INSTITUTE OF MEDICINE

The Best Practices Innovation Collaborative

of the

IOM Roundtable on Value & Science-Driven Health Care

March 27, 2014

National Academy of Sciences Building
Lecture Room
2101 Constitution Avenue, NW
Washington, DC

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SECTION I

Day of Materials

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

IOM ROUNDTABLE ON VALUE & SCIENCE-DRIVEN HEALTH CARE

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BEST PRACTICES INNOVATION COLLABORATIVE

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MARCH 27, 2014
NATIONAL ACADEMY OF SCIENCES BUILDING
LECTURE ROOM
2101 CONSTITUTION AVENUE, NW
WASHINGTON, DC 20418

Meeting goals

1. ***Facilitating patient involvement:*** Review progress and next steps to advance BPIC's collaborative work on the patient's role on the health care team.
2. ***Deepening catalytic support:*** Recognize opportunities of funders to catalyze change in engagement of patients, family caregivers, and communities.
3. ***Fine-tuning the team:*** Identify facilitators and barriers to optimizing the contribution of existing and evolving care team members.
4. ***Identifying BPIC opportunities:*** Define next steps and future opportunities for BPIC participants.

8:30 am **Coffee and light breakfast available**

9:00 am **Welcome, introductions, and meeting overview**

Welcome from the IOM
Michael McGinnis, Institute of Medicine

Opening remarks and meeting overview by Collaborative Chair
Mary D. Naylor, University of Pennsylvania

9:15 am **Facilitating patient involvement: project update**

During this session, the work group producing the *Incorporating Patients as Team Members* Discussion Paper will report on the project focus and progress made.

Sally Okun, PatientsLikeMe *(co-chair)*
Stephen Schoenbaum, Josiah Macy, Jr. Foundation *(co-chair)*

Reflections from work group members

Q&A and Open Discussion

10:30 am **Break**

10:45 am **Deepening catalytic support: the role of funders**

This session will explore strategies and initiatives that support and engage patients, family caregivers, and communities in improving health care through value-driven, evidence-based, person-meaningful care.

Osula Rushing, Grantmakers In Health
Susan Mende, Robert Wood Johnson Foundation
Steve Taplin, National Cancer Institute
Suzanne Schrandt, Patient-Centered Outcomes Research Institute

Q&A and Open Discussion

12:15 pm **Lunch discussion: Are the days of the 'passive' patient over?**

Amanda Bennett, a Pulitzer Prize-winning journalist and author of *The Cost of Hope*, explains why patients and family caregivers should have a strong, deciding voice in care.

Q&A and Open Discussion

1:30 pm **Fine-tuning the team: optimizing contributions of all team members**

This session will present case studies of health team members, including nurse practitioners and physician assistants, whose efforts help to improve health care quality.

Chris Engstrom, Department of Veterans Affairs
Allison Dimsdale, Duke University Health System

Q&A and Open Discussion

2:30 pm **BPIC action: issues and opportunities moving forward**

During this session, meeting participants will reflect on progress made and brainstorm potential new opportunities for Collaborative action.

3:15 pm **Summary and next steps**

Comments from the Chair
Mary D. Naylor, University of Pennsylvania

Comments and thanks from the IOM
Michael McGinnis, Institute of Medicine

3:30 pm **Adjourn**

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

ROUNDTABLE ON VALUE & SCIENCE-DRIVEN HEALTH CARE

Best Practices Innovation Collaborative
March 27, 2014
Meeting Participants

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SECTION II

Panel I

Facilitating patient involvement: project update

INCORPORATING PATIENTS AS TEAM MEMBERS

A project of the IOM Best Practices Innovation Collaborative

Activity: Engage key stakeholders in developing a conceptual framework, options, and research priorities in support of advancing the incorporation of patients as members of the care team. This work follows the IOM-stewarded Discussion Paper, *Core Principles & Values of Effective Team-Based Health Care.*

Compelling aim: *Improve health outcomes and patient satisfaction, and reduce the cost of care.* When patients and families are fully involved in their care decisions and health care practices, better results occur. Hence, achieving this aim requires deepening the understanding of effective practices in helping patients and families become active participants in their own care and on the team. As patients bring unique perspectives and skills to the care team, additional insights are needed to better understand the best practices for fully supporting the patient role.

Issue: Although patients represent the central focus and motivation for the actions of the care team, they are generally the least prepared member and there are few standard resources or processes for educating them on their roles. Research on effective team-based care has largely been clinician-focused, with an emphasis on individual initiatives to provide patient-centered care, but few insights on systematic strategies to provide care that is most meaningful from the perspective of the patient. While there are several measures that capture patient satisfaction and team-functioning, current research efforts have not revealed answers to questions, such as what are the most effective and efficient ways to help patients and families become active participants in their care and to become members of the primary care team? When patients think about health care provided by a "team," what does that mean to them? Who do patients view as members of their health care team? How do patients describe the ideal way to provide for their health needs? Do they feel they are involved with their health care team in a way that meets their needs? Initiatives in such places as Oregon and Vermont have sought to more systematically measure and understand strategies for incorporating patients and families as full team members. Developing a framework for bringing patients onto the primary care team, and offering priorities for research to better understand strategies to achieve this aim, will help strengthen these and other initiatives.

Approach: Individuals from the IOM's Best Practices Innovation Collaborative will be convened to explore ways to enrich patient interactions with health care teams. Included will be health care professionals, consumer and patient groups, grant-making organizations, governmental agencies, and others involved in the evolution of the health care workforce.

Deliverable: A discussion paper authored by individuals on the working group and published by the IOM describing the conceptual framework, research priorities, and patients' perspectives about incorporating patients as care team members.

Related IOM work: *Making the Case for Continuous Learning from Routinely Collected Data (2013), Core Principles and Values of Effective Team-Based Health Care (2012), Challenges at the Intersection of Team-Based and Patient-Centered Health Care, (JAMA, 2012), Recognizing an Opinion: Findings from the IOM Evidence Communication Innovation Collaborative, (JAMA, 2012), and the Learning Health System Series (2006-2011)*

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The National Academy of Sciences

The National Academy of Sciences (NAS) is a non-governmental organization comprised of the nation's leading scientists. It was created by Congress in 1863 to serve as the adviser to the Government and to the nation on matters of scientific research and policy, and has since that time been called upon for such counsel. Presidential Executive Orders have defined the special relationship of the Academy to Government and cited its unique capacity to marshal scientific expertise of the highest caliber for independent and objective science policy advice. As matters of health and medicine became more compelling and specialized, the Institute of Medicine (IOM) was established under the charter of the NAS in 1970 as the nation's adviser on health, health science, and health policy. Like its sister organizations, the National Academy of Sciences and the National Academy of Engineering, IOM members (65 each year) are elected by the current membership and drawn from nation's leading authorities in medicine, health, the life sciences, and related policies.

The Institute of Medicine

Each year, more than 2000 national experts—members and nonmembers—volunteer their time, knowledge and expertise to advance the nation's health through the IOM. The National Academies, including the IOM, work outside the framework of government, although often at the request of Congress or government agencies. The IOM is charged with ensuring that objective and scientifically informed analysis and independent guidance are brought to bear on the most difficult and challenging health issues facing the nation. Working together in consensus committees, public forums, and collaborative efforts, these invited experts carry out the technical and policy studies commissioned to produce advice on health matters of urgency and priority, meetings and symposia convened on matters of widespread interest, and projects to catalyze recommended action.

Rights and responsibilities under the Congressional Charter

The three National Academies have a long tradition of providing national advice and leadership, which rests on their ability to convene experts and other diverse stakeholders charged with considering important issues of science, engineering, and health policy in an objective, independent, and trusted environment that assures rigorous analysis. Because the National Academies provide the Federal Government with a unique service, activities are accorded a special status by charter and the implementing Executive Orders of the President. Specifically, *"when a department or agency of the executive branch of the Government determines that the Academy, because of its unique qualifications, is the only source that can provide the measure of expertise, independence, objectivity, and audience acceptance necessary to meet the department's or agency's program requirements, acquisition of services by the Academy may be obtained on a noncompetitive basis if otherwise in accordance with applicable law and regulations."* (Executive Order 12832)

SECTION III

Panel II

Deepening catalytic support: the role of funders

About GIH

For more than 30 years, Grantmakers In Health (GIH) has helped grantmakers improve the health of all people. Working with our Funding Partners, large and small, both locally focused and national in scope, GIH seeks to build the knowledge and skills of health funders, strengthen organizational effectiveness, and connect grantmakers with peers and potential partners. We help funders learn about contemporary health issues, the implications of changes in the health sector and health policy, and how grantmakers can make a difference.

As the professional home for health grantmakers, our work covers a great deal of territory. We look at health issues through a philanthropic lens, sorting out what works for health funders of different missions, sizes, and approaches to grantmaking. We take on the operational issues with which many funders struggle in ways that are meaningful to those working in health philanthropy.

GIH supports health funders in several ways. We generate and disseminate information through meetings, publications, and on-line; provide hands-on training and technical assistance; offer strategic advice on programmatic and operational issues; and conduct systematic studies of the field.

OUR CREDENTIALS

GIH is governed by a national board of senior foundation leaders, whose strong commitment to GIH is an important aspect of the organization's continued effectiveness in the field. GIH's staff members have extensive experience in public health, health policy, communications, and philanthropy, which they use to identify trends and emerging issues, develop programs, and provide advice on a broad range of topics from improving access to shoring up the public health infrastructure to building healthier communities.

GIH President and CEO Faith Mitchell has a background in health and social policy, research, and philanthropy, and holds a doctorate in medical anthropology from the University of California, Berkeley.

GIH AT A GLANCE

Grantmakers In Health offers:

- events and meetings that provide substantive programming on health and strategic issues, including the *Annual Meeting on Health Philanthropy*, *Fall Forum*, *The Art & Science of Health Grantmaking*, and other meetings on health topics challenging the field;
- leadership development opportunities, including the *Terrance Keenan Institute for Emerging Leaders in Health Philanthropy*;
- publications that keep grantmakers up-to-date on current issues and the state of the field;
- Web resources at www.gih.org, including FAQs on operational topics and key issue pages; and
- opportunities for grantmaking colleagues to share and exchange ideas and learn from one another, including webinar series on health issues and funders networks.

ADVISING FOUNDATION OPERATIONS

GIH helps both new foundations and more established organizations tackle operational challenges. Our activities include:

- *The Art & Science of Health Grantmaking*, a biennial meeting offering introductory and advanced courses on board development, grantmaking, evaluation, communications, and finance and investments;
- sessions focusing on operational issues at the *Annual Meeting on Health Philanthropy*;
- individualized technical assistance; and
- a Frequently Asked Questions feature on the GIH Web site.

CONNECTING HEALTH FUNDERS AND FOSTERING LEADERS AND PARTNERSHIPS

GIH connects funders to each other and to professionals and practitioners in other fields whose work has important implications for health. In GIH meetings, health funders learn more about their colleagues' work; talk openly about shared issues; and tap into the knowledge of experts in research, policy, and practice. Webinars, Issue Networks, and E-Mail Forums give smaller groups of grantmakers a chance to discuss issues of mutual interest without having to leave their offices.

Understanding the importance of fostering and connecting up-and-coming leaders in the field, GIH created the *Terrance Keenan Institute for Emerging Leaders in Health Philanthropy* to nurture talented practitioners, to build relationships among this cadre of emerging leaders, and to connect them with established figures.

Collaboration is essential to effecting lasting health improvements. GIH works to facilitate successful collaborations where there is mutual interest. We bring together national funders with those working at the state and local levels, work with other affinity groups within philanthropy, and help connect grantmakers to organizations that can help further their goals.

GIH also places a high priority on bridging the worlds of health philanthropy and health policy. Our work includes efforts to help grantmakers understand the importance of public policy to their work and the roles they can play in informing and shaping those policies. Helping policymakers become more aware of the contributions made by health philanthropy and strengthening collaborative relationships between philanthropy and government is also important. Recognizing this, GIH maintains active, cooperative relationships with a number of federal agencies.

EDUCATING AND INFORMING THE FIELD

An aggressive publications effort helps GIH reach a large number of grantmakers and provide pertinent resources when funders need them. Our products include both in-depth reports and quick reads.

The *GIH Bulletin*, published monthly, keeps funders up-to-date on new grants, studies, and people. Periodic feature articles include *Grantmaker Focus* (a profile of one of the many foundations and corporate giving programs working in health), *Views from the Field* (written commentaries by funders and others), and *Issue Focus* (insightful analyses of challenging health issues). GIH's Web site, www.gih.org, serves as an information resource for health grantmakers and those interested in the field. Key issue pages provide grantmakers with access to new studies, relevant GIH publications, information on upcoming and past events, and the work of their peers. Monthly e-mail alerts keep Funding Partners up-to-date on new Web site content and upcoming GIH events.

FOR MORE INFORMATION

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GIH is a 501(c)(3) organization that receives core and program support from hundreds of funders annually. GIH does not give grants or provide assistance in finding grants.

GIH is committed to promoting diversity and cultural competency in its programming, personnel and employment practices, and governance. It views diversity as a fundamental element of social justice and integral to its mission of helping grantmakers improve the health of all people. Diverse voices and viewpoints deepen our understanding of differences in health outcomes and health care delivery, and strengthen our ability to fashion just solutions. GIH uses the term, diversity, broadly to encompass differences in the attributes of both individuals (such as race, ethnicity, age, gender, sexual orientation, physical ability, religion, and socioeconomic status) and organizations (foundations and giving programs of differing sizes, missions, geographic locations, and approaches to grantmaking).

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By Susan Mende and Deborah Roseman

The Aligning Forces For Quality Experience: Lessons On Getting Consumers Involved In Health Care Improvements

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Deborah Roseman is a research scientist at the Center for Health Care Quality, School of Public Health and Health Services, George Washington University, in Washington, D.C.

ABSTRACT Aligning Forces for Quality is the Robert Wood Johnson Foundation's signature effort to improve the overall quality of health care in targeted communities, reduce racial and ethnic disparities in care, and provide models for national reform. Activities in each of the sixteen Aligning Forces for Quality alliance communities are guided by a multistakeholder alliance of consumers, providers, and payers. To achieve goals established at the national and local levels, the alliances integrate local consumers into governance and decision making, program design and implementation, and information dissemination efforts. This article describes how the Aligning Forces for Quality investments have evolved since the initiative's launch in 2006 and offers some early lessons learned. Individual alliances have engaged consumers in numerous capacities, from serving on dedicated consumer advisory boards to representing the consumer's perspective in the design of public reports of providers' quality. The alliances' ongoing and mindful inclusion of consumers provides insights into eliciting and applying their perspectives in the pursuit of improved health care quality, value, and transparency.

The United States faces the daunting challenge of moving its health care system toward high-quality, high-value, and equitable person-centered care. Evidence from earlier efforts to improve health care quality, including the Robert Wood Johnson Foundation's investments in improving quality and reducing disparities in care, suggests that the efforts of key stakeholders in a health care system must be aligned or they will be unable to transform it. Furthermore, real system change must be led by and happen in the communities where people receive care.[1] Among the key stakeholder groups, patients and their families must have a prominent role in these efforts.

These insights led to the 2006 launch of Aligning Forces for Quality, the Robert Wood Johnson Foundation's (RWJF's) core initiative to transform care on a regional level. Through multistakeholder alliances of providers, consumers, and payers who collaborate on common goals, the program aims to improve the overall quality and value of health care in each participating region. The Aligning Forces for Quality initiative encompasses sixteen geographically, demographically, and economically diverse communities that together account for 12.5 percent of the US population (Exhibit 1). The alliances are led by individual organizations, but for clarity we refer to the alliances by the names of their respective regions.

A set of core expectations applies to all sixteen Aligning Forces for Quality communities. Each one must make available to the public information about comparing the quality of care among health care providers; implement efforts to help providers improve the quality of care they deliver; engage consumers in making informed health care decisions; experiment with changes to payment systems; and identify and reduce disparities in the quality of care. The alliances have considerable autonomy in the strategies they pursue to meet these core expectations, working through their leadership teams to identify priorities and leverage local assets.

The program defines three key stakeholder groups as those who provide, pay for, and receive care. Thus, consumers—who either receive care themselves or play an integral role in family members' receipt of care—must be involved in alliance leadership and in shaping each alliance's approach to improving quality.

Engaging consumers to participate more actively in their own health and health care has been an important component of many clinical and quality improvement efforts, such as the Chronic Care Model. However, it can be challenging to sustain consumers' engagement across all aspects of collaborative decision making about and implementation of health care reform at the regional level.[2]

The notion of consumer engagement in health care is hardly new: For example, neighborhood health centers engaged community members at the program level as early as the 1960s.[3] Some health centers and health systems, like Dana-Farber Cancer Institute, have embraced the notion of patient-centered care, integrating patients into program development and improvement efforts.[4] But this has been done less often at a communitywide level.

One noteworthy example is the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act of 1990, which requires grantee communities receiving safety-net resources for people living with HIV/AIDS to convene a multistakeholder group to allocate those resources. When the Ryan White law was enacted, local HIV planning councils were required to have 25 percent of their members be consumers of HIV/AIDS services. In a reauthorization of the law that requirement was increased to 33 percent.[5]

This kind of policy-level consumer engagement, without being tied to a particular health condition, has proliferated recently. The Agency for Healthcare Research and Quality's Learning Network for Chartered Value Exchanges and the Patient-Centered Outcomes Research Institute have embedded consumers in decision-making roles since 2007 and 2010, respectively. As these multilevel efforts take hold nationwide, lessons learned can help inform the evolution and expansion of consumer engagement practices.

A team at the Pennsylvania State University's Center for Health Care and Policy Research is conducting an ongoing formal evaluation of the Aligning Forces for Quality initiative, examining a variety of research questions and reviewing programmatic interventions and variations in the alliances' approaches in each of the main program areas. In a 2012 publication on the research design, data, and challenges facing the alliances, the Penn State team noted that the initial goal of consumer involvement was broad: to improve care "by helping patients become better informed and more activated and having credible consumer representation on alliance leadership teams."[6] The RWJF and the National Program Office encouraged the alliances to take varied and innovative approaches to meet their consumer engagement goals.[7]

As the alliances' efforts matured, the RWJF and the National Program Office determined that more-focused expectations would promote consumer engagement efforts. The office issued a memo in 2009 that clarified its expectations.

The memo gave guidance on how alliances could promote consumer access to health and comparative performance information. It also touched on how the alliances could help consumers use that information to make health care decisions at key points, such as when choosing a provider or after receiving a new diagnosis. Finally, the memo advised alliances on strategies to use in including local consumers and representatives of consumer advocacy groups (including those with diverse populations) in the alliances' leadership teams.[8]

The RWJF and the National Program Office have supported the alliances by giving them access to expert consultants, technical assistance, and peer-to-peer learning. Consumer engagement efforts have produced a growing resource

EXHIBIT 1

Regions And Organizations In The Aligning Forces For Quality Initiative

Region	Organization
Albuquerque, NM	Albuquerque Coalition for Healthcare Quality
Cincinnati, OH	Health Collaborative
Cleveland, OH	Better Health Greater Cleveland
Detroit, MI	Greater Detroit Area Health Council
Greater Boston, MA	Massachusetts Health Quality Partners
Humboldt County, CA	California Center for Rural Policy
Kansas City, MO	Kansas City Quality Improvement Consortium
Maine	Maine Quality Counts
Memphis, TN	Healthy Memphis Common Table
Minnesota	MN Community Measurement
Oregon	Oregon Health Care Quality Corporation
Puget Sound, WA	Puget Sound Health Alliance
South central Pennsylvania	Healthy York County Coalition
West Michigan	Alliance for Health
Western New York	P^2 Collaborative of Western New York
Wisconsin	Wisconsin Collaborative for Healthcare Quality

SOURCE Aligning Forces for Quality [home page on the Internet]. Washington (DC): National Program Office; [cited 2013 Apr 17]. Available from: http://forces4quality.org/af4q-alliances-overview.

library, available free to the public on the Aligning Forces for Quality and RWJF websites (http://www.forces4quality.org and http://www.rwjf.org). In turn, the library has served as a source of support for the alliances' efforts.

The Penn State evaluation of Aligning Forces for Quality is continuing. Meanwhile, the National Program Office is gathering information in the form of periodic reports from alliances and technical assistance providers, site visits, and other updates. Our observations and lessons are gleaned from this information.

Although local approaches to consumer engagement are as varied as the alliances, the early lessons can be grouped into three areas: integrating consumers into alliance governance and activities; developing and disseminating consumer-friendly health and comparative quality information; and, increasingly, involving consumers in health care system redesign.

Integrating Consumers Into Alliances

EXPECTATIONS The multistakeholder approach required each Aligning Forces for Quality community to involve consumers as equal members of its leadership team from the start. However, it quickly became apparent that local alliance organizers were confused about the definition of *consumer*. The National Program Office elicited the support of the National Partnership for Women and Families in developing definitions that could provide a common language for the alliances' efforts.

The definitions clarified the distinction between consumer representatives and individual consumers. *Consumer representatives* were defined as the people who speak on behalf of a constituency, such as AARP for seniors or the American Diabetes Association for people living with diabetes, and who do not have a financial stake in the health care system.[9] *Individual consumers* were defined as patients or caregivers with personal experience with the health care system. Early in the program each alliance was required to recruit at least two consumer representatives and at least one individual consumer to its leadership team.

CHALLENGES Challenges to maintaining and increasing consumer integration have been both practical and political for the Aligning Forces for Quality alliances. The practical challenges included identifying appropriate consumer participants, determining what roles they would play and which governing bodies they should be on, and preparing them for these roles. Maintaining consumer involvement has been another practical challenge, as has recruiting consumers who reflect the diversity of the alliance community. Even alliances that succeeded in engaging consumers have found that they must periodically revisit their recruitment and support strategies to provide training in new areas of alliance work, identify consumers to participate in new projects that call for different skill sets or interests, improve their approaches to address volunteers' "commitment fatigue," or recruit replacements.

One political challenge that some alliances faced was some stakeholders' resistance to giving consumers an equal voice. At the start of the Aligning Forces for Quality initiative, many alliance stakeholders struggled to agree on who constituted a consumer. Some had the mistaken notion that nonconsumer stakeholders could represent the consumer's perspective.[10] The initiative's definitions of *consumer representative* and *individual consumer* established a common understanding across alliances.

Both consumer representatives and individual consumers who participated in an alliance had to get used to discussions of unfamiliar and complex technical issues and carve out a meaningful role for themselves.[11] Most alliance committees were initially staffed by professionals who were fluent in health care jargon; some of them were reluctant to alter their habits to make technical material more accessible to consumers.

Many providers, administrators, and payers were also sometimes resistant to having consumers at the table during complex and occasionally contentious discussions. The need to prepare both the consumers who joined an alliance's leadership and the other leaders to interact on equal footing came as an unanticipated challenge. To meet this challenge, some alliances instituted ground rules or formal decision-making processes to facilitate equal participation.

