Hollander JE. Opportunity cost: The hidden toll of seeking health care. *Health Affairs Blog*. 2019. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwiTIYmhzuLlAhUygK0KHZeJaqYQFjAAegQIARAB&url=https%3A%2F%2Fwww.healthaffairs.org%2Fdoi%2F10.1377%2Fhblog20190429.592190%2Ffull%2F&usq=AOvVaw2GrzMp1YJWMLnh60UstKdO>



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28. Pronovost PJ, Austin JM, Cassel CK, et al. Fostering Transparency in Outcomes, Quality, Safety, and Costs. A vital direction for health and health care. September 19, 2016. Discussion paper. National Academy of Medicine Discussion Paper. 2016. <https://nam.edu/wp-content/uploads/2016/09/Fostering-Transparency-in-Outcomes-Quality-Safety-and-Costs.pdf>
  29. Silber JH, Rosenbaum PR, McHugh MD, et al. Comparing the value of better nursing work environments across different levels of patient risk. *JAMA Surgery*. 2016;151(6):527-36. doi: 10.1001/jamasurg.2015.4908.
  30. National Council of State Boards of Nursing. The NCSBN 2019 Environmental Scan: 40th Anniversary Edition. *Journal of Nursing Regulation*. 2019;9(4):Supplement (S1-S40).
  31. Welton JM. Nurses and the ethics of big data. *Nursing Economic\$*. 2016;34(5):257-9.
  32. Rambur B. Health policy brief: MACRA, MIPS, and why it matters. 2019.

## Appendix One

### Meeting Participants, Position(s) and Organization

Name	Position and Organization
*Hilary Barnes, PhD, NP-C	Assistant Professor, University of Delaware School of Nursing
Angela Beck, PhD, MPH	Principal Investigator and Director of the HRSA-funded Behavioral Health Workforce Research Center at the University of Michigan School of Public Health, Clinical Assistant Professor of Health Behavior and Health Education, and Assistant Dean for Student Engagement and Practice
Ragnhildur Bjarnadottir, PhD, MPH, RN	Assistant Professor, University of Florida College of Nursing
Marion Broome, PhD, RN, FAAN	Dean and Ruby F. Wilson Professor of Professor of Nursing, Vice Chancellor for Nursing Affairs, & Associate Vice President for Academic Affairs, Duke University
Anne Brown, RN, MS	Assistant Professor, Montana State University College of Nursing
*Peter Buerhaus, PhD, RN, FAAN, FAANP(h)	Professor of Nursing and Director of the Center for Interdisciplinary Health Workforce Studies at the College of Nursing, Montana State University
*Sean Clarke, RN, PhD, FAAN	Executive Vice Dean and Professor, New York University Rory Meyers College of Nursing
Catherine (Katie) Cohen, PhD, RN	Associate policy researcher, RAND Corporation
Sally Cohen, PhD, RN, FAAN	Clinical Professor, New York University Rory Meyers College of Nursing
*Karen Donelan, ScD, EdM	Senior Scientist, Health Policy Research Center, The Mongan Institute, Associate Professor of Medicine, Harvard Medical School, and Director Survey Research and Implementation Unit
Jose Escarce, M.D., PhD	Distinguished professor of Medicine, David Geffen School of Medicine at UCLA, Distinguished professor of Health policy and management, UCLA Fielding School of Public Health, & Executive Vice-Chair for Academic Affairs in the Department of Medicine
Erin Fraher, PhD, MPP	Associate Professor, Department of Family Medicine at the University of North Carolina, Director of the Carolina Health Workforce Center