The low minimum requirements of one individual consumer and two consumer representatives posed a risk that their perspective would be ignored. Leadership team members in some alliances were comfortable with the idea that a few hospital administrators collectively could represent hospitals' concerns. However, they did not necessarily view the same number of consumers as able to represent the views of the broader patient population. This barrier has contributed to less-than-full integration of consumer perspectives in some alliances, highlighting the limitations of threshold requirements for consumer representation.

Alliances also varied in how thoroughly they embraced the spirit behind consumer representation. Some identified roles for consumers beyond serving on the leadership team and assigned consumers to participate on each alliance committee and working group. Others were less receptive to consumers' participating in certain aspects of the initiative, particularly the more technically oriented working groups.

LESSONS One lesson that the Aligning Forces for Quality initiative has learned is the value of requiring alliances to include consumers. Involving consumers as equal partners is not routine practice in health care. Some alliances had simply not thought to involve them, while others were unsure about the practice or resistant to it. The initiative's requirements for consumer representation helped guide alliances early on so that they would include "real" consumers—that is, individual patients and representatives of consumer groups—as opposed to providers, health plan representatives, or others who felt that they could simultaneously represent their own professional interests and the interests of the consumer.

The requirement that consumers would participate in all phases of alliance work also avoided some of the political challenges that posed a barrier to including consumers in areas of discussion formerly closed to them, such as public reporting on provider quality. However, requiring consumer participation in numbers proportionate to those of other stakeholder groups could strengthen the consumer voice and increase consumers' legitimacy in the eyes of other stakeholders. For example, the Ryan White CARE Act requires that as many as a third of the members of multistakeholder groups be consumers, a requirement that provides a critical mass of consumers in a group.

The Aligning Forces for Quality program is now nearing the end of its ten-year life. Although the Robert Wood Johnson Foundation does not plan to alter its consumer representation requirements at this late stage of the program, the lesson about the importance of this representation and the limitations of a low threshold for consumer representation may provide valuable guidance both for existing alliances and for future multistakeholder collaborations.

Alliances have succeeded in recruiting consumer representatives through a variety of organizations, including disease-specific organizations such as the local chapter of the American Diabetes Association or American Heart Association and population-based advocacy groups such as AARP. Some individual consumers came from support groups focused on a particular chronic disease or were recommended by their medical care providers; others came from faith- or community-based organizations.

Alliances received hands-on technical assistance to recruit, orient, and support consumers.[12] Alliances have reported that supportive senior leaders play a critical role in creating a culture that seeks and values active consumer involvement. Having a designated staff person to contact gave consumers an anchor, and tools such as shared ground rules and meeting briefing and debriefing sessions helped familiarize consumers with the alliance process and welcome them into it. As alliances gained experience, they shared consumer engagement approaches and resources with each other through webinars, meetings, and peer-to-peer site visits. This peer-to-peer exchange has proved invaluable to alliances facing common challenges.

Another lesson has been that reaching consensus and gaining support for consumer representation at the highest levels of governance, including the board of directors, is often an evolutionary process. The Western New York alliance provides one example. The alliance's board formed in 2002 and committed to integrating the consumer perspective. However, it took ten years before the first two consumer members were elected to the board.

When the Aligning Forces for Quality project began, the alliance's initial strategy was to seek consumer input through a range of organizations from the eight counties that the Western New York alliance encompassed. Leaders of the alliance found, however, that effectively engaging consumers was an iterative process. Community organizations had multiple priorities, which sometimes made it challenging for them to represent both consumer and organizational perspectives and for the alliance to keep discussions focused on health care issues.

These challenges led the alliance to form regional consumer advisory teams comprising consumers interested—but not working—in the health care field. Each team provided input from the consumer's perspective on Aligning Forces for Quality issues to alliance staff. After working with the teams and recognizing the leadership quality of some of their members, the board of directors' governing committee embraced the idea of electing consumers to the board, developed processes to identify the best candidates, and established a feedback loop between the consumer board members and the consumer advisory teams.

The first consumer member elected to the Western New York alliance's board participated in the board mentoring program and has had a meaningful impact on decisions such as the development of organizational values to ensure a focus on disparities. The board's goal is to have consumers, providers, and employers equally represented among its membership.

Meanwhile, the alliance has highlighted several ongoing challenges, including ensuring representation from rural counties and maintaining the engagement of the consumer advisory teams and an active feedback loop between the teams and the board. The alliance's board has found that although consumer participation provides an important perspective, board work such as fiduciary responsibility is not as immediately relevant to some consumers as is the work of the consumer advisory teams, which includes providing input to public reporting websites and patient-centered care in primary care practices.

Although a principle of the Aligning Forces for Quality initiative is embedding the consumer's voice across the initiative's activities, many alliances have also found value in developing a consumer-specific entity within which to foster consumer leadership and elicit perspectives on a range of topics, activities, and ideas.[13] Nine alliances have convened a dedicated consumer committee or advisory board, each unique in name, structure, and function. These groups serve as forums for consumers to share concerns and advice, for vetting alliance plans and materials, and often for sharing information among the consumers who serve on other governing bodies. However, alliances must be careful not to rely on a single consumer group instead of integrating consumers throughout the alliance's governance system and giving them influence across the multistakeholder structure.

Consumer-Friendly Health Care And Comparative Quality Information

EXPECTATIONS A key goal of Aligning Forces for Quality is to increase transparency regarding health care quality and variation. A critical milestone on the path toward that goal is the release of a public report comparing providers' performance. This information serves multiple audiences and their respective purposes. However, one important objective is to increase awareness among consumers of what high-quality health care entails, how and where to find it, and how to play a role in cultivating it.

The initiative's expectations regarding consumer engagement in public reporting efforts have evolved over the course of the program and are designed to ensure that the reports and targeted improvements are meaningful to patients and the public. Initially the alliances were expected to include consumers in the design of public reporting, to ensure presentation in a consumer-friendly format. The initiative later expanded its expectations to include consumer involvement in selecting what measures to report and what domains of ambulatory and hospital patient experience to target for improvement. The National Program Office enlisted the technical support of the American Institutes for Research to assist alliances in applying evidence-based techniques for displaying information for consumers.

CHALLENGES If consumers are to access and use comparative performance information, it must be displayed in a consumer-friendly way, with clearly defined and understandable measures presented in a format that makes it easy to identify patterns of provider performance across multiple measures.[14] Research in this area is proliferating, with Aligning Forces for Quality alliances at the cutting edge, along with the Centers for Medicare and Medicaid Services' Hospital Compare and Nursing Home Compare websites and Beacon communities, as well as the Agency for Healthcare Research and Quality's Chartered Value Exchanges.

In the alliances, consumer advisory boards have provided feedback on proposed data displays and have participated in focus groups to review the text that would give meaning and context to the data displayed. Resources developed to aid the alliances in producing consumer-friendly reports include guides for developing clear data displays and public reporting websites with consumer input.[15]

Even if the public reports themselves are consumer-friendly, promoting their use online is an ongoing challenge. A descriptive study of the potential of sixteen Aligning Forces for Quality health-related websites containing publicly reported comparative provider performance data to promote consumer engagement found that "the websites'…promise as a tool to improve consumer engagement is still uncertain."[16]

LESSONS The expectations of the Aligning Forces for Quality initiative have evolved to incorporate one of the most important lessons with respect to consumer involvement: Consumers must be involved at the outset of public reporting efforts. They must play a role in selecting the measures to be reported, not just the format for reporting them.

Recent examples from three of the initiative's alliances—those in Greater Boston, Minnesota, and Wisconsin—help illustrate this point. Starting in the summer of 2012, these alliances partnered with *Consumer Reports* to present a portion of their publicly reported information to the magazine's readers in their respective regions. Special regional inserts captured comparative quality information on a subset of practices, focusing on patient experience in Massachusetts; on chronic disease control in Minnesota; and on cancer screening tests, care for people age sixty or older, and the treatment of heart disease in Wisconsin.

From the partnership's outset, consumers played key roles in these releases of data.

Greater Boston consumers had substantial representation on the editorial committee, and their viewpoints shaped the framing and editing of the final insert. Barbra Rabson, executive director of the Greater Boston alliance, noted that the level of consumer representation in the project moved the editorial committee from being provider-centric to including patients' perspectives.

Minnesota also involved consumers from the start, to guide the insert's development instead of simply reviewing it when it was near completion. The consumer representatives emphasized the importance of reporting results on all providers and of making the data easy to understand through the use of symbols. The representatives also encouraged the alliance to provide more contextual information about what was included in the measures, why the measures were important, and how they could be used to get better care. Representation of a variety of consumers—including some born in Liberia and Somalia, and people from rural and urban areas—ensured a variety of perspectives. Consumers remained involved throughout the editorial review process, providing incremental feedback to ensure that the final product met the community's needs.

The Wisconsin alliance's editorial advisory committee included the two consumer representatives from the alliance's board of directors, as well as a representative from the Wisconsin branch of AARP. The alliance reported that the consumers' input was instrumental in steering the description of the quality measures from the technical to the practical, and in ensuring that the insert included specific questions for consumers to ask their doctor about the ratings, while emphasizing consumers' role in taking responsibility for their own care.

All sixteen alliances have been exploring ways to encourage local residents to use the public reports. Several alliances use the National Partnership for Women and Families' patient empowerment training module[17] and relationships with community groups to educate patients about health care quality and public reports. These alliances conduct training sessions at churches, senior centers, and other venues.

Other alliances use technology to increase the reach and accessibility of health and comparative performance information. Such approaches include mobile applications for accessing public reports on smartphones and other handheld devices, as well as online interactive quizzes to relay information about appropriate care. Nearly all of the alliances use social media such as Twitter, YouTube, and Facebook to promote information to people in their communities.

Several alliances are also leveraging their relationships with another stakeholder group—employers—to increase the visibility and use of their public reports. The results of these collaborations range from employers' disseminating information about the public reports to employees during the annual open enrollment period for health insurance to offering benefit designs that provide incentives to employees for choosing high-performing providers.

Involving Consumers In Health Care System Redesign

EXPECTATIONS Improving health care quality and outcomes requires consumer involvement to inform the redesign of health care delivery and payment. However, the Aligning Forces for Quality initiative has not specified how consumers must be involved in system redesign. Rather, the program has sought to lay the foundation of strong alliances that engage all stakeholders in improving care. A number of alliances have implemented individual-level interventions to improve health care and patient outcomes, such as educating and empowering consumers living with chronic diseases to better manage their health. Effectively integrating consumers into system-level reforms is newer territory than is public reporting, and alliance efforts in this area reveal challenges and lessons.

CHALLENGES Some of the challenges in engaging consumers in reform mirror the political and practical challenges of engaging them in governance. One challenge is contending with an established culture that historically has not valued the input of consumers. It can also be challenging to identify the right consumers and recruit them to fill the right roles.

Other challenges are results of the overarching forces that drive changes to the health system. Payment reform is increasingly regarded as a critical strategy for improving health care, seeking to align provider incentives with desired outcomes. However, this strategy generally focuses on the provider side of the equation and does not necessarily address the incentives, or disincentives, that are in place for patients.

LESSONS More than ever, alliances are integrating consumers into their work to improve health care at the practice and community level and laying the foundation for consumers' direct impact on quality improvement and other system redesign efforts.[18] For example, two alliances embed patients into the quality improvement teams of practices participating in their respective primary care quality improvement pilot programs. Two other alliances have helped practices create patient advisory groups to ensure patients' input into quality improvement efforts.[19] In 2012 these four alliances joined other alliances to participate in monthly affinity group meetings focused on sharing strategies and lessons learned in integrating patients into quality improvement activities.

The Humboldt County, California, Aligning Forces for Quality alliance reported learning a valuable lesson with regard to identifying consumers who might participate in system redesign. The alliance found that consumers who had been involved in chronic disease self-management programs were not necessarily interested in getting involved in discussions of system redesign. Trying to shift consumers to the redesign discussions placed their continued engagement at risk. In response, the alliance developed a matrix to match consumer recruitment for specific roles such as advising on quality improvement efforts or championing system redesign with key consumer characteristics, and it defined the supports needed to help consumers assume those roles. Early experience with using the matrix to guide consumers into the most appropriate roles has been positive.

Other alliances have learned the potential of consumer involvement to enrich payment reform experiments, as exemplified in Maine. Along with years of public reporting and consumer engagement work, Maine has pursued value-based insurance design—a strategy of designing health insurance benefits to encourage the use of high-value health care and discourage the use of services less likely to improve health.[20] Two labor management groups now use publicly reported quality and cost data to shape the design of their employee benefits,[21] and a third group will do so next year.

The Maine State Employee Health Commission—a labor management group composed of state employees, including law enforcement officials and park rangers—was the first in Maine to tier employee health benefits in this way. Beginning in 2006 beneficiaries received a $200 deductible waiver for choosing hospitals in the higher of two tiers, as determined by quality, safety, and patient experience ratings. The measures were selected by clinicians, employers, unions, consumers, and health plans working together.[22] The involvement of these different stakeholders has given many employers and employees confidence in using the results to identify providers of high-quality care.

The consumer incentives in the tiered plan have influenced utilization as intended. Thus, in 2010, when Maine General Health, a large health system, found itself at risk of falling into the lower tier and therefore of losing revenue, it reached out to the State Employee Health Commission. The Maine Health Management Coalition—the purchaser coalition of which both the commission and Maine General Health were long-time members—served as a neutral facilitator, helping the two entities identify common goals and potential solutions.

The commission did not entertain changing its tiering formula because the effectiveness of the benefit design depends on its consistency over time. But it worked collaboratively with Maine General Health to improve its quality of care and lower its costs by adopting an accountable care organization structure. The transition to the accountable care structure is being led by a steering committee of physicians and senior executives, Maine Health Management Coalition staff, and commission staff and employees. The steering committee is working to ensure that Maine General Health provides high-quality care and to structure payments to share risk and promote continued improvement.

Although large-scale efforts such as the one in Maine are few as yet, the successes and challenges that they reveal provide valuable lessons for other communities seeking to harness both consumer perspectives and the power of consumer incentives to improve health care delivery and payment.

Conclusion

Engaging consumers in the work of the sixteen Aligning Forces for Quality alliances continues to be a learning experience, with successes, revelations, and course corrections along the way. Recent informal assessments provide reason for optimism. In a 2011 convenience sample of 102 consumer representatives and individual consumers involved with the alliances, 14 percent reported having served in a leadership role, such as leading a committee or working group. In a similar sample in 2012, 58 percent of the eighty-three respondents reported such involvement. Although these findings reflect the experience of only a subset of consumers, it is encouraging to see so many consumers and consumer representatives reporting that they have filled leadership roles.

In both 2011 and 2012 more than half of the consumers agreed or strongly agreed that Aligning Forces for Quality staff leaders both sought and used their input in decisions about resource use and strategic direction. In 2012, 87 percent agreed or strongly agreed that their involvement "made a difference" to the Aligning Forces for Quality initiative, and 97 percent felt that "being involved" in the initiative was "worthwhile" for them.

These consumers' positive perceptions of their impact on the program and its value to them portend well for their continued involvement.

However, some consumers involved in the Aligning Forces for Quality alliances have reported low levels of involvement in specific areas of work, such as the development of policies and materials and direct quality improvement activities in hospitals or medical practices.

Historically, providers' perspectives have dominated health care discussions, even those focused on how better to meet patients' needs. An approach that engages consumers early and consistently is one that seeks to change the provider-dominated conversation for the benefit of both the health care system and those it is intended to serve.

Other initiatives are instituting requirements for involving consumers in governance and other health care system activities. The Medicare Shared Savings Program mandates beneficiary representation, with some flexibility, on the governing boards of accountable care organizations.[23] Similarly, health centers supported by the Health Resources and Services Administration are required to have a governing board, and "a majority of the board members shall be individuals who are or will be served by the center."[24]

A 2007 AcademyHealth issue brief commissioned by the Robert Wood Johnson Foundation recognized the potential of consumer engagement to catalyze quality improvement in health care. At the same time, it cautioned that "change will require a joint effort on the part of consumers, providers, payers, insurers and policy-makers."[25] And as Debra Ness, president of the National Partnership of Women and Families, articulated in a 2012 special issue on early lessons of the Aligning Forces for Quality initiative, the work of truly endowing patients' and families' perspectives with at least the same authority as those of other health care stakeholders is far from over.[10]

The efforts of the Aligning Forces for Quality initiative suggest that the integration of consumer stakeholders into all levels of efforts to improve health care quality might be both better received and more effective if governing bodies and individual projects involved consumers at the earliest stages of work and in proportions comparable to the representation of other stakeholder groups. As consumer involvement continues to evolve and mature in the initiative and elsewhere, increases in the contributions of consumers and additional innovative opportunities for their productive collaboration with other stakeholders are likely. ■

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In this month's *Health Affairs*, Susan Mende and Deborah Roseman report on Aligning Forces for Quality, the Robert Wood Johnson Foundation's signature effort to improve the quality of health care in targeted communities, reduce racial and ethnic disparities in care, and provide models for national reform.

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Early Lessons From Four 'Aligning Forces For Quality' Communities Bolster The Case For Patient-Centered Care

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ABSTRACT **The practice of patient-centered care remains in its developmental stages—hampered, in part, by limited evidence of its effectiveness. In this article we first review available evidence on patient-centered care, such as the positive effects of engaging patients in quality improvement activities. We also point out the existence of a research gap that makes it difficult to quantify the effect of "culture change" in health care, and to attribute improvements specifically to patients' involvement. We then discuss the benefits of involving consumers in the design and improvement of products and services outside the health care industry, and we present early lessons on engaging patients to improve ambulatory care in four communities—Humboldt County, California; south central Pennsylvania; Maine; and Oregon—participating in the Robert Wood Johnson Foundation's Aligning Forces for Quality initiative. These lessons, although early, illustrate that actively engaging patients in improving ambulatory care improves provider-patient communication, identifies and avoids potential challenges to new services, and improves provider and patient satisfaction.**

More than a decade ago the Institute of Medicine brought attention to the health care quality crisis and clarity to the definition of *quality*. The institute embraced the notion that care should be "patient-centered," defined as "care that is respectful of and responsive to individual patient preferences, needs, and values."[1]

Today, as the United States implements provisions of the Affordable Care Act, health care providers face unprecedented pressure to improve quality and reduce costs. Pursuing the "Triple Aim" of improved health outcomes, better patient care experiences, and lower costs[2] presents a simultaneous challenge and opportunity to develop innovative strategies, with stakes perhaps higher than ever before.

Patients have a unique perspective on health care and are potentially valuable partners in quality improvement strategies. Many physician practices survey patients on their care experiences.[3] However, few studies measure how many practices actively engage patients to help act on survey data. Nor do we have studies that examine the impact of actively engaging patients in improving health care quality and outcomes.

The lack of data is particularly striking in the realm of ambulatory care, where the patient-centered medical home model is supposed to embody quality improvement strategies, putting the patient at the center of care. Indeed, practices based on the patient-centered medical home take a systems-based approach, looking beyond the individual doctor to the health care team, health information technology, and other resources to deliver accessible, coordinated care to maximize health outcomes and efficiency.

Although the medical home model is intended to effectively meet patient needs, experts believe that practices often miss important opportunities for patients to play an active role in transforming care delivery to ensure that it is truly patient centered. Experts also believe that these opportunities should be further exploited, explored, and studied.[4]

Effectively engaging patients in quality improvement initiatives requires a major investment of time and resources—both of which are in short supply in today's medical care environment—and a practice culture that is receptive to making processes more transparent to patients while empowering them to suggest how those processes may be improved. Practices need motivation and a clear understanding of the possible benefits of engaging patients in quality improvement before they commit resources to realizing this ideal.

This article reviews evidence on the effects of patient engagement on care delivery and how these changes enhance patient-centered care in a way that demonstrates clinical and cost impact. The findings we present from our review, along with evidence from other industries, suggest that investment in patient-centered approaches to care may be worthwhile.

We also present early lessons from four communities in the Robert Wood Johnson Foundation's Aligning Forces for Quality initiative, which operates in sixteen communities around the country and is aimed at lifting the overall quality of health care in targeted communities, reducing racial and ethnic disparities, and providing models for national reform.[5] The four communities we report on are Humboldt County, California; south central Pennsylvania; Maine; and Oregon.

In contrast to individual hospital or health system examples, the initiative's grantees operate on a communitywide scale. Although more rigorous study is needed, Aligning Forces for Quality may help bridge the evidence gap for actively engaging patients to improve ambulatory care quality, outcomes, and cost.

The Evidence Base

ENGAGING PATIENTS PRODUCES CHANGE A systematic review of forty quality improvement initiatives found that engaging patients in these efforts generates concrete service changes. Changes include improving access to health care, such as revised appointment policies and hours of service, and patient-centered changes to mental health and diabetes care.[6]

Randomized controlled trials show that involving patients in developing patient information materials improves the materials' relevance, readability, and clarity.[7] Patients' unique perspective can prompt changes that improve processes for providers, too. Studies show that adopting efforts to improve patient-centeredness increases provider and staff satisfaction and reduces turnover.[8]

The experience of Georgia Health Sciences University provides a dramatic example of the potential impact. The institution first adopted a comprehensive patient-centered approach in 1993. It engages 130 patient and family advisers and is documenting measurable results.

For example, the system's Neurosciences Center of Excellence redesigned its approach in 2003 to integrate input from families into patient care.[9] Within three years the center decreased lengths-of-stay by 50 percent and reduced medical errors by 62 percent. Meanwhile, patient satisfaction increased from the tenth to the ninety-fifth percentile, and the staff vacancy rate dropped from 7.5 percent to zero.[10]

PATIENT-CENTERED CARE IMPROVES OUTCOMES Patient-centered care has produced positive outcomes in multiple care settings. At the same time, there is some evidence that patients who report better care experience are more likely than others to use more (and even unnecessary) health care services.

Studies show hospital patient-centeredness is associated with fewer unexpected complications and deaths.[11] In primary care, patient-centeredness also results in fewer diagnostic tests and referrals, reducing associated risks and costs.[12] Patient-centered management of end-of-life care reduces costs without shortening life.[13]

As noted, engaging patients in quality improvement efforts prompts changes that can include increasing engagement in their own care and improving their experiences with the health care system. Substantial research links these strategies to clinical and cost indicators.

For example, strategies for enhancing patient self-management and patient-provider partnerships have been shown to improve outcomes for people with arthritis, asthma, heart disease, lung disease, stroke, diabetes, hypertension, and breast cancer.[14–16] Improved disease management saves costs through reduced emergency department visits, hospital admissions, and lengths-of-stay.[17–19]

One measure of patient-centered care is obtained by surveying patients about their experiences with health care providers and systems. Patient experience, itself part of the Triple Aim of improved health care, correlates positively with a number of indicators, including clinical processes, patient adherence to care regimens, and reduced risk of medical malpractice claims.[20] On the other hand, a few studies link higher patient experience scores to increased hospitalizations, higher costs, and even mortality, suggesting that patients who report better care experience may be receiving elective or unnecessary procedures.[11,21]

These somewhat contradictory findings underscore the complexity of providing patient-centered care and the importance of conveying risks and benefits through shared decision making. New initiatives such as the Choosing Wisely campaign by the ABIM Foundation facilitate health care decision making by physicians and their patients and lead to better outcomes and lower costs.[22]

HOW OTHER INDUSTRIES BENEFIT FROM ENGAGING CONSUMERS Research in fields other than health care illustrates the value of engaging customers in quality improvement. For example, research has found that incorporating consumers' input into product design in industries such as personal computers, video games, and food improves the product's quality and aligns it more closely to consumers' needs and preferences.[23,24] Furthermore, engaging consumers provides early indications of how others will respond once a product has been launched. Engaging consumers in product development in the clothing, automobile, and home furnishing industries has been shown to save costs by improving consumer acceptance, reducing the risk that a product will fail in the marketplace.[25]

There are also risks, however. Engaging consumers in product development requires transparency, the surrendering of some control, and the possibility that consumers will propose novel but infeasible ideas.[23] These findings are consistent with the early lessons from the Aligning Forces for Quality initiative described below.

Examples From Aligning Forces For Quality

The premise of the Aligning Forces for Quality initiative is that together, community stakeholders who provide, pay for, and receive health care can improve health care quality and value more effectively than can any group acting alone. The initiative, launched in 2006, involves sixteen geographically, demographically, and economically diverse grantee communities, encompassing 12.5 percent of the US population.

Each of these communities has built its initiative around a multistakeholder leadership alliance, which may include participation from physicians, nurses, individual consumers (patients and caregivers) and consumer groups, purchasers, hospitals, health plans, safety-net providers, and others. Together they undertake quality improvement efforts, promote quality and cost transparency, and equip patients to make informed health care decisions.

Although all sixteen communities must include consumers at the leadership level, they employ differing approaches to quality improvement, transparency, and consumer engagement. Four "early adopter" alliances have been actively engaging patients in improving quality in ambulatory care settings. Their experiences can inform their Aligning Forces for Quality peers and contribute to the body of evidence for engaging patients in quality improvement efforts.

PATIENT PARTNERS Aligning Forces for Quality alliances in Humboldt County, California, and in south central Pennsylvania operate projects in which patient volunteers and their primary care physicians and practice staff work together on quality improvement teams. The volunteers are called "Patient Partners," to denote their role as equal members of the practice quality improvement teams. These team-based "Patient Partner projects" recruit the patient volunteers through staff recommendations or through social media or other marketing methods.

The practices use a detailed job description to identify patients who may be well suited to serving as Patient Partners. New Patient Partners undergo an orientation to establish expectations, introduce quality improvement methodology, and learn techniques for working effectively as a team. We discuss the initiatives' distinctive activities in more detail below.

▶**HUMBOLDT COUNTY:** Aligning Forces Humboldt is the alliance in Humboldt County, California. A rural yet geographically expansive county in northern California, Humboldt County has a population of 134,623 residents, of whom 17.7 percent live below the poverty level.[26] The county has been designated as a Health Professional Shortage Area for primary, mental health, and dental care.[27] Located at the California Center for Rural Policy at Humboldt State University, Aligning Forces Humboldt coordinates the Patient Partner project in conjunction with the Humboldt–Del Norte Independent Practice Association's Primary Care Renewal Collaborative.

The Practice Association began involving patients in the design and delivery of care through the Institute for Healthcare Improvement's Quality Allies program in 2006. Aligning Forces Humboldt implemented a chronic disease self-management program in 2008. These twin efforts helped the Practice Association and Aligning Forces Humboldt develop expertise in patient engagement and helped prepare practitioners for viewing patients as having roles beyond mere recipients of care, such as helping educate fellow patients in managing chronic diseases.

The impetus for the Patient Partner project came from clinical and executive leadership at the Humboldt–Del Norte Independent Practice Association that was supportive of patient engagement, from pioneering efforts of a local consumer advocate, and from the collaborative's focus in 2011 on the patient-centered medical home model. Currently in its second year, the project involves twenty-one Patient Partners in ten practice teams, representing about 30 percent of Humboldt County's primary care offices.

The project held its first patient orientation in January 2011, after having recruited Patient Partners from among patients who had completed a local chronic disease self-management program and from other sources. The project held periodic meetings of Patient Partners throughout the year, in addition to regular meetings of the full collaborative (providers, staff, and Patient Partners together). Each collaborative meeting included an address from a provider or quality improvement expert and a Patient Partner presentation, sharing insights from the Patient Partner meetings. During one collaborative meeting about care coordination, Patient Partners presented a map of the referral process from the patient's perspective, identified inefficiencies in existing processes, and highlighted the emotional impact of care fragmentation. The Patient Partner presentations have been well received by providers and staff. During 2011 the presentations consistently scored higher on meeting evaluations for effectiveness of information shared than did the meetings' presentations by practitioners.

Integrating patients into practice quality improvement has helped move patient-centered care from theory into practice. For example, Patient Partners helped develop patient brochures and evaluated online portals through which patients can access their medical records electronically. They identified and addressed potential challenges for patients using the portals and suggested ways to rewrite office policies into patient-friendly language.

At one pediatric practice, Patient Partners designed a procedure to schedule follow-up on "well child" visits and helped develop a survey so that practitioners could better understand parents' objections to childhood immunizations.

Practitioners sometimes found quality improvement partnerships with patients to be unfamiliar and challenging. Collaborating in a structured project, such as developing a brochure, helped teams work together and ended up producing a change in culture. "What the Patient Partner project has changed is the conversation about patient-centered redesign in the community," observed Alan Glaseroff, a primary care physician and codirector of Aligning Forces Humboldt. "Having the Patient Partners at the table means the reason for this work is front and center for every discussion" (Alan Glaseroff, Aligning Forces Humboldt, interview, September 14, 2012).

▸**SOUTH CENTRAL PENNSYLVANIA:** The Aligning Forces for Quality alliance in south central Pennsylvania, which includes York and Adams Counties, adapted Humboldt's Patient Partner project to enhance its existing Patient-Centered Medical Home Collaborative. The south central Pennsylvania initiative introduced its Patient Partner project to seven practices in the collaborative in 2011. The project has since been expanded to all twenty-two practices in the collaborative, which serve more than 125,000 patients in the region.

The practices and their thirty-six Patient Partners employ "Lean" methodology,[28] a quality improvement approach pioneered and developed by Toyota to reduce waste and improve efficiency in automobile manufacturing. Patient Partners have focused on patient communication and self-management to help other patients take an active role in their care.

One of the successful outcomes is the creation of a "brown bag medication review," in which the patient brings all of his or her medications to a meeting with a provider to review indications and proper dosing. One practice implemented a system to alert patients if a doctor is running late for an appointment. One Patient Partner prompted another practice to add new glucometers to exam rooms. The better equipment resulted in improved interactions and patient satisfaction. Patients are happier, and staff assessments show increasing provider satisfaction with the team approach.

Serving as role models and working to improve care for all patients have prompted Patient Partners to become even more active in their own care. For example, one Patient Partner, Michael, who has diabetes, lost sixty pounds and got his blood sugar under control within five months. Ron, another Patient Partner, also lowered his blood sugar significantly. Having noticed these changes in some Patient Partners, practices have begun using a validated tool to measure baseline and subsequent changes in Patient Partners' active engagement in their own health and health care.

PATIENT ADVISERS Two other alliances have taken a different approach, focusing on establishing patient advisory groups in health care organizations and providing training and technical assistance to support practices and patients.

▸**OREGON:** In 2010 Oregon Health Care Quality Corporation, a nonprofit quality improvement organization, launched its Patients and Families as Leaders program. This program provided five organizations—four medical groups and one health plan—with intensive training, coaching, web-based tools, and other technical assistance to help them establish patient and family advisory councils.[29] Although Quality Corporation's technical support ended in January 2012, the five pilot organizations maintain their patient advisory councils, and additional organizations have expressed interest in developing councils. Three of the five pilot organizations in Oregon are discussed below.

Providence Medical Group is a primary care–based multispecialty group with more than seventy clinic locations in Oregon. The organization established its patient advisory council in March 2011.[30] Thirteen advisers participate in established projects and initiate their own efforts to improve quality and efficiency.

For example, advisers attended a diabetes education course as "secret shoppers" and afterward recommended ways to streamline orientation and standardize materials. Advisers also presented an orientation to new clinic employees, showing films of patient interviews to illustrate ways to translate patients' comments into practice improvements.

Another project involved after-visit summary reports to help patients remember and apply the advice given by their health care providers. Some patient advisers noted that they themselves had never received an after-visit summary report but would have found it beneficial. This realization resulted in an effort to encourage use of after-visit summaries by such means as putting up posters in the clinics and making presentations to staff members. Advisers and staff measured baseline after-visit summary usage and look forward to quantifying evidence of future improvement.

St. Charles Family Care–Redmond is a primary care clinic in central Oregon with thirteen providers. It established a seven-member Patient Advisory Board in January 2011. The board initially surveyed other patients to assess how the clinic could better meet their needs. After patients reported difficulty in finding their way around the clinic building, the board recommended and obtained approval for a volunteer greeter to provide a friendly face and navigation assistance.[31]

CareOregon is a nonprofit health plan serving more than 150,000 Medicaid and Medicare recipients in the state. Its thirteen-person Member Advisory Council meets monthly to discuss procedures and programs. For example, the council helped develop a "Better Together Guide" to help patients and providers establish shared goals and expectations for clinic visits. The advisers are viewed as authentic voices for Oregon's low-income and vulnerable populations. This reputation was instrumental in securing commitment from CareOregon's board and senior leadership to add dental coverage to members' medical coverage.[32]

▸**MAINE:** Engaging patients in primary care quality improvement is part of the Maine Aligning Forces for Quality alliance's commitment to patient-centeredness, which requires active engagement of patients and consumers. For example, even annual performance evaluations for staff members measure how well they performed in securing and retaining the engagement of patients in the activities of workgroup and project committees.

The alliance is also one of three conveners of Maine's twenty-six-practice Patient-Centered Medical Home Pilot—a program that trains health care teams and patient advisers in practice transformation. The pilot expanded by fifty practices in January 2013, and Maine's Medicaid Health Home initiative will add up to fifty-seven primary care sites by 2015.

Together, these efforts will reach every geographic region in Maine and influence care for more than 500,000 people. Pilot practices commit to implementing ten "core expectations," one of which is to engage patients actively in practice quality improvement efforts. All twenty-six pilot sites involve patient advisers, as will other practices that join the pilot later.

Maine created a Patient Family Leadership Team consisting of staff and patient advisers in 2010 to offer support and technical assistance to the pilot practices. The team's functions have since been absorbed into two key structures. First, Maine Quality Counts, the quality improvement arm of the Aligning Forces for Quality alliance, established a board-level consumer advisory council to oversee all strategic initiatives.

Second, a small technical assistance team made up of staff and patient advisers from each of the Patient-Centered Medical Home Pilot practices provides customized, on-site assistance to other medical practices, employing best practices and sharing information between pilot sites. This latter group has proven essential to implementing and maintaining successful advisory groups.

As in the other three Aligning Forces for Quality communities, practices in Maine have seen tangible results from involving patients in quality improvement activities. According to Betty St. Hilaire, patient advisory coordinator for Winthrop Family Medicine, the practice's patient advisory council has shifted providers' focus from "what's the matter?" to "what matters to you?" For example, the council found that pediatric patients experienced long waits in exam rooms before a provider arrived. Further inquiry revealed that providers looked for a clipboard outside the exam room as a signal that the patient was inside and ready to be seen but that patients did not know of this expectation. The practice has affixed stickers to the clipboards reminding patients to hang them outside the room after completing paperwork, and practice staff were coached to remind patients of this procedure. This change has improved practice efficiency as well as patient satisfaction (Betty St. Hilaire, Winthrop Family Medicine, interview, January 10, 2013).

David Loxtercamp, a primary care physician at Seaport Family Practice, reports that engaging patient advisers has helped identify the practice matters of highest priority to patients in that practice and has led to improvement in patient experience scores (David Loxtercamp, Seaport Family Practice, interview, June 1, 2012).

Establishing patient advisory groups in Maine is an evolving and often iterative process. Success depends on physician leadership and staff support, the availability of patients, practice readiness, and available resources. The groups vary in structure; this flexibility is vital because each practice needs to sustain membership and focus as situations change over time.

Authentic patient engagement was daunting for many practices at first because there were no best practices for engaging patients and families as for other aspects of care. Yet in a 2011 survey, participants in the pilot programs reported only positive results, with improved communications as a universal outcome. One practitioner remarked, "Engaging patients is the hardest core expectation but the most fun."[33]

Obstacles to patient engagement cited in the survey included limited time, competing priorities, and early skepticism that engagement efforts would lead to real change. Bolstered by the creation of feasible work plans and with individualized guidance, practitioners are reaping tangible rewards: improved processes, enhanced relationships with patients, and patient-friendly materials and signage to make facilities easier to navigate and use.

Early Lessons

Although a few providers in each Aligning Forces for Quality community championed the approach of integrating patients into quality improvement activities, many at first resisted. Gaining providers' buy-in since that point has been a key to success.

For example, before implementing its Patient Partner program, participants in south central Pennsylvania surveyed provider practices about their concerns. Many practitioners were fearful of exposing their deficiencies to patients and worried that engaging patients would exacerbate their already hectic schedules.

These transparency concerns mirror those regarding consumer engagement in non–health care industries and were common among other Aligning Forces for Quality sites. Success stories from Humboldt County and Oregon helped ease these concerns in Pennsylvania.

Overall, few of the feared outcomes related to transparency have been borne out in reality (Lisa Letourneau, Maine Quality Counts, interview, June 1, 2012). Rather, practices found that being transparent with patients and consumers has helped the patients understand systems and constraints.

All four alliances emphasize the importance of providing technical assistance to practices and staff support for patients. Clear expectations among all parties foster productive relationships and increase satisfaction.

A single staff contact for patient advisers ensures accessibility, continuity, and integration into the decision-making process. This staff support requires additional time from staff whose plates are already full. But centralized technical assistance can share techniques and help staff get the most from their resources at hand.[33]

Patients involved in the Aligning Forces for Quality efforts described above typically receive some compensation, usually meals and reimbursement for travel or child care expenses. Some practices also offer small stipends.

Recruiting people who represent the larger patient population can be challenging, although direct invitations from providers are often successful. Even patients who had not been optimally engaged in their care provided meaningful contributions. Participation "opened my eyes to how a practice works and the providers' perspective," said one south central Pennsylvania Patient Partner. "I realized that I play a big role in my care, [and I] took the necessary actions to improve my diabetes."

Conclusion

Despite increased emphasis on patient-centered care, few studies have examined whether actively engaging patients in improving care in physician practices improves health outcomes and cost.

Aligning Forces for Quality sites offer an opportunity to study this approach on a growing scale, highlighting concrete practice improvements, health benefits for patient advisers, and a move to a more patient-centered culture. Three of the alliances have already expanded their projects based upon positive response.

Engaging patients in quality improvement efforts does not replace the need for validated patient experience surveys. Surveys provide representative patient input, whereas directly engaging patients in quality improvement helps make that input actionable.[34]

As noted above, a few studies suggest that high patient experience scores may correlate to the use of unnecessary medical services. However, engaging patients in improving care may help implement processes that improve patient-provider communication and thereby reduce the likelihood of delivering these unnecessary services and the health risks that can result.

Engaging patients in quality improvement requires resources, leadership support, and much transparency. Participating practices report undergoing a culture change—no small feat for busy practices. Yet this change seems to foster a more patient-centered quality improvement approach that improves patient experience without increasing costs.

Patient advisers also provide a "reality check" for proposed service changes, much as consumers in other industries help predict the response to a new product and hereby reduce risk of product failure. "Health care unfortunately oftentimes re-does things a lot. And there's an expense to that," said Cindy Klug, director of education for Providence Medical Group in Oregon. "Now you know what your patients need and want" (Cindy Klug, Providence Medical Group, interview, January 19, 2012).

Combined with patient-centered care research and lessons learned from other industries, Aligning Forces for Quality adds to the growing case for integrating patients into quality improvement efforts. Other communities involved in Aligning Forces for Quality are now exploring similar efforts. Additional examples and experts in the field provide further guidance.[35]

Still, a quantitative research gap remains. It is hard to quantify the effect of culture change, and this change is often one among a package of interventions, which makes it difficult to attribute improvement specifically to patients' involvement. Comparing patient-centered medical home practices that engage patients in quality improvement to those without this component would help isolate the impact of each model on quality, health outcomes, and cost. ■

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In this month's *Health Affairs*, Deborah Roseman and coauthors review the available evidence on the effects of patient-centeredness—such as from engaging patients in quality improvement activities in health care—and present early lessons from four communities participating in the Robert Wood Johnson Foundation's Aligning Forces for Quality initiative. Although early, the authors write, these lessons illustrate that actively engaging patients in improving ambulatory care improves provider-patient communication, identifies and avoids potential challenges to new services, and improves provider and patient satisfaction.

Roseman is a research scientist at the Center for Health Care Quality, School of Public Health and Health Services, at the George Washington University. Her responsibilities include providing oversight and guidance for four grantee communities of the Robert Wood Johnson Foundation's Aligning Forces for Quality initiative to achieve high-quality health care and managing technical assistance and peer-exchange activities to support sixteen Aligning Forces for Quality communities' efforts to engage consumers and employers and publicly report and improve patients' experience of care.

Previously, Roseman served as lead health planner for the San Diego County HIV Health Services Planning Council, where she managed the local community planning process for allocating $10 million in annual Ryan White Comprehensive AIDS Resources Emergency (CARE) Act funding, worked to maximize consumer involvement in service planning, and prepared annual Health Resources and Services Administration grant applications. She earned a master's degree in public health from Yale University.

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Quality Field Notes

Robert Wood Johnson Foundation

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Patient Engagement

Issue Brief

What We're Learning:
Engaging Patients Improves Health and Health Care

The Challenge

People who are actively engaged in their health care are more likely to stay healthy and manage their conditions by asking their doctors questions about their care, following treatment plans, eating right, exercising, and receiving health screenings and immunizations.[1] Patients without the skills to manage their health care incur costs up to 21 percent higher than patients who are highly engaged in their care.[2]

Patient engagement starts with giving patients the tools they need to understand what makes them sick, how to stay healthy, and what to do if their conditions get worse. It means motivating and empowering patients to work with clinicians—to be active participants in their care by asking questions, knowing their medications and medical history, bringing friends or relatives to appointments for support, and learning about care that may be unnecessary. It can also mean giving them a seat at the table to improve the care that hospitals and doctors' offices provide. Patients who know how to navigate the health care system often have different perspectives than those who provide their care, and can offer insights on how to overcome the barriers that patients face to help improve care.

Not all patients are the same, so there are many different ways to engage them, depending on a patient's skills and interests. The American Institutes for Research developed a three-level framework to guide patient engagement by matching patients with activities that align with their interest in and knowledge of health and the health care system.[3] First-level patients are becoming engaged in managing their own care. Second-level patients provide input to health care organizations, including doctors' offices, to help improve care for all patients. Third-level patients are involved in efforts to influence community-wide programs, policies, laws, and regulations in health care. Aligning Forces Humboldt, which leads the *Aligning Forces for Quality* (AF4Q) effort in Humboldt County, Calif., also developed a framework to guide patient engagement in its projects, based on patients' skills and interests.

Across the country, organizations leading the AF4Q initiative are engaging patients at all levels to improve care in their communities.

Aligning Forces for Quality

AF4Q is the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities across America. These briefs distill some of the key lessons learned by these regional alliances of providers, patients, and payers as they work to transform their local health care and provide models for national reform.

The Facts

21%

Patients without the skills and confidence to manage their own health care incur costs up to 21 percent higher than patients who are highly engaged in their care.[4]

47%

Patients are stepping up to the plate. Nearly half (47 percent) of patients have brought a friend or a relative to a doctor's appointment so that they could help ask questions and understand what the doctor was saying.

3/5

Almost three in five patients have taken a list of their current medications to a doctor's appointment.[5]

What's Working

Improving the quality and value of health care is at the heart of AF4Q, the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities. Lessons from AF4Q demonstrate how:

Programs that encourage **collaboration** among patients can help them learn to better manage their own health.

Although doctors may be reluctant to make their practices **transparent**, involving patients in quality improvement efforts can generate valuable insights and better processes.

Engaging patients to influence health care systems or policy takes both time and resources, but is critical for true culture change.

Collaboration

Programs that encourage collaboration among patients can help them learn to better manage their own health.

Educating patients about their health empowers them with the knowledge needed to stay healthy. Since 2008, Aligning Forces Humboldt has engaged more than 1,000 patients in its Our Pathways to Health chronic disease self-management workshops. The six-week program helps patients with chronic conditions—including high blood pressure, high cholesterol, diabetes, obesity, chronic pain, and heart conditions—learn how to manage their conditions in a supportive environment with peers facing similar challenges. Many of the program's graduates become so impassioned that they train to become workshop leaders. Initially, the program relied on word-of-mouth recommendations from enthusiastic alumni, public service announcements, and newspaper articles to recruit attendees. Those efforts didn't go far enough, however, so program leaders began working with doctors' offices to refer patients with chronic illnesses.

> ***"I came into this six-week program a death-fearing, self-pitying, chronically ill person. Now I am mainly chronically well."***
>
> —EUNICE NOACK, OUR PATHWAYS TO HEALTH PARTICIPANT

A program led by the Greater Detroit Area Health Council (GDAHC), which spearheads the local AF4Q effort, took a similar approach by working with patients at risk for developing heart disease. The six-month Cardiac Disease Prevention Exercise Program included twice-weekly sessions with exercise specialists, educational sessions with primary care physicians and dietitians, free pedometers, and a cooking demonstration to encourage participants to adopt heart-healthy behaviors. As with the Pathways workshops, peer support was integral to this program, as participants leaned on one another to stay motivated and accountable for integrating healthy behaviors into their daily lives. Physician involvement also played an important role, as the chair of the program was a primary care physician who personally invited some of the participants and worked one-on-one with participants throughout the program. After participants lost weight and lowered their blood pressure, GDAHC began working with program graduates to reach out to other community organizations to implement similar exercise programs.

FAST FACT: Since 2008, the **Our Pathways to Health** program has provided **94 workshops** to more than **1,000 participants,** with **720 graduating** from the program by attending at least four workshops.

Resource Guide:
Review a compendium of tools and techniques that AF4Q alliances use for patient engagement.

Transparency

Although doctors may be reluctant to make their practices transparent, involving patients in quality improvement efforts can generate valuable insights and better processes.

A growing number of primary care practices are integrating patients' unique perspectives into quality improvement efforts to improve the experiences of patients and clinicians alike, and ensure that patients are at the center of care. Aligning Forces Humboldt and Aligning Forces for Quality – South Central Pennsylvania (SCPA) both work with local primary care practices to incorporate Patient Partners into quality improvement teams.