Christopher Friese, PhD, RN, FAAN	Elizabeth Tone Hosmer Endowed Chair, Professor of Nursing, Health Management, and Policy, University of Michigan
Bianca Frogner, PhD	Associate Professor, Department of Family Medicine at the University of Washington, Director of the University of Washington Center for Health Workforce Studies, & Deputy Director of the Primary Care Innovation Lab
Hayley Germack, PhD, MHS, RN	Assistant Professor, Department of Acute and Tertiary Care, University of Pittsburgh School of Nursing
Marcy Hanson, RN, MN	Assistant Professor, and Assistant Campus Director, Montana State University, Missoula, & Center for Disease Control Ambassador to Montana for the Early Childhood Intervention Program
Susan Hassmiller, RN, PhD, FAAN	Senior Scholar-In-Residence and Senior Advisor to the President on Nursing at the National Academy of Medicine, & Senior Advisor for Nursing at the Robert Wood Johnson Foundation
Jordan Harrison, PhD, RN	Health Services Researcher, RAND Corporation, Pittsburgh, PA
Kristin Hittle Gigli, PhD, RN, CPNP-AC, CCRN	Post-Doctoral Scholar, University of Pittsburgh Department of Critical Care Medicine CRISMA Center
Sherry Glied, PhD	Dean of New York University Robert F. Wagner Graduate School of Public Service
Monica O'Reilly-Jacob, PhD, RN, FNP-BC	Assistant Professor, Connell School of Nursing, Boston College
Linda Lacey, MA	Director, South Carolina Office for Healthcare Workforce
Audrey Lyndon, PhD, RNC, FAAN	Professor and Assistant Dean for Clinical Research New York University Rory Meyers College of Nursing
*Grant Martsof, PhD, MPH, RN, FAAN	Professor, University of Pittsburgh School of Nursing, & Affiliated Adjunct Policy Researcher at the RAND Corporation
Matthew McHugh, PhD, JD, MPH, RN, CRNP, FAAN	Independence Chair for Nursing Education & Professor of Nursing, University of Pennsylvania School of Nursing, & Associate Director of the Center for Health Outcomes and Policy Research
Monica McLemore, PhD, MPH, RN	Associate Professor, Family Health Care Nursing, School of Nursing, University of California San Francisco, Affiliated Scientist with Advancing New Standards in Reproductive Health, & member of the Bixby Center for Global Reproductive Health
Benjamin McMichael, PhD, JD	Assistant Professor, University of Alabama School of Law
Jean Moore, DrPH, FAAN	Director of the New York Center for Health Workforce Studies School of Public Health, SUNY at Albany

Patricia Pittman, PhD	Professor of Health Policy and Management, Milken Institute School of Public Health, Secondary Appointment, School of Nursing at George Washington University, & Director of the Fitzhugh Mullan Institute for Health Workforce Equity
Lusine Poghosyan, PhD, MPH, RN, FAAN	Stone Foundation and Elise D. Fish Associate Professor of Nursing, Columbia University School of Nursing
Betty Rambur, PhD, RN, FAAN	Professor and Routhier Endowed Chair for Practice, University of Rhode Island
William Sage, MD, JD	James R. Dougherty Chair for Faculty Excellence in the School of Law & Professor of Surgery and Perioperative Care Dell Medical School, University of Texas at Austin
Joanne Spetz, PhD, FAAN	Professor, Institute for Health Policy Studies, University of California San Francisco & Associate Director for Research, Healthforce Center (UCSF)
Deborah Trautman, PhD, RN, FAAN	President and Chief Executive Officer of the American Association of Colleges of Nursing
*Heather Tubbs Cooley, PhD, RN, FAAN	Associate Professor, Ohio State University Colleges of Nursing and Medicine, & Principal Investigator in the Center for Perinatal Research Nationwide Children's Hospital
Dawn Vanderhoef, PhD, DNP, PMHMP-BC, FAANP	Associate Professor of Nursing & Director, Psychiatric Mental Health Nurse Practitioner (Lifespan) Specialty
Antonia Villarruel, PhD, RN, FAAN	Margaret Bond Simon Dean of Nursing, University of Pennsylvania School of Nursing
Ying Xue, DNSc, RN	Associate Professor, University of Rochester School of Nursing
Olga Yakusheva, PhD	Associate Professor, University of Michigan's School of Nursing and Associate Professor, Health Management & Policy, School of Public Health

\*Member of the Planning Committee