Before implementing the Patient Partners program, clinicians in SCPA were fearful of exposing deficiencies to patients. However, practices found that being transparent helped patients understand how the system works. The alliances mitigated anxiety among doctors by holding open discussions about the potential challenges of partnering with patients and how to overcome them. One key to successful partnerships is a direct invitation from the physician's practice to the patient. Program leaders also recommend that patient advisory groups start by taking small steps, such as reviewing how the practice uses its phone system or seeking feedback on efforts already underway, to improve care. The groups have found that clear expectations, structured meetings, and asking patients for feedback through meeting evaluations increases the satisfaction of both patients and clinicians. Patient Partners have helped practices adopt new techniques to provide better care, from giving parents a laminated reminder card to schedule well child visits on their way out of the office to creating "brown bag medication review" appointments so patients and their doctors can review all their medications.

> ***"It's very motivating for patients to share their experiences with providers and see that they truly care but hadn't previously been aware of patients' perspectives."***
>
> — KIM HUMPHREY, CONSUMER REPRESENTATIVE AND COORDINATOR OF THE PATIENT AND FAMILY LEADERSHIP TEAM IN MAINE

FAST FACT: The **Patient Partners program in SCPA** now includes **36 practices** serving more than **125,000 patients** and focuses on patient communication and self-management in York and Adams counties.

Engagement

Engaging patients to influence health care systems or policy takes both time and resources, but is critical for true culture change.

Involving patients in programs to improve the overall health and health care in a community helps ensure that the population's needs are understood and met. With this in mind, Massachusetts Health Quality Partners (MHQP), which leads the AF4Q initiative in the Greater Boston area, decided to include patients in its leadership by creating the Patient and Public Engagement Council (PPEC). PPEC members draw on their experiences as patients and family members to help MHQP establish strategic goals and develop public reports on the quality of care provided in the community. By fostering relationships with patient leaders, MHQP receives valuable feedback on high stakes projects, like its recent work with *Consumer Reports* to develop the publication's first-ever rating of patient experiences with nearly 500 primary care offices in Massachusetts. For this project, PPEC members worked in collaboration with physicians to make sure the reports were not only fair and balanced, but also displayed in a format that consumers could easily understand.

MaineGeneral Health, an integrated health system, began working with the Maine Health Management Coalition (MHMC), a member of the local AF4Q initiative, after losing its status as a preferred hospital based on rankings reported publicly by MHMC. One way MaineGeneral worked with MHMC to get back on the preferred list was to form a steering committee representing state employees who received incentives, such as lower co-pays, for going to preferred hospitals. By including patients in the process, MaineGeneral was able to accelerate improvement activities and meet all of its goals by the end of its second year as an accountable care organization (ACO), getting back on MHMC's preferred list.

> ***"The council offers a place where I can contribute my experience as a patient and career coach for people with chronic health conditions toward creating a more patient-centric system of care. With MHQP, I know that my time and perspective are valued and put to action."***
>
> — ROSALIND JOFFE, PATIENT AND CO-CHAIR OF MHQP'S PATIENT AND PUBLIC ENGAGEMENT COUNCIL

1 Hibbard JH and Cunningham PJ. *Research Brief No. 8*: *How Engaged Are Consumers in Their Health and Health Care, and Why Does It Matter?* Washington: Center for Studying Health System Change, 2008, *www.hschange.com/CONTENT/1019/1019.pdf* (accessed December 2013).

2 James J. “Health Policy Brief: Patient Engagement.” *Health Affairs*, February 14, 2013, *healthaffairs.org/healthpolicybriefs/brief_pdfs/healthpolicybrief_86.pdf* (accessed December 2013).

3 James J.

4 James J.

5 Kaiser Family Foundation and Agency for Healthcare Research and Quality. *2008 Update on Consumers’ Views of Patient Safety and Quality Information*. Washington: Kaiser Family Foundation and Agency for Healthcare Research and Quality, 2008, *www.kff.org/kaiserpolls/upload/7819.pdf* (accessed December 2013).

Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Case Study: Detroit

Helping At-Risk Patients Adopt Healthy Behaviors

In October 2012, the Greater Detroit Area Health Council (GDAHC) began a six-month Cardiac Disease Prevention Exercise Program to help patients decrease their risk of heart disease through exercise and health education. GDAHC, which leads the local *Aligning Forces for Quality* initiative, asked primary care providers to recruit consumers identified as at risk for developing cardiac disease and engaged them to take a fitness assessment. The alliance collected baseline data from over 30 patients, including height, weight, body mass index, heart rate, and perceived exertion, and worked with the participants' primary care physicians to compile data on hemoglobin A1c and lipid levels.

To start the program, participants received pedometers and were taught how to use them. More than half of the participants attended twice-weekly training sessions with exercise specialists at the gym to learn about proper exercise techniques and the benefits of exercise. Participants also attended educational sessions, including meetings with primary care physicians on the risks of heart disease, and with dietitians on reading and understanding nutrition labels, dining out, and portion control. Participants also learned how to modify recipes through a cooking demonstration and attended sessions on stress management and relaxation techniques, providing them with the necessary support to achieve their health goals.

After six months, the 18 participants who attended at least half of the sessions on average showed significant reductions in weight (3.7 percent), BMI (3.7 percent), and improvement in cardiovascular fitness (31.1 percent). One participant lost 25 pounds and lowered her blood pressure to 112/65, which is in the normal range. Another participant lowered her systolic blood pressure by 20 mm Hg, while a third participant lost more than 18 pounds.

Based on the program's results, GDAHC is developing materials to help other organizations implement similar programs in areas where residents don't have access to gyms or cannot afford memberships. GDAHC is working with ambassadors who completed the program to help reach out to community organizations, such as churches, to start their own programs.

Aligning Forces for Quality

AF4Q is the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities across America. These briefs distill some of the key lessons learned by these regional alliances of providers, patients, and payers as they work to transform their local health care and provide models for national reform.

Results:

After six months, the 18 Cardiac Disease Prevention Exercise Program participants experienced:

⬇ **3.7%**
Weight reduction

⬇ **3.7%**
BMI reduction

⬆ **31.1%**
Cardiovascular fitness improvement

Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Case Study: Washington State

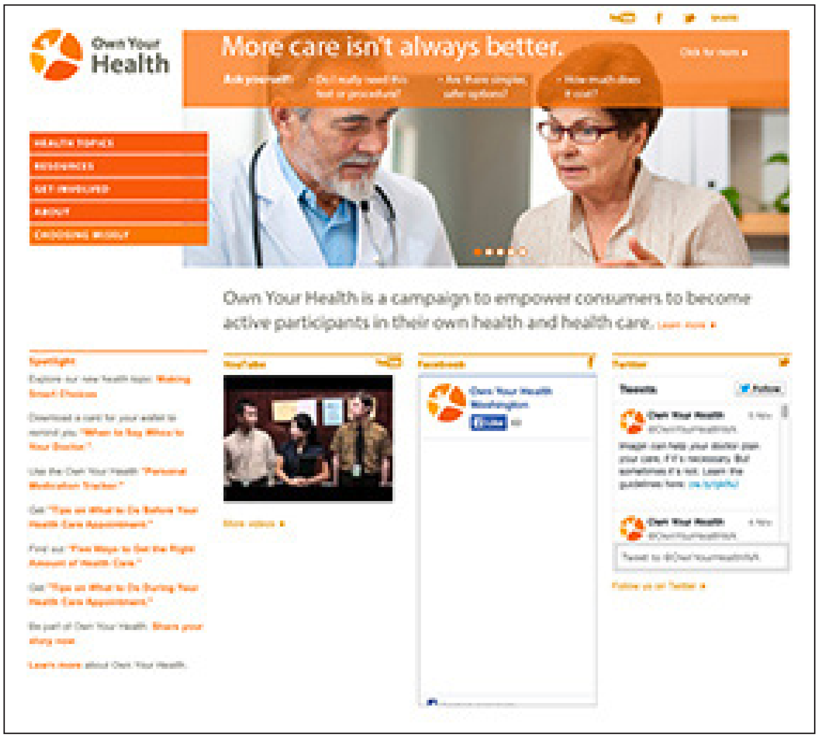
Empowering Patients to Own Their Health

In August 2011, the Washington Health Alliance launched the "Own Your Health" campaign to help patients manage their health and health care. The alliance, which leads the *Aligning Forces for Quality* effort in Washington state, created the campaign to empower patients by educating them on health care issues—including the importance of having a primary care physician, receiving quality care, communicating with physicians, and following through on treatment plans. The campaign's website features humorous videos and helpful tools, such as a medication tracker and tips for finding trustworthy health information online.

The alliance is working with three local purchasers—King County, the State of Washington, and Sound Health & Wellness Trust, a 55,000-member union trust representing grocery workers—to customize and share the "Own Your Health" campaign materials with their populations. The campaign materials have been circulated to more than 120,000 employees and labor union trust members.

Results:

Since 2011, the **"Own Your Health" website** has garnered more than **22,500 visits**, with more than **10,000 visits in 2013** alone.



More care isn't always better.

Own Your Health is a campaign to empower consumers to become active participants in their own health and health care.

Aligning Forces for Quality

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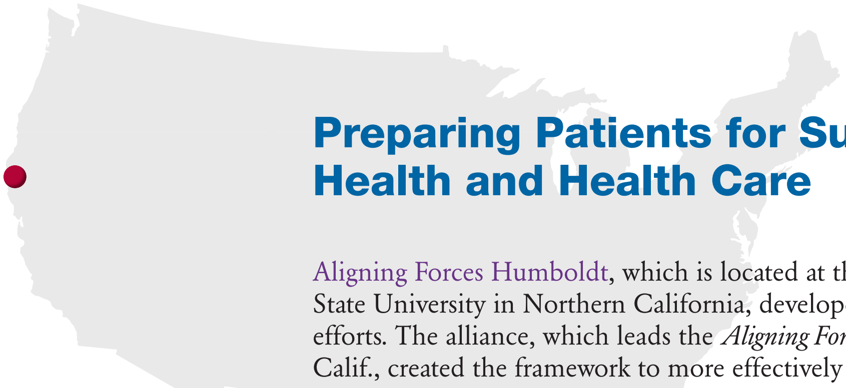
Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Case Study: Humboldt County, Calif.



Preparing Patients for Success in Improving Health and Health Care

Aligning Forces Humboldt, which is located at the California Center for Rural Policy at Humboldt State University in Northern California, developed a framework to guide its patient engagement efforts. The alliance, which leads the *Aligning Forces for Quality* (AF4Q) initiative in Humboldt County, Calif., created the framework to more effectively engage patients depending on the patients' needs, knowledge, and interests, and the time and skills needed for the task.

The framework divides patient engagement into four levels. The first engages patients with chronic illnesses to better manage their own health. These patients are matched with the alliance's Our Pathways to Health program, which is a free, 15-hour, six-week, peer-led workshop to provide patients with skills to manage their chronic conditions. Since 2008, the program has fielded 94 workshops to more than 1,000 participants, with 720 graduating from the program by attending at least four workshops. Aligning Forces Humboldt has found that alumni of Our Pathways to Health are hospitalized less and seek fewer doctor appointments.

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Second-level patients help other patients better manage their health and use health information to make informed decisions. These patients are well-positioned to become peer leaders for the Our Pathways to Health workshops. They are also receptive to using the alliance's public report to learn about local health care quality or talk to their doctor about getting the right care for their conditions.

Third-level patients are involved in efforts to improve the quality of care provided to all patients. These patients participate in the alliance's Patient Partners program, which places patients in workgroups to help primary care practices improve quality. Patient Partners are often graduates of the Our Pathways to Health program, and bring their personal perspective as patients or caregivers to inspire ways to improve patient care. For example, at one pediatric practice, Patient Partners designed laminated cards to help parents remember to schedule well child visits and helped develop a survey to understand parents' objections to childhood immunizations. The project currently involves 21 Patient Partners in 10 practice workgroups, representing nearly a third of Humboldt County's primary care offices.

Fourth-level patients serve on committees enacting changes in care at the community or policy level. For example, patients added their perspectives when participating in the alliance's Surgical Rate Project, which examined variation in rates of preference-sensitive care in the area. Preference-sensitive care comprises treatments for conditions where legitimate treatment options exist—options involving significant tradeoffs among different possible outcomes of each treatment. Patients supporting the Surgical Rate Project are helping uncover the factors driving high rates of care, and advocating for the use of shared decision-making tools that help patients make informed choices about their care based on their values and preferences.

Results:

Since 2008: **94** patient engagement workshops with more than **1,000** participants

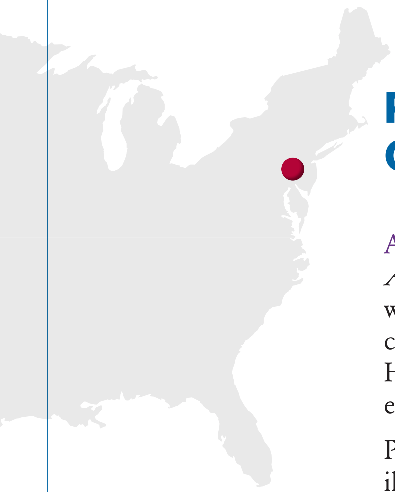
Today: **21** Patient Partners in **10** practice workgroups represent **1/3** of Humboldt's primary care offices

Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Case Study: South Central Pennsylvania



Partnering with Patients to Improve Primary Care

Aligning Forces for Quality – South Central Pennsylvania (SCPA), the local alliance for *Aligning Forces for Quality* (AF4Q), introduced the Patient Partners program to seven practices in 2011 with the goal of bringing patients to the center of its patient-centered medical home (PCMH) collaborative. The Patient Partners program, which was initially developed by the AF4Q alliance in Humboldt County, Calif., embeds patients in the practices to assist with their quality improvement efforts.

Patient Partners either manage their own chronic condition or have cared for someone with a chronic illness, so they have personal knowledge of the barriers patients face. Their participation as Patient Partners ensures that the patient's perspective is considered while practices work to improve the quality of care they deliver.

Before implementing the program, SCPA surveyed practices and found that many clinicians were fearful of exposing their deficiencies to patients and worried that engaging patients would exacerbate their already hectic schedules. However, since implementing the program, practices have found that being transparent has helped their patients understand system structures and constraints. Moreover, the partners have proposed ideas to improve care.

One idea suggested by a Patient Partner involved redesigning a phone system at an inner-city clinic so patients could more easily reach clinicians and cancel or reschedule appointments. The change has since decreased no-shows and improved patient satisfaction. Another Patient Partner prompted a practice to post their quality improvement results to encourage patients to work with their doctors to improve clinical outcomes.

Working to improve care for all patients has prompted some Patient Partners to take an active role in their own health. For instance, one Patient Partner with diabetes lost 60 pounds and regained control of his blood sugar within five months. Another significantly lowered his blood sugar.

Aligning Forces for Quality

AF4Q is the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities across America. These briefs distill some of the key lessons learned by these regional alliances of providers, patients, and payers as they work to transform their local health care and provide models for national reform.

Results:

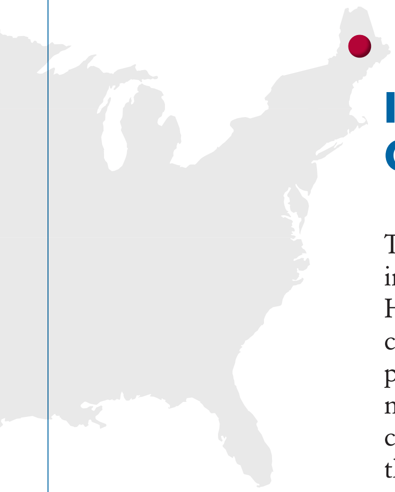
The Patient Partners program in SCPA includes **36 practices** with **57 Patient Partners** serving more than **125,000 patients**, and focuses on patient communication and self-management in York and Adams counties.

Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Case Study: Maine



Involving Patients to Guide a Health System's Goals

The Maine Health Management Coalition (MHMC), a member of the *Aligning Forces for Quality* initiative in Maine, partners with local employers and health care purchasers like the State Employee Health Commission (SEHC) to provide incentives for employees to use preferred hospitals and clinics proven to provide high-quality care. Preferred classification is based on rankings reported publicly by MHMC. When MaineGeneral Medical Center fell off the list of preferred providers for nine months beginning in October 2010, the executives of MaineGeneral Health, the affiliated health care system, estimated they lost $750,000. They knew they could not afford either the financial loss or the loss of reputation when they faced the prospect of being non-preferred again with an expanded set of metrics.

In February 2011, MaineGeneral Health made a deal with the SEHC to reclaim preferred status. They formed an accountable care organization (ACO) and agreed to a steering committee that included state employees and benefits managers, among others. Together, they established five improvement goals, including reducing non-urgent ER visits and recruiting new primary care physicians to the area to expand access to care for state employees.

Bringing patients to the table with C-suite executives has helped MaineGeneral Health accelerate activities to improve care for different patient populations, such as patients with chronic illnesses, while also containing costs.

The involvement of patients ensured that MaineGeneral Health has clear, easy-to-understand objectives and strategies for improving care. Barbara Crowley, executive vice president of MaineGeneral Health, explains, “When you have to educate consumers on your plans for improving care, the whole room understands it better. As we sat at the table with consumers whose premiums were rising, it propelled us to focus on what would have the most impact on cost while improving quality.”

The committees's work is ongoing, so there is no defined metric for results. However with the committee's guidance, at the end of the second year MaineGeneral Health exceeded all of its goals including newly added cost targets.

Aligning Forces for Quality

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Summer Boslaugh is a program manager for the Oregon Health Care Quality Corporation.

Summer Boslaugh is a program manager for the Oregon Health Care Quality Corporation, directing activities to measure and improve the patient experience of care and engage patients and families in quality improvement within health care organizations. In particular, she manages the Robert Wood Johnson Foundation Aligning Forces for Quality initiative—three multiyear grants totaling more than $2.3 million to improve the quality and affordability of health care in Oregon. She earned an MBA and a master's degree in health administration from the University of Washington.

Kellie Slate-Miller is the director of communications for Maine Quality Counts.

Kellie Slate-Miller is the director of communications for Maine Quality Counts, a regional health care collaborative committed to transforming health and health care in Maine by leading, collaborating, and aligning improvement efforts. She assists in communicating the organization's vision through the active engagement and alignment of people, communities, and health care partners. She is responsible for directing the organization's internal and external communication efforts and oversees all public relations efforts on behalf of the organization in the transformation of primary care. Slate-Miller earned a master's degree in health education from Purdue University.

Quality Field Notes

Robert Wood Johnson Foundation

NUMBER 3
MARCH 2014

Humboldt County, Calif.

Interview

An Integrative Approach to Patient Engagement

Aligning Forces Humboldt, which is located at the California Center for Rural Policy at Humboldt State University, has developed a successful method for assessing and maintaining patient involvement in its work leading the *Aligning Forces for Quality* (AF4Q) initiative in Humboldt County, Calif. AF4Q is the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities across America.

The alliance created a four-level framework for engaging patients in its different efforts, depending on the patients' knowledge and interests, and the time and skills needed for the projects. The projects include leading workshops to help people with chronic illnesses manage their health and participating on committees to help primary care offices improve the care they provide.

To gain insights into how the framework has helped patients bring value to the alliance's work, we sat down with Jessica Osborne-Stafsnes (pictured left), project co-director, and Melissa Jones (pictured right), project director for Aligning Forces Humboldt.

Aligning Forces for Quality

AF4Q is the Robert Wood Johnson Foundation's signature effort to lift the overall quality of health care in 16 targeted communities across America. These briefs distill some of the key lessons learned by these regional alliances of providers, patients, and payers as they work to transform their local health care and provide models for national reform.

Q Why did you decide to develop this patient engagement framework for your work in Humboldt? How has the framework evolved over time?

Jessica: We developed the framework because of the experience we had with Our Pathways to Health, a program sponsored by the Robert Wood Johnson Foundation to support patients with chronic illnesses in managing their health. The program was incredibly successful and had a robust implementation. Many patients who graduated from the program were very passionate and became peer leaders. We tried to channel their enthusiasm by plugging them into other AF4Q projects without adequate support and planning, which cultivated a challenging experience for all stakeholders. We realized that we weren't thinking about the skills or training the patients needed to feel successful and empowered in these other programs.

So, the framework came out of the need to support people's interests and skill sets, and to make appropriate placements with the projects we have based on the skills the projects demand. It also helps to give patients clear expectations of the goals and responsibilities they're taking on when getting involved in a new project, which we've found helps to alleviate a lot of frustration. We felt the need to reflect on how we had engaged consumers in our community and our vision for engaging them moving forward.

We treat the framework as a working document, and we continually refine it based on lessons learned. For instance, in the last six months, we added a piece about organizational readiness because we realized patient engagement isn't only about patients' ability to engage in their own health or quality improvement projects. It's also about how ready an organization is to work with patients on these projects.

How did you develop the four levels of the framework?

Jessica: We started with the level of engaging patients to better manage their own health; we also work with patients to use our public reports about local health care quality, so it was a natural next step. And second level, to engage patients to use health information online and become peer leaders to support others in managing their health.

We developed the third level as a result of our work with the Humboldt-Del Norte Independent Practice Association (IPA) to integrate patients in quality improvement efforts. This is reflected in our Patient Partners project.

Most recently, we've been working on the fourth level, which engages patients as equal committee members working at the policy level. Our community-wide project on surgical rate variation engaged participants at this level of the framework.

The Our Pathways to Health program began in 2008 and has more than 1,000 graduates. How has the program changed over time?

Melissa: It is a licensed program at Stanford University, so there is an established curriculum to run the workshops. We've developed partnerships with organizations in our community to offer the workshop for their specific populations. For example, we'll have a workshop for our local VA clinic and another for people with poor vision.

Jessica: Our relationship with the IPA through AF4Q has helped us get support from the primary care community for the Pathways program. We saw significant growth by reaching out to primary care providers to ask for referrals to the workshops. Referrals have gone from 23 to 40 percent.

Melissa: Provider referrals are critical to sustaining the program. We give presentations on the program and the referral process to providers' offices and track our top-referring providers.

Jessica: I just interviewed our top 10 referring providers and they said they like knowing that they're referring patients to an evidence-based program. Since it is licensed by Stanford Patient Education Research Center, physicians know it's research-based and consistent, and many of them hear positive reports back from their patients.

Many providers have said, "I will see a patient in a 15-minute window, but I know there are many factors, such as social determinants, which impact their ability to live with their chronic condition." The program's goal is to provide a space for folks to explore those issues and address them, and many providers consider it a help for the patient and the provider. It's a relatively low commitment on their end to refer someone to Pathways. It ends up being a value because the patient has the opportunity to explore issues like symptom management, nutrition, active living, and goal-setting in a very supportive environment.

How do you identify the peer leaders for the Pathways workshops? And then once you do, how do you keep them involved?

Melissa: After patients graduate from the workshop, in the program evaluation we ask, "Would you be interested in being a peer leader?" If they say yes, we invite them to the annual orientation and leader training. Once they become leaders, we keep them actively involved by holding quarterly leader lunches to update them on workshop schedules, address any issues, and build camaraderie.

Are peer leaders compensated?

Melissa: They can choose to be compensated or they can be volunteers. We leave that up to them because some may not want the money; they may do it purely because they love the program. Other folks find that having that little bit of income is really helpful.

What are some lessons you've learned or changes you've made since the beginning of the Pathways program?

Melissa: Most of the adjustments over the years were not only to be responsive to our community, but also to not ask too much from our leaders. It's also become clear that we need to have full and robust workshops because one of the principles of the program is that you don't have a workshop with only three or four people.

Jessica: We've learned that having a multi-pronged and aggressive approach to recruiting workshop participants is very important. We keep in constant contact with physicians and our community partners, and leverage local newspaper articles to drive folks to the workshops.

Let's talk about the third level, which is patient involvement in quality improvement and system design. Tell us about the Patient Partners program.

Jessica: Leveraging resources from RWJF, the IPA started a community-wide primary care quality improvement collaborative in 2009 with 10 primary care teams, and it was very successful. We decided to do the collaborative again in 2011 to introduce practices to the patient-centered medical home (PCMH) model. When we were planning, it seemed really odd to support practices working to become PCMHs without having patients at the table. So, we took a risk and told the practices, "If you want to participate in this collaborative, you need to recruit a patient to sit on your practice performance improvement team." We recognized that it was disruptive innovation, but we felt that patients should be a part of the work that the practices needed to do to become PCMHs. It was important to us that both patients and practices felt supported in this new working relationship.

Practices that were early adopters tended to be those that already had implemented a quality improvement structure and were meeting on a regular basis in their practice. They did an excellent job of integrating patients into their efforts without too many problems. Other practices struggled with embracing the quality improvement collaborative structure. Even though they valued their Patient Partners' perspectives, the practices had a hard time engaging them meaningfully, and sometimes would forget to invite them to a team meeting or miss the opportunity to engage the patient perspective on a certain area.

Overall, the reception to Patient Partners has been very positive. At each collaborative meeting, Patient Partners present their perspectives on a given topic, and their presentations are often rated higher on meeting evaluations than the keynote speakers'.

How have Patient Partners contributed to improve a practice?

Jessica: In a pediatric practice, the team was talking about how to improve well child visit rates. The Patient Partner said, "I know the practice wants me to make the next appointment as I'm leaving the office, but my kid just received a bunch of immunizations and they're crying and I'm feeling frazzled. I just want to get out of the office and I forget to stop and make a follow-up appointment. Why don't you give me a laminated card with what I need to do at the front desk before I leave so I remember?" The practice implemented the idea and it's been working really well.

Another practice was working on improving colorectal cancer screenings and was sending screening kits out to their patients for them to mail back. They were concerned that no one would send back their kits for testing, and the Patient Partner suggested putting a sticker on the kit that said, "This can save your life."

Q The fourth level involves patients in efforts to make changes at the community or governance level. Was it a natural progression to include patients in these projects, like the Surgical Rate Project, given the way they've been integrated into everything else?

Jessica: Betsy Stapleton, our lead consumer representative and a thought leader for many of our patient engagement efforts, was instrumental in this effort, which she led in conjunction with Martin Love of the IPA. After reading the California HealthCare Foundation's article on variation in preference-sensitive care in California, and observing that Humboldt had 1.5 to 2 times the rate of care for certain elective procedures, she thought, "There is a project here and this community has a stake in it."

We developed a program with a group of community leaders who were not involved in the local health care system, like the chief of staff at the local university and an economic analyst for the county. Then we pulled together a group of specialists and a group of primary care providers to start examining these rates and understanding why some were higher than in other regions.

We focused on four different preference-sensitive conditions, and we brought in experts in each of those surgical areas to talk about indicators for those surgeries. The community group also met with the experts to get the education necessary to have a meaningful conversation.

Melissa: The experts met with each group independently, so each had an isolated, protected space to have these discussions and feel comfortable to ask questions within their group.

Jessica: The three groups came together in a final meeting, and the community group made several recommendations for addressing care variation. One of their recommendations was that we, as a community, consider shared decision-making so that treatment decisions are influenced by a patient's preference instead of some of the external factors that seem to be influencing them now.

We've really noticed a transformation in our approach to patient engagement over the past several years. The Patient Partners program and the Surgical Rate Project have helped us establish a norm in our community to ensure that the patient voice is present when developing new projects.

Choosing Quality Care

Title	Source	Description	Link
It's All About ME!	Maine Quality Counts	Tips and resources to help patients improve their health and make better care choices.	http://www.mainequalitycounts.org/page/2-667/its-all-about-me
It's All About ME! Handout	Maine Quality Counts	A brochure for educating patients on the important role they play in managing their health.	http://www.mainequalitycounts.org/image_upload/BHBM_Brochure_0812_Final.pdf
How to Find the Right Primary Care Doctor for You	Washington Health Alliance	A guide for patients with information on comparing medical groups and clinics in Washington state and making informed decisions when choosing a doctor.	http://wacommunitycheckup.org/ownyourhealth/wp-content/uploads/how_to_find_the_right_primary_care_doctor.pdf
Your Primary Care Doctor Is Your Partner in Health	Washington Health Alliance	A handout to educate patients on the role primary care providers play in their health care.	http://wacommunitycheckup.org/ownyourhealth/wp-content/uploads/your_primary_care_doctor_is_your_partner_in_health.pdf
How to Find Trustworthy Health Information on the Internet	Washington Health Alliance	A guide for consumers on how to properly use the Internet as a health care information tool.	http://www.wacommunitycheckup.org/ownyourhealth/wp-content/uploads/how_to_find_trustworthy_health_information.pdf
Tips on What to Do Before Your Health Care Appointment	Washington Health Alliance	A guide to help patients prepare for upcoming doctors' appointments.	http://wacommunitycheckup.org/ownyourhealth/wp-content/uploads/what_to_do_before_health_care_appointment.pdf
Personal Medication Tracker	Washington Health Alliance	A form that patients can use to track health information and prepare for doctors' appointments.	http://www.wacommunitycheckup.org/ownyourhealth/wp-content/uploads/personal_medication_tracker.pdf
Three Tips to Help With the Challenges of Taking Care of Yourself	Washington Health Alliance	A guide to help patients follow their doctor's instructions post appointment.	http://www.wacommunitycheckup.org/ownyourhealth/wp-content/uploads/three_tips_to_help_with_taking_care_of_yourself.pdf
Five Ways to Get the Right Amount of Health Care	Washington Health Alliance	A guide to help patients recognize when they are receiving high-quality care.	http://wacommunitycheckup.org/ownyourhealth/wp-content/uploads/five_ways_to_get_right_amount_of_health_care.pdf
Tips on What to Do During Your Health Care Appointment	Washington Health Alliance	A guide to help patients get the most out of their doctor's appointment.	http://wacommunitycheckup.org/ownyourhealth/wp-content/uploads/what_to_do_during_health_care_appointment.pdf
Own Your Health	Washington Health Alliance	Fun, educational tools and videos to help empower patients to become active participants in their own health and health care.	http://wahealthalliance.org/alliance-reports-websites/own-your-health/

Choosing Quality Care *(continued)*

Title	Source	Description	Link
Maine Quality Counts' Consumer/Patient Engagement Framework	Maine Quality Counts	A guide detailing various levels of patient engagement.	http://forces4quality.org/af4q/download-document/6656/3458
Resources to Find and Compare Health Care Professionals	Aligning Forces for Quality South Central PA	A list of resources to guide patients when searching for a health care provider.	http://www.aligning4healthpa.org/pdfs/Resources%20to%20FindandCompare%20HealthCare%20Professionals.pdf
Lessons Learned: Engaging Consumers to Improve Ambulatory Care	*Aligning Forces for Quality*	A brief sharing lessons from five AF4Q alliances engaging patients to improve ambulatory care.	http://forces4quality.org/lessons-learned-engaging-consumers-improve-ambulatory-care-0
A Community Embracing the Consumer Voice to Improve Care	*Aligning Forces for Quality*	A look at how a council of consumers helps guide efforts to improve health care in Greater Boston.	http://forces4quality.org/community-embracing-consumer-voice-improve-care?term_id=45
Helping Consumers Make Better Health Care Choices	*Aligning Forces for Quality*	A summary of patients' involvement supporting *Consumer Reports* patient experience survey in Greater Boston.	http://forces4quality.org/helping-consumers-make-better-health-care-choices?term_id=140
Local QI Collaborative Provides Framework for Culture Shift	*Aligning Forces for Quality*	An overview of a project that engages patients to help the Independent Practice Association redesign health care in Humboldt County.	http://forces4quality.org/local-qi-collaborative-provides-framework-culture-shift?term_id=145
Bright Spot: Humboldt Del-Norte Independent Practice Association Patient Engagement in the Primary Care Renewal Collaborative	*Aligning Forces for Quality*	A brief about the effectiveness of engaging consumers in improving health care in Humboldt County.	http://forces4quality.org/af4q/download-document/4356/1653
Building a New Health Care System Around Community	*Aligning Forces for Quality*	A summary of partnerships with community organizations to engage patients in improving health care in Maine.	http://forces4quality.org/building-new-health-care-system-around-community?term_id=147
Engaging the Patient Perspective Produces Real Change	*Aligning Forces for Quality*	An overview of a program in Oregon to help health organizations establish patient and family advisory councils.	http://forces4quality.org/engaging-patient-perspective-produces-real-change?term_id=154
Patients and Families as Leaders in Health Care	*Aligning Forces for Quality*	A summary of how an effort in Oregon is helping a medical group improve the care it provides.	http://forces4quality.org/patients-and-families-leaders-health-care?term_id=154
Improving Care with Patient Partners	*Aligning Forces for Quality*	An overview of efforts to involve patients in quality improvement in South Central Pennsylvania.	http://forces4quality.org/improving-care-patient-partners?term_id=151
The Empowered Patient	*Aligning Forces for Quality*	A summary of a consumer empowerment training program in West Michigan.	http://forces4quality.org/empowered-patient?term_id=45

Choosing Quality Care *(continued)*

Title	Source	Description	Link
Partnering with Patients to Improve Primary Care	Robert Wood Johnson Foundation	A case study on a program to engage patients in guiding quality improvement efforts in primary care practices in South Central Pennsylvania.	http://www.rwjf.org/en/research-publications/find-rwjf-research/2014/02/quality-field-notes--case-studies-for-engaging-patients-in-care.html
Preparing Patients for Success in Improving Health and Health Care	Robert Wood Johnson Foundation	A case study on an innovative framework to identify and engage patients in different efforts to improve health care in Humboldt County.	http://www.rwjf.org/en/research-publications/find-rwjf-research/2014/02/quality-field-notes--case-studies-for-engaging-patients-in-care.html
Empowering Patients to Own Their Health	Robert Wood Johnson Foundation	A case study on an educational campaign in Washington state to get patients to be active participants in their care.	http://www.rwjf.org/en/research-publications/find-rwjf-research/2014/02/quality-field-notes--case-studies-for-engaging-patients-in-care.html
Involving Patients to Guide a Health System's Goals	Robert Wood Johnson Foundation	A case study about a committee in Maine to lead a health system's quality improvement goals.	http://www.rwjf.org/en/research-publications/find-rwjf-research/2014/02/quality-field-notes--case-studies-for-engaging-patients-in-care.html
Minnesota *Aligning Forces for Quality* Consumer Engagement Workgroup	*Aligning Forces for Quality*	A report chronicling the efforts of the Minnesota Consumer Engagement Workgroup for other communities that want to replicate this effort.	http://forces4quality.org/af4q/download-document/3424/912
Guide to Engaging Consumer Advocates in AF4Q Alliances	*Aligning Forces for Quality*	A guide for regional health care collaboratives to help them engage consumers in improving health care in their communities.	http://forces4quality.org/af4q/download-document/2937/557
Early Lessons From Four *Aligning Forces for Quality* Communities Bolster the Case for Patient-Centered Care	*Health Affairs*	An article with key findings from efforts to involve patients in practice improvement in AF4Q communities.	http://rwjf.org/en/research-publications/find-rwjf-research/2013/02/early-lessons-from-four--aligning-forces-for-quality--communitie.html
The *Aligning Forces for Quality* Experience: Lessons On Getting Consumers Involved In Health Care Improvements	*Health Affairs*	An article describing lessons learned when engaging patients to improve health care quality.	http://rwjf.org/en/research-publications/find-rwjf-research/2013/06/the-aligning-forces-for-quality-experience.html
Consumer Engagement Resources	*Aligning Forces for Quality*	A collection of consumer engagement resources from AF4Q communities.	http://forces4quality.org/c/45/consumer-engagement
Survey Collection and Consent Form	American Institutes for Research's Center for Patient & Consumer Engagement	A survey from the AIR Center for Patient and Consumer Engagement to gather feedback from patients and caregivers on their health care.	http://aircpce.org/survey-consent/
Compendium: Tools for Engaging Patients in Your Practice	*Aligning Forces for Quality*	A guidebook of resources and videos for clinicians sharing insights and experiences from AF4Q alliances to engage patients in practice improvements.	http://forces4quality.org/compendium-tools-engaging-patients-your-practice

Managing Your Care

Title	Source	Description	Link
Get Screened, Humboldt	Aligning Forces Humboldt	Educational materials to encourage individuals to get screened for colon cancer.	http://aligningforceshumboldt.org/get_screened_humboldt.php
Get Vertical: And Don't Take Back Pain Lying Down!	Oregon Health Care Quality Corporation	An online quiz to educate patients on treatment options for back pain.	http://www.partnerforqualitycare.org/lowbackpain
Safe and Effective Care for Low Back Pain	Oregon Health Care Quality Corporation	A brochure with tips and information on treatment options and ways to relieve low back pain.	http://www.partnerforqualitycare.org/q/assets/lowbackpain.pdf
A Diabetes Checklist For Your Doctor Visit	The Health Collaborative	A checklist to help patients understand the tests and checkups they should receive for proper diabetes care.	http://farmza.com/lab/yhmtest/upload/images/Diabetes_Checklist_Doctor_Visit.pdf
Your Cardiovascular Appointment Brochure for Men	The Health Collaborative	A guide to help male patients prepare for appointments with their doctor regarding cardiovascular care and understand heart attack symptoms.	http://farmza.com/lab/yhmtest/upload/images/CV_appt-Men.pdf
Your Cardiovascular Appointment Brochure for Women	The Health Collaborative	A guide to help female patients prepare for appointments with their doctor regarding cardiovascular care and understand heart attack symptoms.	http://farmza.com/lab/yhmtest/upload/images/CV_appt-Women.pdf
Guide to Colon Cancer Screening	The Health Collaborative	A guide to help patients prepare for a colonoscopy.	http://farmza.com/lab/yhmtest/upload/images/Colon_Cancer_Screening.pdf
Our Pathways to Health	Aligning Forces Humboldt	A brochure on Our Pathways to Health, a six-week program to help patients with chronic illnesses improve and manage their health.	http://aligningforceshumboldt.org/upload/media/Our_Pathways_Brochure_CCRP_Jan_9_2012.pdf
Success With Diabetes	Maine Quality Counts	A brochure to educate patients about proper diabetes care, including a checklist for doctors' appointments.	http://www.getbettermaine.org/sites/default/files/af4q_diabetes_pathway_maine_web_08-09.pdf
Checklist for your Doctor	Maine Health Management Coalition	A handout to educate patients with heart disease on necessary tests at their regular doctors' visits.	http://www.getbettermaine.org/sites/default/files/checklist_for_your_doctor.pdf
Knowledge Is Power for Prevention	Maine Quality Counts	A brochure for patients to improve their health, including self-care guidelines and a checklist for doctors' visits.	http://www.getbettermaine.org/sites/default/files/prevention_brochure.pdf
Getting Ready for Your Next Appointment	Aligning Forces for Quality South Central PA	A checklist to help patients prepare for their next doctor's appointment.	http://www.aligning4healthpa.org/pdfs/Preparing%20for%20Next%20Appointment.pdf
Medications I Take	Aligning Forces for Quality South Central PA	A tracker to help patients organize their medications.	http://www.aligning4healthpa.org/pdfs/Medications%20I%20Take.pdf

Managing Your Care *(continued)*

Title	Source	Description	Link
Questions for Your Health Care Team	Aligning Forces for Quality South Central PA	A list to help patients prepare for appointments.	http://www.aligning4healthpa.org/pdfs/QuestionsForHealthCareTeam.pdf
Providing Diabetes Self-Management Education in the Workplace	*Aligning Forces for Quality*	An overview of Detroit's efforts to educate patients with diabetes on properly managing their health care.	http://forces4quality.org/providing-diabetes-self-management-education-workplace?term_id=45
Managing Health Begins with Education	*Aligning Forces for Quality*	An overview of a Detroit pilot to train people with diabetes on self-management at their workplaces.	http://forces4quality.org/managing-health-begins-education?term_id=144
Step by Step: Creating A Pathway To Better Health	*Aligning Forces for Quality*	A summary of the Our Pathways to Health program in Humboldt County, Calif., which educates patients on how to manage their chronic conditions.	http://forces4quality.org/step-step-creating-pathway-better-health?term_id=45
Increasing Colon Cancer Screening Rates	*Aligning Forces for Quality*	A summary of Humboldt County's "Get Screened Humboldt" education campaign about colon cancer screenings.	http://forces4quality.org/increasing-colon-cancer-screening-rates?term_id=145
On the Front Lines of Asthma Treatment	*Aligning Forces for Quality*	An overview of efforts in Kansas City to educate consumers on recommended asthma care.	http://forces4quality.org/front-lines-asthma-treatment
Partnering With Patients To Make Decisions About Colorectal Cancer Screening	*Aligning Forces for Quality*	An overview of efforts to increase the number of patients receiving colorectal cancer screening tests in Minnesota.	http://forces4quality.org/partnering-patients-make-decisions-about-colorectal-cancer-screening?term_id=45
Paving the Way for Difficult Conversations	*Aligning Forces for Quality*	An overview of a patient engagement program in Minnesota focused on palliative care.	http://forces4quality.org/paving-way-difficult-conversations?term_id=149
Get Vertical: And Don't Take Back Pain Lying Down	*Aligning Forces for Quality*	A summary of the patient education program on low back pain in Oregon.	http://forces4quality.org/get-vertical-and-don%E2%80%99t-take-back-pain-lying-down?term_id=154
Oregon: Working with Consumers to Tackle Low Back Pain	*Aligning Forces for Quality*	A summary of a campaign in Oregon to help patients understand low back pain and set expectations about safe and effective care.	http://forces4quality.org/oregon-working-consumers-tackle-low-back-pain
Empowering Patients for Diabetes Management	*Aligning Forces for Quality*	An overview of Western New York's efforts to educate patients on properly managing their diabetes.	http://forces4quality.org/empowering-patients-diabetes-management?term_id=153
Helping At-Risk Patients Adopt Healthy Behaviors	Robert Wood Johnson Foundation	A case study on a program in Detroit to encourage patients at risk for heart disease to exercise and learn ways to manage their health.	http://www.rwjf.org/en/research-publications/find-rwjf-research/2014/02/quality-field-notes--case-studies-for-engaging-patients-in-care.html

Emergency Department Overuse and Hospital Readmissions

Title	Source	Description	Link
Make the Right Call	The Health Collaborative	A toolkit and educational materials to help patients understand when it is appropriate to seek emergency care.	http://www.yourhealthmatters.org/make-the-right-call-learn.php
Hospital Discharge Checklist and Care Transition Plan	Robert Wood Johnson Foundation	A checklist from Care About Your Care to help patients understand their discharge instructions and help prevent a hospital readmission.	http://www.rwjf.org/content/dam/farm/toolkits/toolkits/2013/rwjf404048
How to Avoid Being Readmitted to the Hospital	Robert Wood Johnson Foundation	A tip sheet from Care About Your Care providing patients with steps to help prevent a hospital readmission.	http://www.rwjf.org/content/dam/farm/toolkits/toolkits/2013/rwjf404088

NATIONAL CANCER INSTITUTE:

I Overview:

There are several ways to think about engaging people with cancer experience to work with NCI in pursuit of its mission. That mission is summarized below and is elaborated at the following URL: http://www.cancer.gov/aboutnci/overview/mission

> The National Cancer Institute coordinates the National Cancer Program, which conducts and supports research, training, health information dissemination, and other programs with respect to the cause, diagnosis, prevention, and treatment of cancer, rehabilitation from cancer, and the continuing care of cancer patients and the families of cancer patients.

Patient engagement at NCI begins with being involved in the research activities of NCI and it extends to studying how people with cancer engage in their care. Two ways of being engaged in research include: 1) as participants in research development, and 2) as participants in clinical trials. These two activities are encouraged and coordinated through The Director's Consumer Liaison Group (DCLG). The agenda of understanding how people with cancer are engaged in their care is organized through the Division of Cancer Control and Population Sciences (DCCPS). The DCLG, DCCPS and each of the methods of engagement are elaborated below.

II Organizational Focus for Engagement in Research: The Director's Consumer Liaison Group

The focus of engagement in the activities of NCI is the Director's Consumer Liaison Group (http://advocacy.cancer.gov/dclg).

> The NCI Director's Consumer Liaison Group is a Federal Advisory Committee comprising advocate leaders, chosen for their expert understanding of the perspectives and dynamics of the cancer research community. The DCLG identifies and responds to issues and challenges facing the Institute at the request of the Director. The DCLG provides relevant non-scientific skills and perspectives in order to improve research outcomes by identifying new approaches, promoting innovation, recognizing unforeseen risks or barriers, and identifying unintended consequences that could result from NCI decisions. Attend a DCLG meeting to see how the DCLG is involved in these areas.
>
> The Committee will provide advice to the Director, National Cancer Institute (NCI), with respect to promoting and advancing cancer research. To this end, the

Committee will conduct these activities with the intent to identify new approaches, promote innovation, and recognize unforeseen risks or barriers. Additionally, the Committee will provide insight into enhancing input, optimizing outreach, and promoting strong collaborations, all with respect to stakeholders.

Membership in this committee includes people with experience in public policy, advocacy, education, and research. The roster can be found at http://deainfo.nci.nih.gov/advisory/dclg/DCLGpublicRoster.pdf.

III Engagement as Participants in Research Development

Because the involvement of people affected by cancer is so integral to the work of NCI there is an Office of Advocacy Relations (OAR) that was created under the DCLG. An executive summary of ways that advocates can be involved in research has been included as an attachment (http://deainfo.nci.nih.gov/advisory/dclg/ARWG-execSum.pdf). The highlight is that advocates undertake at least 4 roles within research;

1. Advocates engaged in **advisory roles** help develop recommendations or advise on strategic directions or broad policy issues. Advisory activities include participation on a formal advisory board or providing a critical perspective as part of a panel discussion at a scientific meeting.

2. Advocates engaged in **design roles** develop new or enhance existing programs or activities. Design activities include serving on a committee or panel involved in development of a new program or oversight of an existing program to provide the patient perspective or to identify patient barriers to implementation.

3. Advocates engaged in **review roles** evaluate and analyze research proposals and ongoing research activities. Review activities include participating in peer or concept review panels.

4. Advocates engaged in **dissemination roles** interpret and communicate scientific information for nonscientific audiences. Dissemination activities include using scientific content to develop, edit, and/or distribute research findings to such audiences.

In addition to these roles within NCI, similar roles can also be undertaken at Cancer Centers and with specific research projects undertaken through Universities. There are many areas of research that would benefit from the perspective of people with cancer experience. The array of research done by NCI is outlined at www.cancer.gov. Research interests in cancer care delivery are described at the following link (http://cancercontrol.cancer.gov/research-emphasis/quality-of-care.html) and summarized below.

> The Institute of Medicine (IOM), in 1990, defined health care quality as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge." Advances in the field of cancer outcomes research expanded the conceptualization of desired patient outcomes to include not only traditional biomedical outcomes such as survival and disease-free survival, but also health-related quality of life, patient experiences of care, and economic burden.
>
> Population-based data resources have allowed researchers to examine variations in the patterns and quality of care delivered in diverse health care settings, identify populations at risk for receiving sub-optimal care, and examine multilevel factors influencing disparities in the delivery of effective and timely care. In addition to population-level surveillance on quality of care, DCCPS has supported research on optimizing various structures and processes of care and examining their linkage with patient outcomes. A special emphasis has also been placed on optimizing communication and facilitating coordination among members of clinical teams, between clinical teams, and between clinicians, patients and family members.

Cancer care delivery research will particularly benefit from understanding patient and family perspectives on cancer and cancer care delivery. There is an emerging area of emphasis on Patient Centered Outcomes research that is focused on how to characterize and measure care quality from the patient perspective. This work was started long before the foundation of the Patient Centered Outcomes Research Institute and has continued to work with them to develop this field.

IV Engagement as Participants in clinical trials.

The Cooperative Group Program has played a key role in developing new and improved cancer therapies. More than 25,000 patients and thousands of clinical investigators participate in the Program's clinical trials annually. In recent years, however, many stakeholders have expressed concerns that the Program is falling short of its potential to conduct the timely, large-scale, and innovative clinical trials needed to improve patient care. As a result, NCI asked the Institute of Medicine (IOM) to assess the state of cancer clinical trials, review the Cooperative Group Program, and provide advice on improvements.

The IOM Report highlighted 4 major goals for a National Clinical Trials System for the 21st century:

1. improve the speed and efficiency of the design, launch, and conduct of clinical trials
2. incorporate innovative science and trial design into cancer clinical trials
3. improve prioritization, selection, support, and completion of clinical trials
4. incentivize the participation of patients and physicians in clinical trials

NCI has made progress related to many of the goals and recommendations included in the IOM Report on the Cooperative Group program. That progress is outlined at http://transformingtrials.cancer.gov/initiatives/cooperative-groups/nci-progress and includes the following efforts: 1) To improve the speed and efficiency of the Design, launch, and conduct of clinical trials, 2)To incorporate innovative science and trial design into clinical trials, 3) To improve prioritization, selection, support and completion of clinical trials, and 4) Incentivize the participation of patients and physicians in clinical trials.

V Patient Engagement in their Clinical Care:

The opportunity to be engaged in formulating research and affecting research design and implementation is intended to affect the quality of screening, diagnosis, detection and treatment of cancer. This agenda is critical but may be remote to most people's experience of cancer. A more proximate issue of engagement for people with cancer is their experience of their care. In that area there has been a major national push to make care more patient-centered. That push began with two seminal reports at the turn of the millennium: Ensuring the Quality of Cancer Care (1999) and Crossing the Quality Chasm (2001). Both have stimulated an agenda for care and research on systematic changes that achieve patient centered processes and outcomes, however these are nascent fields with limited results to date.

Division of Cancer Control and Population Sciences:

The leader in achieving the end of patient centered care within the National Cancer Institute is the Division of Cancer Control and Population Sciences. As NCI's bridge to public health research, practice, and policy, the Division of Cancer Control and Population Sciences (DCCPS) plays a unique role in reducing the burden of cancer in America. DCCPS, an extramural division, has the lead responsibility at NCI for supporting research in surveillance, epidemiology, health services, behavioral science, and cancer survivorship. In 1997, the Division of Cancer Control and Population Sciences was established to enhance NCI's ability to alleviate the burden of cancer through research in epidemiology, behavioral sciences, health services, surveillance, and cancer survivorship. Since that time, the division has grown and evolved into the nation's model for cancer control research. The division aims to generate basic knowledge about how to monitor and change individual and collective behavior, and to ensure that knowledge is translated into practice and policy rapidly, effectively, and efficiently.

Three lines of research within DCCPS are specifically focused on patient centered care and outcomes; 1) Patient centered communication, 2) Meaningful use of electronic media, and 3) multilevel interventions in cancer care delivery. The agenda in these three areas is being elaborated but all three are nascent areas of work.

Patient centered communication has the longest history within NCI and resulted in a seminal monograph led by Ron Epstein PhD and Richard Street PhD entitled “Patient Centered Communication in Cancer Care (2007). This monograph outlined three core attributes of patient centered care: 1) Consideration of patients’ needs, perspectives, and individual experiences, 2) Provision of opportunities to patients to participate in their care; and 3) Enhancement of the patient-clinical relationship. It also led to a summary of 6 core functions of patient-clinician communication: 1) Responding to emotions, 2) Exchanging Information, 3) Making Decisions, 4) Fostering Healing Relationships, 5) Enabling Patient Self-management, and 6) Managing uncertainty. One example of funding in this area is a randomized trial of coaching providers and patients regarding how to optimize their interaction. The goal of this coaching is to improve patient-perceived patient-physician caregiver communication about prognosis and treatment choices. Thirty-six oncologists and 31 patients have been recruited for the study across two sites (UC Davis, and Univ. of Rochester).   This is year three of a 5 year study worth 4.6 million dollars.

Meaningful use of electronic media to support people with cancer is an area of emerging emphasis that corresponds with the growing focus on the adoption of electronic medical records (EMR) and the emergence of an activated patient interested in a participatory role in their care.   Medical record adoption has increased from about 20% of office based practices having one with advanced capabilities in 2009 to nearly 40% in 2012. Seventy-two percent have some form of an EMR. Having EMR in place is the start of addressing the bigger challenge of using them to improve care. Recognition of that difference has led to a focus on developing research into the characteristics of records that have a meaningful impact on practice. Examples of meaningful use include facilitation of medication prescribing that includes automated checks of dosages and drug interactions, reminders to physicians to recommend cancer screening when it is due, and access to information about disease and care that is easily accessible by patients 24 hours/day and 7 days a week. A joint effort of the National Science Foundation and NCI is being developed to create an evidence-based, patient-facing architecture that can be deployed through patient portals, web interfaces, and mobile collection devices. This database would facilitate research and the development of meaningful use cases for patient engagement.

Multilevel interventions in Cancer Care Delivery:

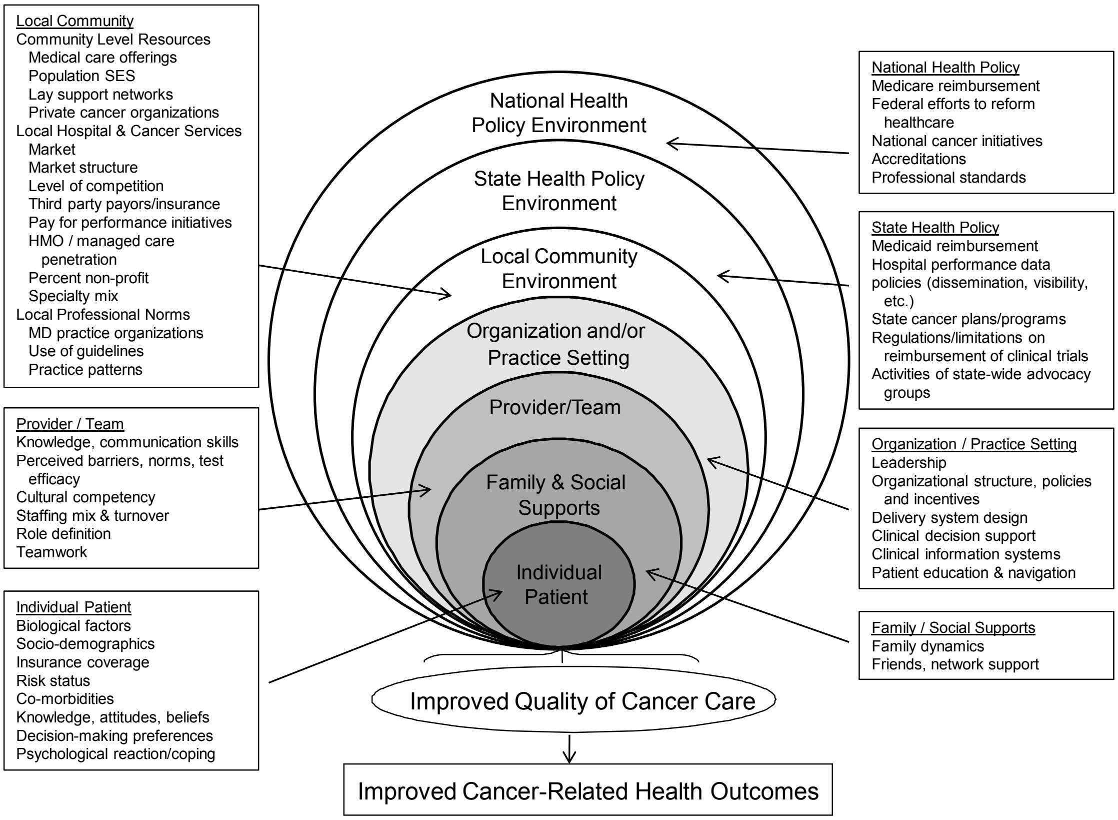
Patient engagement requires much more than improvements in individual level interactions, and portals however. It also involves considering how the health care delivery system is constructed and operated to make cancer care simple, direct, effective, and tailored to the needs of the individual seeking care. That goal is much easier to express than achieve. Despite the 1999 IOM report emphasizing the need to improve the system of care, there has been little progress in closing the gaps.

Some believe that the problem is care delivery has been approached by reducing the problems to many small parts, and many specific efforts to develop technology and therapies. Multilevel interventions to improve care move away from reliance on the assumption that accumulating an array of optimal treatments is sufficient to having those treatments used in a patient-centered system. The wider view being developed is that care needs to be considered from the perspective of the patient, the provider and the organizations delivering it (Figure 1). A research agenda is therefore being developed to evaluate the advantage of such a perspective. This work is being led by the Division of Cancer Control and Population Sciences in order to begin making progress in cancer care delivery. A recent supplement and meeting of researchers outlined the motivation and complexity of this work. At its heart, this multilevel perspective begins with the understanding that patients engaged in their care offer the critical feedback and input regarding how the system as a whole is working. More about this area of emerging work can be found at http://cancercontrol.cancer.gov/brp/pcrb/index.html.

Summary:

These are a few highlights of ways that NCI engages people with cancer experience in the development and conduct of research. Some of that research provides new treatments, and some provides insights regarding how cancer care is more broadly delivered. NCI is therefore interested in promoting patient engagement in research and in care. There are opportunities for engagement in almost every area of our endeavor.

Figure 1. Multilevel Influences on the Cancer Care Continuum



Rreproduced from Taplin and Rodgers, 2010 (10) and adapted from Zapka J. Innovative provider- and health system-directed approaches to improving colorectal cancer sc

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National Cancer Institute

Office of Advocacy Relations (OAR)

Communicating and Collaborating: Advocates and the National Cancer Institute

Mission

The National Cancer Institute's (NCI) Office of Advocacy Relations is the NCI's primary point of contact for the cancer advocacy community. OAR oversees the involvement of advocates in research in order to enhance the scientific process and improve patient outcomes by providing diverse perspectives.

The NCI **Office of Advocacy Relations**:

1. Serves as the Institute's expert and central resource for advocacy matters.
2. Facilitates dynamic relationships and collaborations to promote mutual goals.
3. Disseminates information and fosters understanding of key cancer issues and priorities.

Enhancing Cancer Research

OAR cultivates relationships with the advocacy community in order to increase NCI's accessibility, credibility, and transparency by:

- Identifying common priorities
- Collaborating for research progress
- Addressing non-scientific barriers to research

OAR:

- Engages in issues management and responsive communication
- Improves understanding of NCI priorities and activities
- Builds support for key Institute endeavors by leveraging shared interests
- Works with the community to identify, educate and catalyze action around non-scientific barriers
- Infuses a diverse perspective throughout the research process by including collective patient perspectives

http://advocacy.cancer.gov

nciadvocacy@mail.nih.gov

301-594-3194

Office of Advocacy Relations
Building 31, Room 10A28
31 Center Drive, MSC 2580
Bethesda, MD 20892-2580

OAR and the Advocacy Community

Advocates at NCI

Since the 1990s, the NCI has built relationships with advocacy organizations and facilitated the engagement of advocates in its research activities. The advocate voice is included across NCI. Advocates participate on all of NCI's advisory boards and as voting members of NCI peer review panels. Advocates are involved in steering committees, workshops, conferences, publication development, and many other types of NCI activities.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

A Framework for Research Advocacy

Types of Advocacy

- Support
- Outreach & Education
- Fundraising
- Policy
- Research

Research Advocate Definition

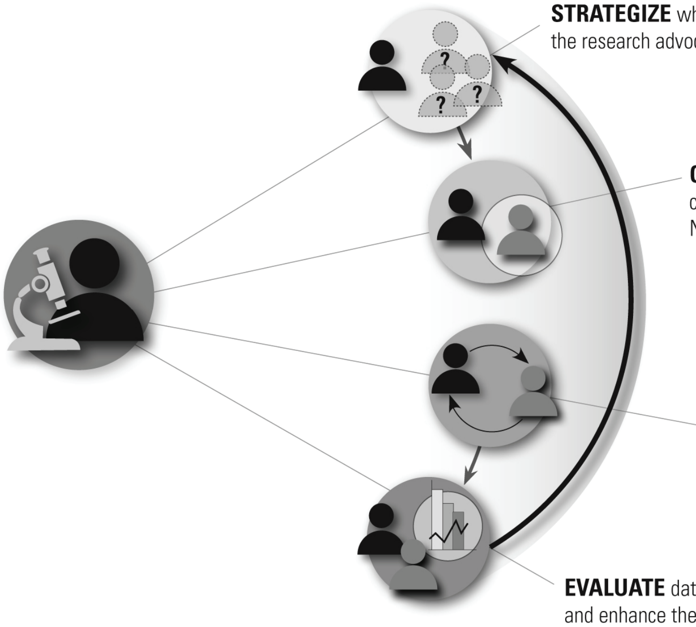
- A research advocate brings a non-scientific viewpoint to the research process and communicates a collective patient perspective.

  A collective patient perspective is created when the person has knowledge of multiple disease experiences and conveys this collective perspective rather than exclusively his or her own experience.

Research Advocate Roles at NCI

- **Advise** — Develop recommendations or advice focused on strategic directions or broad policy issues
- **Design** — Develop new or enhance existing programs or activities
- **Review** — Evaluate and analyze research proposals and ongoing research activities
- **Disseminate** — Interpret and communicate scientific information for non-scientific audiences

A Partnership Model: How OAR Facilitates Research Advocate Engagement at NCI



STRATEGIZE when and how to engage the research advocacy community.

CONNECT with the research advocacy community in the way that best meets NCI scientific needs.

FACILITATE and support advocate engagement throughout the process.

EVALUATE data to understand outcomes and enhance the engagement process.

Outcomes of Research Advocate Engagement

Advocates Enhance Research

Research advocates:

- Contribute experiential knowledge
- Improve research feasibility and probability
- Ask straightforward questions that lead to:
  - ☐ Innovative research questions
  - ☐ Diverse perspectives
  - ☐ Discussion of controversial scientific issues
- Serve as a reminder of what and who we are all working for — improved patient outcomes

Advocates Increase Public Understanding and Support of Research

Research advocates:

- Increase public trust through enhanced transparency and accountability
- Help break down barriers between the public and researchers
- Establish a conduit for regular communication
- Provide a venue where researchers can discuss their work with the public
- Communicate about the benefits of research

ADVOCATES IN RESEARCH WORKING GROUP

Executive Summary

Since the late 1990s, the National Cancer Institute (NCI) has facilitated the engagement of individual advocates in its research activities through what is currently known as the Office of Advocacy Relations (OAR). This engagement has taken many different forms and resulted in varying levels of success. In September 2007, NCI Director Dr. John E. Niederhuber asked the NCI Director's Consumer Liaison Group (DCLG), a federal advisory committee, to consider how to most effectively and consistently engage individual advocates in the research process to accelerate progress and benefit patients. To this end, the Advocates in Research Working Group (ARWG) was established under the auspices of the DCLG.

This report outlines the ARWG's process, findings, and recommendations. The ARWG comprised an array of stakeholders in the cancer research process, including research advocates, a broad range of NCI staff, and extramural researchers. The group's dialogue was informed by the extensive expertise of its members as well as a scan of the advocacy landscape, a review of current literature, the collection and review of numerous case studies, and interviews with advocates and the researchers who engage them.

Early on the term *research advocate* was defined and provided context for the work of the ARWG:

- A **research advocate** brings a nonscientific viewpoint to the research process and communicates a collective patient perspective.
- A **collective patient perspective** is created when a person has knowledge of multiple disease experiences and conveys this collective perspective rather than his or her own exclusive experience.

The ARWG also analyzed information about current advocate engagement practices and identified four primary ways advocates engage in the research process. These roles included advising, designing, reviewing, and disseminating. The group defined the scope of each role and identified examples to further clarify each one:

1. Advocates engaged in **advisory roles** help develop recommendations or advise on strategic directions or broad policy issues. Advisory activities include participation on a formal advisory board or providing a critical perspective as part of a panel discussion at a scientific meeting.
2. Advocates engaged in **design roles** develop new or enhance existing programs or activities. Design activities include serving on a committee or panel involved in development of a new program or oversight of an existing program to provide the patient perspective or to identify patient barriers to implementation.
3. Advocates engaged in **review roles** evaluate and analyze research proposals and ongoing research activities. Review activities include participating in peer or concept review panels.
4. Advocates engaged in **dissemination roles** interpret and communicate scientific information for nonscientific audiences. Dissemination activities include using scientific content to develop, edit, and/or distribute research findings to such audiences.

The ARWG comprised an array of stakeholders in the cancer research process, including research advocates, a broad range of NCI staff, and extramural researchers.

The ARWG identified outcomes associated with engaging advocates in research. These outcomes fit into two broad areas: enhanced research and increased public understanding and support of research.

1. **Enhancing research**
    a. Advocate involvement improves clinical research feasibility by providing experiential knowledge of protocols' impacts on patients.
    b. Advocate involvement provides a perspective that can stimulate innovation and expand the scope of inquiry.
    c. Advocate involvement serves as an immediate reminder of the need for research focused on patient benefit and outcomes.
2. **Increasing public understanding and support of research**
    a. Advocate involvement increases public trust through enhanced transparency and accountability.
    b. Advocate involvement helps break down barriers between the public and researchers.
    c. Advocate involvement establishes a conduit for regular communication between the public and researchers.
    d. Advocate involvement assists in disseminating research findings in clear and understandable ways.
    e. Advocate involvement helps other advocates understand and effectively communicate about science and research institutions.

Numerous NCI offices currently engage advocates. Some do so through a formal process, working with OAR, whereas others work with advocates independently. To support an effective, centralized, and transparent process for advocate engagement, the ARWG identified seven broad recommendations. The ARWG understood the varying needs and interests of investigators across NCI and the broader research enterprise. As such, the recommendations are intended to provide support, clarity, and guidance but not necessarily to restrict or limit current effective practices.

These recommendations build on the prior success of NCI and identify new opportunities to enhance that success.

1. **Recruit:** Proactively recruit experienced and diverse research advocates and encourage NCI investigators and staff to engage advocates.
2. **Assess:** Develop a robust application process that generates a cadre of highly qualified research advocates who can meet the scientific needs of NCI.
3. **Match:** Develop a matching process that identifies program needs and effectively engages the right advocate in the right activity at the right time.
4. **Train:** Provide training, coaching, and informational resources to advocates and NCI staff to ensure all participants have the knowledge and tools they need to be effective.
5. **Facilitate:** Leverage NCI's centralized resources and expertise to better inform and support the advocate engagement process.
6. **Monitor:** Track and evaluate the advocate engagement process to implement continuous improvements and develop an evidence base around engaging advocates in research.
7. **Promote:** Develop a process to retain and recognize advocates and staff who successfully work together and communicate these successes across the community.

Detailed descriptions and examples of each of these recommendations are provided in the full report. These recommendations build on the prior success of NCI and identify new opportunities to enhance that success. The ARWG noted that without a centralized system of implementation and process of evaluation, these recommendations are likely to be less effective.

Below are examples of the ARWG's specific recommendations for implementation at NCI:

- **Ongoing, online application process:** Having well-qualified research advocates available to engage in NCI activities requires accurate eligibility criteria and an effective application process. In the past, NCI's advocate engagement programs have had application periods to fill gaps created by natural attrition. However, no ongoing application process exists at NCI. As such, the ARWG recommended an online application module that would consider advocates' skills and experiences to ensure research advocates engaging with NCI are well prepared to meet the needs of the Institute's scientific programs.

- **Additional diversity among NCI research advocates:** Advocates inherently bring a diverse perspective to science and the research process. The way in which NCI engages research advocates should maximize this benefit. The ARWG recommended that research advocates should not only represent the demographic diversity of the nation and those affected by cancer, but also be diverse across additional measures, such as area of expertise, specialization, and professional skill set.
- **Open, online training resources:** For advocates to add value and offer informed opinions on how scientific discovery affects the patient community, they must have access to relevant training and information. Previously, NCI research advocates were trained in specific topics on an as-needed basis. The ARWG recommended development of an online repository of community-wide training resources, open to all advocates, to support their ability to contribute to the research process.

The ARWG recommendations are primarily intended to meet the specific needs of NCI. As such, they are based on the culture, practice, and structure of NCI. Although some of the recommendations are limited in scope, the ARWG hopes that its report will be applicable across multiple research environments, thus serving as a guide for how the broader research community can engage research advocates. ■

PCORI Patient and Family Engagement Rubric

I. Overarching Concepts

- The rubric specifically focuses on patient and family engagement in research to help illustrate promising practices emerging in this relatively new area of engagement in research. The term "patient partners" is intended to include patients (those with lived experience), family members, caregivers, and the organizations that represent them who are representative of the population of interest in a particular study.

- Although the rubric is called the *Patient and Family Engagement Rubric*, there is an expectation that engagement of other stakeholders (e.g., clinicians, payers, or hospital administrators) that are relevant to a particular study will also be evaluated.

- The rubric is intended to provide guidance to applicants, merit reviewers, awardees, and engagement/program officers (for creating milestones and monitoring projects) regarding patient and family engagement in the conduct of research. It is not intended to be comprehensive or prescriptive. Instead, it provides a variety of options to incorporate engagement, where relevant, into the research process. Applicants can choose to include some, but not all, activities, and can include additional innovative approaches not listed here.

- The rubric is based on the promising practices identified in the first three rounds of PCORI awards. It is also consistent with PCORI's Methodology Standards for patient-centeredness and its PCOR Engagement Principles.

- The rubric is structured into four sections: Planning the Study, Conducting the Study, Disseminating the Study Results, and PCOR Engagement Principles.

- The rubric provides guidance to help applicants "show their work" when describing the details of how patient and family input will be incorporated throughout the entire research process.

**Please note: this version of the rubric and overarching concepts is also included as an appendix to the Engagement Template in the current PCORI Funding Announcements.*

pcori

II. Rubric

Planning the Study		
Formulating research questions and study design	Patient partners participate in: • Identifying the topic and developing the research question to be studied. • Creating the intervention to be studied (if applicable) and identifying comparators. • In identifying the goals or outcomes of the interventions to be studied. • Defining essential characteristics of study participants. • Other study design and preparation.	**Examples:** • Epilepsy study: the patients and parents of patients with epilepsy pose the question: which anti-epileptic drugs best preserve sufficient cognition to go to work or school and function normally, while still preventing seizures adequately? • Asthma study: the patients and patients' parents help create the paper asthma tracker tool being compared to the e-asthma tracker tool. • Cancer study: patient partners determine that all women with breast cancer would be eligible versus only women who had completed active treatment. **How can you demonstrate this in your proposal?** • Provide letters of support from patient partners that clearly describe the origin of the study topic, the role of the patient partners in defining the question, outcomes, comparators, and goals/outcomes, etc. • Include the patient partners in all relevant sections of the application, such as the biosketches, the budget, and the dissemination and implementation assessment. • Avoid relying <u>entirely</u> on patient partners who have dual roles on the project, e.g., relying on stakeholders or

		researchers who also happen to be patients. Including one or more patient partners who have no other role on the project is important.

Conducting the Study		
Participating in and monitoring the conduct of the project	Patient partners participate in and monitor the conduct of the research project.	**Examples:** • Chronic pain study: the informed consent document is developed with patient partners to make it understandable to study participants. • Epilepsy study: patient (and parents of patient) partners suggest that an adult survey tool be adapted for children to answer, and they help develop one. • Depression study: patient partners advise researchers to substitute the term, “emotional well-being,” for the term, “mental health,” to enhance the recruitment of study participants. **How can you demonstrate this in your proposal?** • Provide letters of support from patient partners that clearly describe the role of the patient partners in conducting and monitoring the study. • Clearly articulate the roles of the patient partners in each component of the study, (e.g., helping to draft survey tools and focus group questions, reviewing participant materials for readability, etc.), including the

		dissemination and implementation assessment.
	Patient partners participate in the recruitment and data collection from the study participants, when appropriate.	**Examples:** • Depression study: patient partners are trained to go out into the community to recruit study participants and to conduct interviews with them. **Example:** • Depression study: patient advocacy groups assist with recruitment through their patient networks—the "book club" model. **How can you demonstrate this in your proposal?** • Provide letters of support from patient partners that clearly describe the role of the patient partners in interacting with study participants, if appropriate. • Clearly articulate the roles of the patient partners in interacting with study participants (e.g., recruiting participants, conducting interviews, leading focus groups, etc.).
	The research team, including patient partners, participates in all potential evaluation activities of patient engagement.	**Example:** • ER study: The PI regularly asks the patient partners if they feel that they are truly involved in the research and if they think that their involvement is contributing to the research.

		How can you demonstrate this in your proposal? • Include a plan for "check-ins" with patient partners to monitor their perceptions of the extent to which a) they are meaningfully involved in the study and b) their participation is contributing to the study. • Also include a plan for "check-ins" with the other research team members to monitor their perceptions of the extent to which a) patient partners are meaningfully involved in the study and b) their participation is contributing to the study.

Disseminating the Study Results		
Helping to plan the dissemination of the study's results	Patient partners are involved in plans for disseminating the study's findings to patient, stakeholder, and research audiences so that the findings are communicated in understandable, usable ways.	**Examples:** • Chronic pain study: patient partners co-author manuscripts, present at scientific and lay conferences, and share study findings through their networks. • Cardiac study: a Patient Dissemination Board is helping to craft the dissemination plan and advise the research team on how to best share study findings. **How can you demonstrate this in your proposal?** • Provide letters of support from patient partners that clearly describe the role of the patient partners in planning the dissemination of the study's results.

		- Clearly identify the role of patient partners in planning the dissemination of the study's findings.

PCOR Engagement Principles		
Reciprocal Relationships	The roles and decision-making authority of all research partners, including patient partners, are clearly stated.	Examples: • Many applications state that patient partners are co-investigators, and that decisions about the study are made by consensus among all the research project partners. • Many applications describe patient partners as key personnel, and their biosketches illustrate how the skills and experiences of the patient partners prepare them to function effectively in this role.
Co-learning	The application includes plans to ensure that the patient partners will understand the research process and the researchers will understand patient centeredness and patient engagement.	Examples: • Training and educational opportunities are provided such as patient partner training in human subjects protection. • Training is provided by patient advocacy organizations, patient/survivor, and clinician/caregiver for the researchers providing the intervention (e.g., training in better communication with patients, led by patient instructors).

Partnership	Time and contributions of patient partners are valued and demonstrated in fair financial compensation, as well as reasonable and thoughtful time commitment requests. When the patient partners represent unique populations, the research team proposes to accommodate their cultural diversity and/or disability.	Examples: • Compensation for patient partners is included in the budget at market rates for consultants. • In a study focused on a Latina population, several members of the research team are Hispanic and fluent in Spanish. • In a project with a patient partner with a disability, the research team selects sites for team meetings that are accessible.
Trust, Transparency, Honesty	a) Major decisions are made inclusively and information is shared readily with all research partners, b) Patient partners and research partners express commitment to open and honest communication with one another. c) The study team commits to communicate the study's findings back to the study community in a meaningful and usable way.	Example: • Commitments to trust, transparency, and honesty are stated in many applications – and supported by descriptions of how the research team will communicate with each other frequently, and make decisions about the study by consensus.

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engaging California patients in major medical decisions

March 2014

LANGER RESEARCH ASSOCIATES
SURVEY RESEARCH DESIGN • MANAGEMENT • ANALYSIS

executive summary

As decision supports rise, so do patient engagement and satisfaction with the decision-making process.

One of the best opportunities to enhance patients' involvement at a critical stage of their healthcare experience is when they are facing major medical decisions. But California healthcare providers often skip recommended steps to inform and engage low-income patients at that key point.

This Blue Shield of California Foundation study suggests that the shortfall can be addressed – with substantial benefits of doing so. As decision-support activities rise, so do patients' self-reported engagement and their satisfaction with the decision-making process.

Continuing a series of survey-based reports on patient engagement sponsored by the Foundation, this study focused on support given to low-income Californians who say they've faced a major medical decision in the past year. It measures the number of decision-support activities their care providers initiated, their self-assessed involvement in the ultimate decision, their satisfaction with the process and, through statistical modeling, an evaluation of the independent predictors of that involvement and satisfaction.

Decision support is tested in a series of questions asking patients about ways in which their care providers may have encouraged their involvement in major medical decisions. These decision-support activities were drawn from the literature on shared decision making, where they appear repeatedly as recommended elements of patient support. They are:

- Asking about patients' goals
- Listening to patients' preferences and concerns
- Offering additional information sources
- Discussing the possibility of taking no action
- Offering multiple treatment options, and, if multiple options are offered:
  - Discussing best options in light of patients' goals and preferences
  - Discussing the risks of each option
  - Discussing the benefits of each option
  - Giving patients time to consider their preferences in light of their goals and options

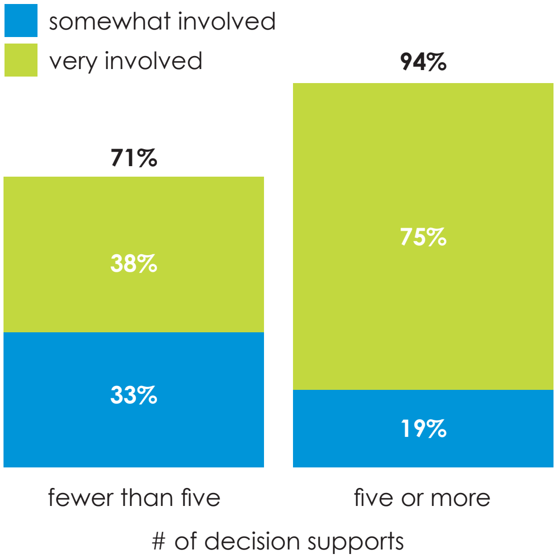
Experience of these nine activities was tested among low-income Californians who said they had faced a major medical decision within the previous 12 months – 19 percent of the 1,018 respondents interviewed, for a sample of 211.[1,2] The nature of the respondents' decision was not explored; what patients themselves regard as having been a major medical decision was accepted as such.

Among the key findings:

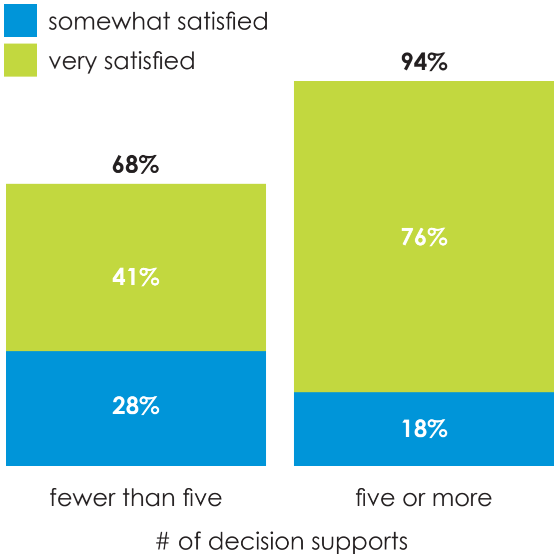
- These patients say their caregivers initiated, on average, 4.9 of the nine decision-support activities tested. Barely more than a quarter, 27 percent, say their caregivers engaged in all nine activities. Thirty-three percent experienced two or fewer support activities, with the rest in a range from three to eight. These results echo findings in the literature that important conditions for shared decision making are not fully being met.
- Among patients who reported experiencing five or more decision support activities, three-quarters report feeling "very involved" in the decision and "very satisfied" with the process. That level of involvement and satisfaction drops dramatically, to just four in 10, among those who received less decision-making support.

Seventy-five percent wanted to be very involved in the decision-making process. Fifty-seven percent feel they were.

involvement in the decision-making process



satisfaction with the decision-making process



- Many patients desire more involvement than they received. Seventy-five percent say they wanted to be very involved in the decision-making process. Many fewer, 57 percent, say they actually were very involved.
- In statistical modeling, the number of decision supports patients have experienced is the top predictor of their involvement in the decision and satisfaction with the process. This result validates the literature suggesting that these decision-support activities are important, by demonstrating their relationship with subjective outcomes even when controlled for other key variables.

It should be noted that shortfalls in decision support are not exclusive to low-income patients. Among a separate sample of higher-income Californians who've faced a major medial decision in the past year, the average number of reported decision-support activities is 5.2, almost exactly the same as among their low-income counterparts.[3]

involvement in decision making and satisfaction with the process

As detailed in Part A, more than eight in 10 low-income Californians report being at least somewhat satisfied with the decision-making process they experienced, and as many say they were involved in the decision. These include six in 10 who were "very" satisfied and 57 percent who feel they were "very" involved.

As noted, however, more say they *wanted* to be very involved – 75 percent. And, in a related result, just 30 percent say they received a great deal of information from their providers to help inform the decision.

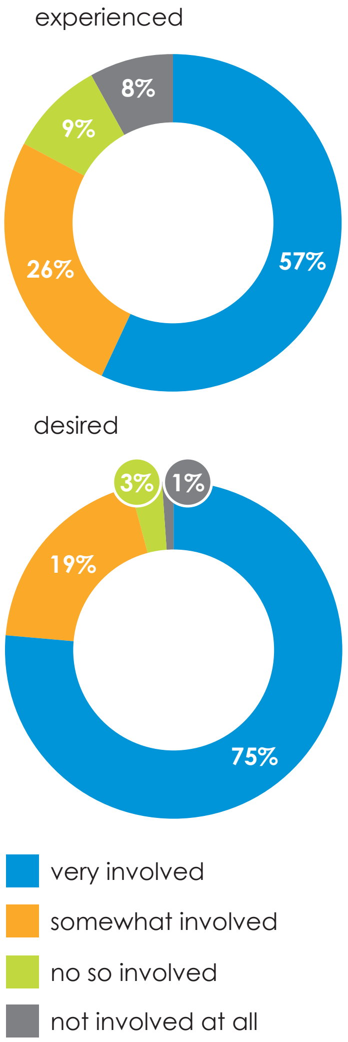
Ultimately, 40 percent of patients say they personally made the major medical decision they faced; as many say they shared equally in it with their provider, while two in 10 say it was the provider's decision alone. That suggests a comparatively low level of unilateral decision making by providers, a positive result within the framework of shared decision making. At the same time, other results show that even among patients who say they made or shared in the decision, many say it didn't chiefly reflect their own preference.[4]

Specifically, 26 percent of low-income patients overall say the decision was based chiefly on their personal preference. Three in 10 mainly relied on their provider's recommendation, with the rest dividing between financial considerations and the advice of family and friends. Further, even among those who say the decision was theirs or was shared, just 28 percent say it was based chiefly on their own preferences.

Shared decision making is a central element of the broader concept of patient-centered care. It envisions a process in which care providers and patients work together in aligning evidence-based clinical approaches with patients' individual preferences to arrive at informed decisions. This applies most fully to cases in which decisions are "preference-sensitive," meaning no treatment option is objectively superior to another and patients should be encouraged to consider the tradeoffs among them.

> Even among patients who say they made or shared in the decision, many also say it didn't chiefly reflect their own preference.

levels of involvement in major medical decision making



Clearly a mix of factors can and should influence this process, including the provider's clinical judgments and the patient's preferences alike. Regardless, results of this study demonstrate that whether or not they feel actively involved in the decision, most patients, when confronted with a major decision, did not bring their personal preferences to the fore.

Involvement in decision making and satisfaction with the process are predicted most strongly by the number of decision-support activities initiated by providers.

supporting successful decision making

Other results underscore the positive impacts of decision support. As noted, among patients who report that their provider engaged in five or more of the decision-support actions, three-quarters say they felt very involved in the decision and very satisfied with the process. That falls to four in 10 of those who had fewer support activities – dramatic gaps in involvement and satisfaction alike.[5]

Statistical analyses were used to identify the strongest predictors of patient satisfaction and self-assessed involvement in major medical decisions. The results, detailed in Part B, find that involvement in decision making and satisfaction with the process are predicted most strongly by the number of decision-support activities that providers initiated – key results because they validate the importance of these activities in successful decision making.

The number of decision-support activities initiated by caregivers is not the only factor in the equation. Involvement in decision making also is predicted by providers' simply encouraging patients to take an active role in their care, as well as by patients' connectedness, that is, their sense that someone at their healthcare facility knows them well.

Patients' satisfaction with the decision-making process also is independently predicted by other factors in addition to the level of decision support provided. These include the strength of the patient-provider relationship, as measured by factors such as whether patients think their providers care about them personally, the quality of their communication and how much of a say patients feel they have in decisions about their care; as well as by the extent of patients' use of communication technology for health-related purposes, which includes text-messaging and e-mail communication with providers and use of the internet to seek health information.

These findings suggest ways forward. Supporting patients with multiple options and clear information about risks and benefits, eliciting their preferences, making room to discuss these goals and enhancing patient-provider relationships and communication more generally all pave the way to greater patient involvement at the critical point of major medical decisions.

endnotes

1 Respondents were asked: "In the past 12 months have you faced a major medical decision, or not?"

2 All differences in results described in this report have been tested for statistical significance.

3 Low-income Californians are defined as those with incomes less than 200 percent of the federal poverty level (FPL). Higher-income Californians are those with incomes of 200 percent of the FPL or more. This survey included a total of 498 respondents in the higher-income group, of whom 98 had made a major medical decision in the previous 12 months.

4 It should be noted, as well, that previous studies have suggested that patients tend to over-report their actual involvement in decision making. See, e.g., Zikmund-Fisher et al. (2010) and Institute of Medicine (2012).

5 No statistically significant differences in satisfaction were observed based on whether or not a specialist was involved.

issue brief

Improving the Safety-Net Patient Experience: 10 Things Health Centers Can Do

Under the Affordable Care Act, the newly competitive marketplace for safety-net health care makes a patient-centered approach more important than ever. Patients who feel a personal connection with their caregivers are more informed, engaged and satisfied with their care – and more loyal to their care facilities. Community health centers can take positive steps to achieve these goals.

Blue Shield of California Foundation surveys since 2011 have underscored the importance of patient-centeredness for California's safety-net community health centers (CHCs). The research finds three keys to engaging patients: Connectedness, which means a sense among patients that someone at their care facility knows them well; continuity, or seeing the same caregivers over time; and strong patient-provider relationships – the quality of communication between patients and caregivers.

Successful patient-provider relationships empower patients to take an active role in their care. And empowered patients are far more apt to be engaged and satisfied ones. To reach these goals, the Foundation's research finds, there are 10 things CHCs can do.

1

Develop team-based care. One-third of California patients currently receive team-based care, in which an assigned group of caregivers – doctors, nurses, physicians' assistants, healthcare navigators and specialists as needed – serves as each patient's dedicated team. It stands out as a powerful tool in establishing connectedness and continuity, enhancing patients' information and bolstering their satisfaction with their care.

Among patients who have team-based care, 57 percent feel very informed about their health; that falls sharply, to 38 percent, among those who lack team care. Clinic patients in team-care programs have the same levels of connectedness as patients in private doctors' practices. And participation in team-based care fosters positive patient-provider relationships as well. It's a promising path to patient engagement, with room for expansion.

2

Provide navigation for patients. About a fifth of low-income Californians say their care facility has provided them with a healthcare navigator, a person assigned as their point of contact in making appointments, obtaining information and getting the services they need. Like team-based care, having a healthcare navigator is linked to building a sense of connectedness between patients and their care facilities, making it another useful route to patient engagement.

3

Connect and communicate with patients. Connecting means helping patients feel that their providers care about them personally. Successful interpersonal communication is one approach. Caregivers should explain things clearly and invite questions. They should help patients feel comfortable bringing outside information into the conversation and encourage them to express their own preferences. Each of these contributes to a strong patient-provider relationship.

4 **Encourage patient involvement in care.** Simply inviting patients to participate in decisions about their care is another important way to boost their involvement and satisfaction. Among patients who say their providers encourage them to take an active role in care decisions, 55 percent are satisfied with their care overall. That falls to 36 percent among those who don't feel encouraged to participate. Feeling invited to take an active role in care decisions is one of the strongest predictors of a successful patient-provider relationship.

5 **Deliver clear information.** Information is a key element of patient empowerment. Fifty-five percent of low-income Californians say they'd like more information in order to make good decisions about their health – and if the information were clearly and easily accessible, this jumps to 71 percent. That shows how information becomes more desirable when it's delivered in a way that's clear, comprehensible and relevant to the decision-making process.

It matters: Among patients who feel informed about their health, 67 percent are comfortable asking questions of their providers, and among the most informed nearly seven in 10 are strongly confident in their ability to participate in decision making. Among those who feel less informed, comfort asking questions falls to just 33 percent, and strong confidence drops to 44 percent.

6 **Support patients in major medical decision making.** The Foundation's research finds a shortfall in the level of support provided to low-income patients who've faced a recent major medical decision. Out of nine key decision-support activities tested, these patients received, on average, just fewer than five.

The more decision support initiated by their providers, the more involved and satisfied patients are with their role in the decision-making process. Among those who received five or more decision supports, 75 percent say they were very involved and 76 percent were very satisfied with the process. Among those with fewer support activities, strong involvement and satisfaction drop sharply, to just 38 and 41 percent, respectively.

Given the impact on engagement and satisfaction, CHCs should strive to provide more decision-support activities. These include asking about patients' goals; listening to their preferences and concerns; offering them additional information sources; discussing the possibility of taking no action; presenting multiple treatment options; and, if multiple options are offered, discussing the best options in light of patients' goals and preferences, talking about each option's risks and benefits and giving patients time to consider their preferences.

7 **Offer patients e-mail and text-messaging options.** Even with the "digital divide" in internet access between low and higher-income Americans, there's broad interest among safety-net patients in California in communicating with providers via e-mail and text messaging. Doing so is another positive predictor of successful patient-provider relationships.

Currently just 23 percent of low-income patients communicate with their providers by e-mail, 16 percent by text. Among them, however, 87 percent say they find doing so useful, including 53 percent who say it's "very" useful. Among those who can't currently text or e-mail their providers, but have the technology to do so, seven in 10 or more express interest.

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issue brief

Strengthening Engagement with Low-Income Latino Patients

Latinos account for more than half of the state's uninsured population and are the majority ethnic group among all low-income Californians. While they're estimated to make up nearly half of those newly eligible for healthcare subsidies under the Affordable Care Act, Latinos can be a challenging population to enroll and retain in coverage. Even when they do gain insurance, many Latinos remain underserved by the healthcare system.

Many of the state's community health centers (CHCs) have tried to overcome these issues by focusing their work on the unique needs of Latino populations. Healthcare reform provides CHCs with new opportunities and incentives to strengthen their relationship with Latinos by attracting newly eligible patients in their community and reinforcing bonds with existing ones.

Effectively addressing the healthcare needs of Latinos, especially those who are low-income, starts with understanding their current care experiences. New research commissioned by Blue Shield of California Foundation highlights the challenges that exist, yet also points to promising ways to improve patient satisfaction among California's low-income Latinos.

Survey findings show that, as a whole, low-income Latinos are less satisfied than other safety-net patients with the health care they currently receive. They also have weaker relationships with their care providers and are less trusting of medical professionals. However, the research also shows that these shortfalls are not the result of being Latino; rather, they're chiefly a function of education and language. CHCs that successfully adjust their approach to account for patients' varied education levels and preferred language therefore have great potential to improve the experience of their Latino clientele.

Many CHCs already possess the cultural competence to address language barriers and adapt to patients' levels of education and understanding. CHCs can strengthen these skills and further integrate them into other, dedicated efforts to improve the care experience for Latino patients specifically. Among them:

- Improving continuity of care and enhancing Latino patients' personal connections with their care facilities and providers.
- Increasing patients' access to health information and involvement in decision making.
- Encouraging the use of technology-based resources, including the internet, text messaging and smartphone applications to further engage patients.

Previous research has found that each of these elements is an important and worthwhile goal in its own right. They also hold the key to bridging the divide between the healthcare experiences of low-income Latinos compared with other low-income patients.

EXAMINING LOW-INCOME LATINOS' HEALTHCARE EXPERIENCES

The gap in patient satisfaction and engagement is most apparent when comparing low-income Latinos with low-income non-Latino whites. For example, 62 percent of low-income whites rate their health care as excellent or very good. Among Latinos, that number declines sharply, to 44 percent, including 54 percent of English speakers and just 39 percent of non-English-speaking Latinos.

Low-income Latinos also are 15 percentage points less likely than low-income whites to feel very informed about their health. And many Latinos have weaker patient-provider relationships; among other measures, they are 19 points less likely to be very comfortable telling a provider about health information from other sources, 13 points less apt to be very comfortable asking questions and 13 points less likely to feel they have a say in care decisions. They're also less trusting of information from care providers.

Compared with low-income whites, Latinos in the low-income population are far less likely to have internet access (43 vs. 78 percent). But even among those who do have internet access, Latinos are less likely to use health and wellness websites or applications, or to search online for health information or support forums. Because use of these resources is linked to stronger patient-provider relationships and greater patient engagement, CHCs should not only provide technology-based options to Latino patients, but also encourage their use.

WHAT'S DRIVING THE GAP?

The differences in patient engagement and satisfaction, as noted, are closely tied to education and primary language. Indeed, within the low-income population, English-speaking Latinos with more formal education report nearly identical satisfaction and engagement as do non-Latino white patients (and non-Latinos in general). The challenge arises because low-income Latinos are more than three times as likely as low-income whites to have less than a high-school education, and nearly three times less likely to speak English as their main language.

There are solutions. CHCs can ease the impact of these factors by ensuring that the information and guidance they offer is broadly understandable. That means staffing to achieve fluency in Spanish (and other languages), focusing on the delivery of sometimes complex medical information in ways that are clear and easy to grasp, as well as understanding the cultural norms that may inhibit patient involvement. Based on our research findings, five specific strategies are suggested:

1 **Increase connectedness.** Patients who feel a personal connection with their care facility – that someone there knows them well – are more likely to have positive, trusting relationships with their care providers and to rate their care positively.

Overall, low-income Latinos who don't mainly speak English are 19 points less apt than non-Latino whites to report having such a connection with someone at their place of care. Among English-speaking Latinos, however, the gap disappears. This disconnect among non-English-speaking Latino patients can be addressed by working to provide them with a regular point of contact who speaks Spanish, such as a navigator or team care member.

2 **Enhance continuity of care.** Continuity of care also strongly impacts patients' healthcare experiences. Patients who regularly see the same care provider report far better rapport, greater trust in medical staff and higher satisfaction with their care.

Low-income Latinos' continuity of care lags behind that of whites and other racial/ethnic groups. Again the gap stems predominately from low-income Latinos who don't speak English as their primary language. Just 43 percent in this group regularly see the same care provider, compared with six in 10 English-speaking Latinos and non-Latino whites alike.

Spanish-speaking Latinos currently might be assigned to any bilingual provider available, a procedure that would interfere with their forming the bonds necessary for a positive experience. As with connectedness, enhancing their continuity of care could be achieved through the use of assigned, Spanish-speaking healthcare navigators, ideally within the context of team-based care.

3 **Help patients feel more informed.** Feeling informed about one's health is another key element of positive healthcare experiences. Among low-income patients who feel very informed about their health, eight in 10 have an above-average relationship with their provider and 64 percent rate their health care positively – far more than among those who feel less informed.

Just 31 percent of low-income Latinos who don't mainly speak English feel very informed about their health, as do just a third of those who lack a high school diploma. That compares with 53 percent of English-speaking Latinos and a similar number of non-Latino whites. Again, outreach targeted specifically towards non-English-speaking Latinos, as well as those with less formal education, should help.

4 **Provide a greater say in care decisions.** Another driver of the gap in care experiences is the disconnect between how involved many low-income Latinos want to be in their care decisions, versus how involved they are. Among non-Latinos, 56 percent report a match between desired and actual involvement in their care. That shrinks to 44 percent among Latinos.

Giving low-income Latinos a greater role in the decision-making process follows some of the approaches mentioned above. Patients who communicate well with their provider (in the same language and at an appropriate level), feel connected to someone at their facility and feel informed about their health are all more likely to report that they have the amount of say they desire. Working on these factors has the potential to improve patient involvement and satisfaction.

CHCs also can address this issue directly by training staff on the importance of involving patients in their care decisions, again with a particular focus on non-English-speaking Latinos and those with less formal education. Such efforts could do much to reduce the existing gap in care experiences.

5 **Encourage the use of communication technology.** The last key factor is the use of technology-based health information and communication tools, such as computers and smartphones. As noted, low-income Latinos are far less likely to use such technology for health purposes, even when they have access to it.

However, use of these resources predicts stronger patient-provider relationships and greater engagement. Therefore, it is important for CHCs to not only provide technology-based options to their Latino patients, but also to make a concerted effort to promote their use.

One step is to focus on encouraging Latino patients who have internet access or smartphones to use them for health-related purposes – for example, recommending approved websites for health information, providing an online patient portal, and offering text or e-mail communication with CHC staff. A further approach may be to help identify ways in which Latinos who currently are offline can gain internet access, perhaps through community centers or public libraries.

In sum, there’s a gap in the healthcare experiences of many low-income Latinos compared with their peers, notably in patient-provider rapport, trust in medical professionals and satisfaction with care. But CHCs and other healthcare facilities have options for closing the gap and clear strategies for better serving their diverse clientele and increasing patient satisfaction and trust.

Serving the Latino population is crucial to the success of California's healthcare safety net. Many CHCs already have established strong ties to their Latino communities, but more can be done. CHCs are well positioned to continue to lead the way toward closing the quality-of-care divide and improving the healthcare experience of low-income Latinos across the state.

This issue brief was prepared for Blue Shield of California Foundation by Langer Research Associates of New York, N.Y. The conclusions presented here are drawn from multiple regression analyses of a statewide survey on the healthcare experiences of low-income Californians conducted for the Foundation in 2013. For details on the Foundation's research see http://www.blueshieldcafoundation.org.

The potential benefits are evident. Being able to text and e-mail providers are among the factors that help to sharply reduce the gap between low- and higher-income Californians in their satisfaction with the health care they receive.

8 **Develop new ways to engage patients.** Online information and communication resources also offer new and efficient ways to engage patients. Three in 10 low-income patients say their care facility already has a "patient portal" website; those who use them are 22 percentage points more apt than others to feel very informed about their health, and a nearly unanimous 92 percent find these websites useful.

Online, printed or video-based decision aids also are associated with greater patient information. And getting health information online, including via smartphone applications, is positively linked to strong patient-provider relationships. By bringing together these information resources, healthcare providers can leverage their role as trusted information sources to build patient engagement.

9 **Create an inclusive and welcoming environment.** Factors such as the courtesy of frontline staff and the cleanliness and appearance of waiting rooms strongly influence patient satisfaction. They're examples of particularly straightforward yet effective ways to improve patients' experiences overall.

There are others, including areas in which many CHCs, given their strong community roots, have built-in advantages. Cultural and linguistic competence can help establish key bonds; more than eight in 10 CHC patients say it's important that their provider understands their cultural and ethnic background, and nearly as many value a provider's knowledge of their community. CHCs will do well to call on these strengths as they move to provide the clear, accessible information and communication strategies that foster successful patient-provider relationships.

10 **Get team buy-in on the effort.** Health center leaders and staff can come together around the goals of connectedness, continuity and positive relationships with patients, assessing current practices and discussing ways to make patients feel more welcomed, informed, engaged and empowered to take an active role in their care.

The results are easily seen. Among low-income patients who say that someone at their healthcare facility knows them pretty well, for instance, 64 percent rate the care they receive as excellent or very good. That drops to 40 percent among those who lack a personal connection – one of many examples of the impact of a patient-centered approach.

The approaches outlined in this issue brief will need development in a manner most appropriate to each health center's needs, abilities and resources. Regardless, all show great promise in boosting patients' information, relationships with their providers, engagement and satisfaction with their care – critical tasks for California CHCs moving forward.

This issue brief was prepared for Blue Shield of California Foundation by Langer Research Associates of New York, N.Y. The data and conclusions presented here are drawn from a series of statewide surveys on the healthcare experiences of low-income Californians conducted for the Foundation annually since 2011. For details and the full reports see http://www.blueshieldcafoundation.org.

SECTION IV

Panel III

Fine-tuning the team: optimizing contributions of all team members

APRNs & Full Practice Authority

Christine Engstrom PhD CRNP AOCN

Maximizing Value: Optimizing Contributions of all Team Members

IOM Roundtable: Best Practices Innovation Collaborative

March 27, 2014

Definition of APRN

- The definition includes language that addresses responsibility and accountability for health promotion and the assessment, diagnosis, and management of patient problems, which includes the use and prescription of pharmacologic and non-pharmacologic interventions.

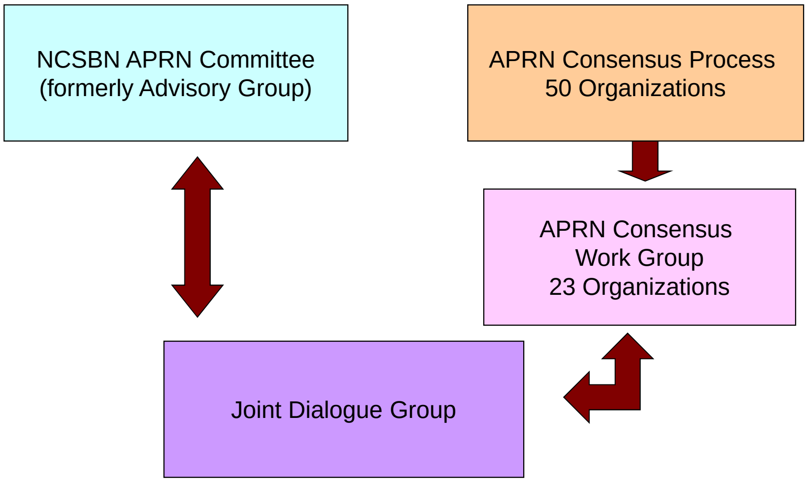
Definition of Advanced Practice Registered Nurse

- **An APRN is an individual who has**:
  - Completed an accredited graduate-level educational program
  - Passed a national certification examination that matches the educational preparation
  - Acquired advanced clinical skills and knowledge
  - Practice built upon the competencies of a RN
  - Clinical experience of sufficient depth and breadth to reflect the intended license
  - Obtained a license to practice as an APRN in one of the four roles

The Consensus Model for APRN Regulation

- 267,000 (APRNs) in the U.S.
- The Consensus Model provides guidance for states to adopt uniformity in the regulation of APRN roles
- Many states have adopted portions of the Model elements but there still may be **variation from state to state.**
- Model APRN regulation aimed at public protection by ensuring uniformity across all jurisdictions
- Uniformity of national standards & regulation not only allows for the mobility of nurses, it also serves the public by increasing access to care

APRN Working Groups



NCSBN APRN Committee
(formerly Advisory Group)

APRN Consensus Process
50 Organizations

APRN Consensus
Work Group
23 Organizations

Joint Dialogue Group

APRN Consensus Group

- 23 Members (Educators, Accreditors, Certifiers, Regulators) Representing: CNP, CRNA, CNS, CNM

APRN Consensus Group Tasks

- Define advanced practice
- What qualifies as a role
- Who qualifies as a specialty
- How regulate and at what level

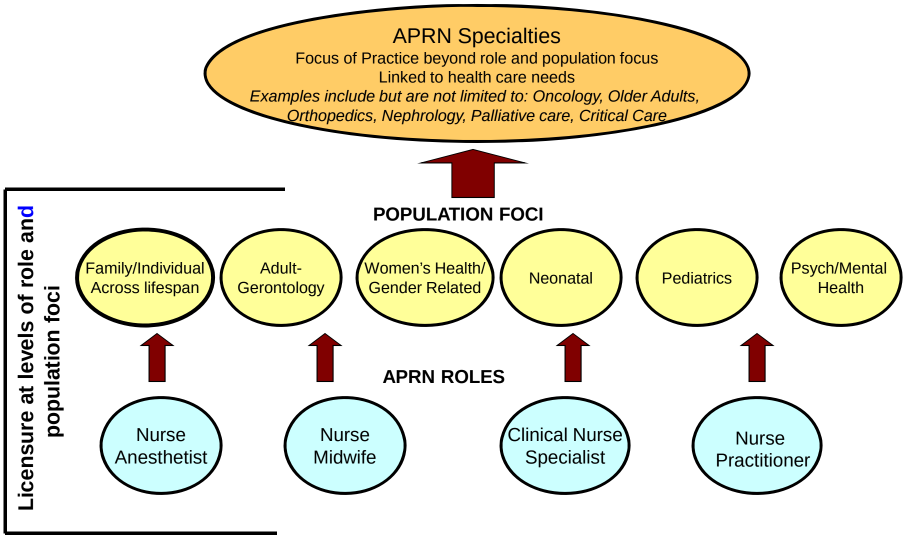
The APRN Consensus Model

- Defines APRN practice
- Defines regulatory model
- Identifies titles to be used
- Defines specialty
- Discusses new roles
- Strategies for implementing

Four Roles of APRN Practice

- **CNP**
- **CRNA**
- **CNM**
- **CNS**

APRN Regulatory Model



APRN Specialties

Focus of Practice beyond role and population focus

Linked to health care needs

Examples include but are not limited to: Oncology, Older Adults, Orthopedics, Nephrology, Palliative care, Critical Care

POPULATION FOCI

Family/Individual Across lifespan

Adult-Gerontology

Women's Health/ Gender Related

Neonatal

Pediatrics

Psych/Mental Health

APRN ROLES

Nurse Anesthetist

Nurse Midwife

Clinical Nurse Specialist

Nurse Practitioner

Licensure at levels of role and population foci

Acute Care Nurse Practitioners

- Majority of NPs traditionally worked in primary care as family, adult & pediatric nurse practitioners,
- New role was developed in 1994 – Acute Care Nurse Practitioner (ACNP)
- Acute, episodic care, originally intended to work in the role of hospitalist NP & intensivist NP

ACNP Development

- Increased need for coordinated care in a system of increasingly fragmented care delivery involving multiple medical subspecialties
- Often acute issue is treated by a specialist who may neglect comorbid chronic conditions
- ACNPs were designed to manage care across the full continuum of acute and specialty care
- Pediatric or Adult/Gero foci for ACNP

AACN Scope of Practice for ACNP

- ACNPs independently : (1) perform comprehensive health assessments; (2) order and interpret the full spectrum of diagnostic tests and procedures; (3) use a differential diagnosis to reach a medical diagnosis; and (4) order, provide, and evaluate the outcomes of interventions.
- The purpose of the ACNP is to provide advanced nursing across the continuum of health care services to meet the specialized physiologic and psychological needs of patients ***with acute, critical, and/or complex chronic health conditions***.

American Association of Critical Care Nurses. (2012). *AACN scope and standards for acute care nurse practitioner practice*. AACN, Aliso Viejo, CA.

ACNP Education

- Originally offered by very few universities nationally, programs are increasing
- Original education in critical care has been broadened to allow ACNPs to practice in a variety of settings & specialties as noted by AACN
- Some programs retain option of specialty focus in critical care
  - University of Pennsylvania, Vanderbilt

Current Models and Trends for ACNP

- Current models employ ACNPs in outpatient specialty clinics (pulmonary, renal, cardiology)
- Inpatient hospital-based services
  - Hospitalist NP
  - Intensivist NP
  - Surgical NP
  - Inpatient specialty consult service NP

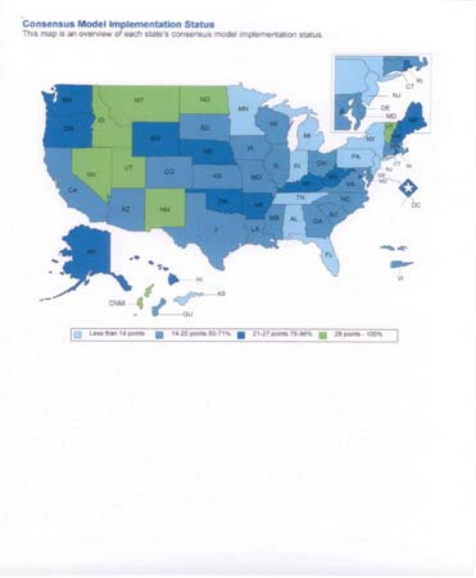
APRN Titling

- Title of **Advanced Practice Registered Nurse** (APRN) is the licensing title to be used for the subset of nurses prepared with advanced, graduate-level nursing knowledge to provide direct patient care in **<u>one of the four roles</u>**
- **Licensure is based on graduate education in one of the four roles and population foci**
- Verification of licensure will indicate the role and population focus for which the APRN has been licensed.
- Must legally represent themselves, including in a legal signature, as an APRN and by role (e.g. APRN-CNP)
- The title of APRN and role titles are legally protected titles and may not be used by any individual who does not hold the proper credentials.

Source: Nation Council State Boards of Nursing (NCSBN)

Consensus Model Implementation Status

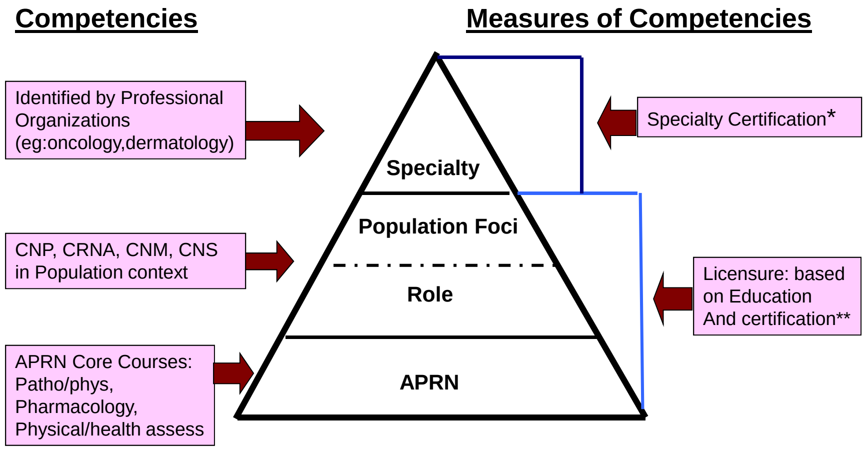
The Consensus Model **provides guidance for states to adopt uniformity in the regulation of APRN roles**. The target date to complete that work is 2015. Today**, many states have adopted portions of the Model elements but there still may be variation from state to state**. As long as regulatory requirements differ from state to state, each state border represents an obstacle to portability—potentially preventing access to professionals and access to care



Broad-Based APRN Education

- For entry into APRN practice and for regulatory purpose the APRN education must:
  - Include at least **three separate comprehensive graduate level courses in the APRN core**
    - Advanced Physiology/Pathophysiology
    - Advanced Physical Health Assessment
    - Advanced Pharmacology
  - Provide basic understanding of decision-making principles
  - Ensure clinical and didactic coursework is comprehensive to prepare the graduate to practice in the APRN role & population foci

Relationship Between Educational Competencies, Licensure and Certification



National Council State Boards of Nursing

Differences in Education Models & Clinical Outcomes

- APRN students **determine their patient population at the time of entry in a APRN program**.

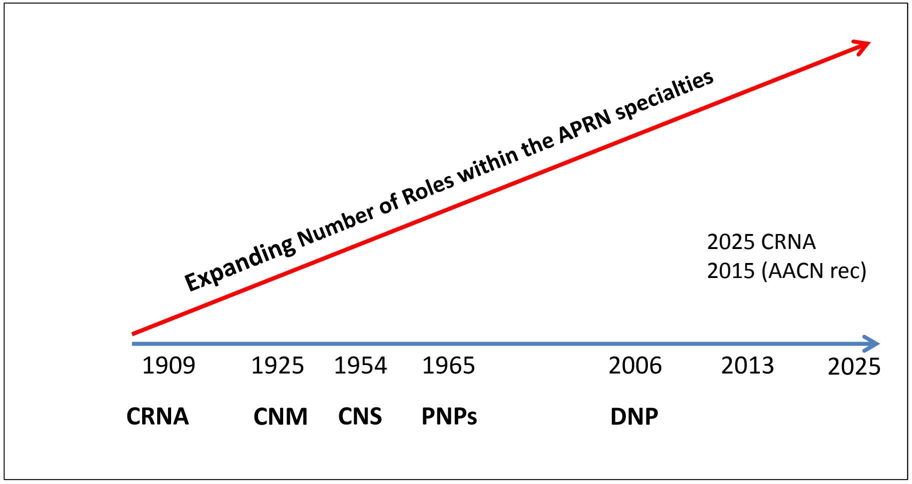
  -Population focus from the beginning of educational preparation allows APRN education to match the knowledge & skills to the needs of patients (ie: FNP → Primary Care)

  -Focus the program of academic & clinical education study on the patients the APRN will be caring for

Differences in Education Models & Clinical Outcomes

- **APRN education is competency-based, not time-based**
  - -APRN students must demonstrate they have integrated the knowledge & skill to provide safe patient care
  - -**APRN students do not progress or graduate based on the hours spent in a rotation or the number of times a particular aliment is seen**

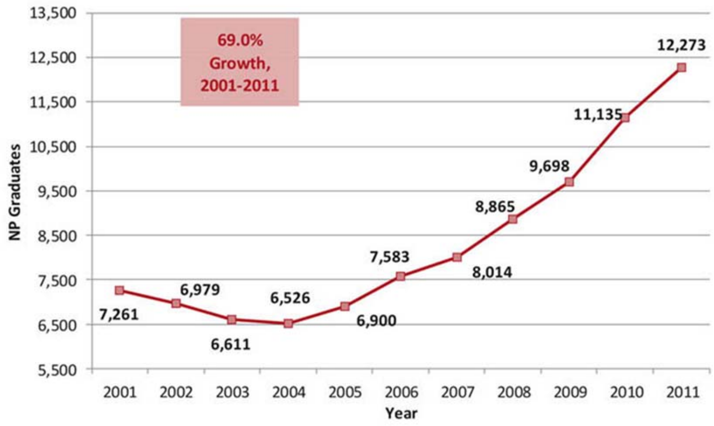
Advanced Practice Registered Nurses



Advanced Practice Roles

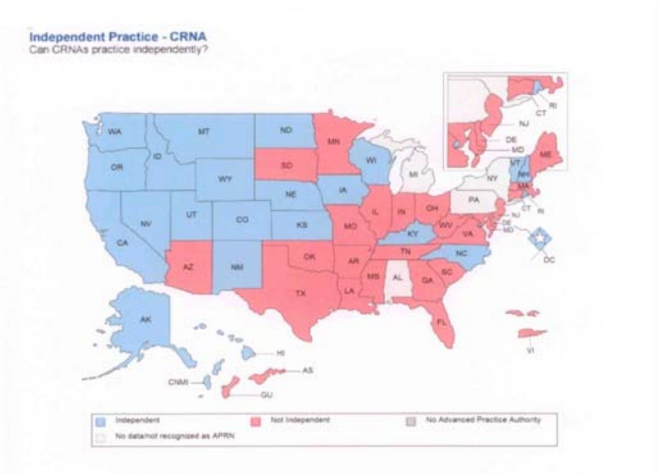
Data: AACN, 2013; AANP 2013; supplemented
Compiled and Presented: Pearce, 2013

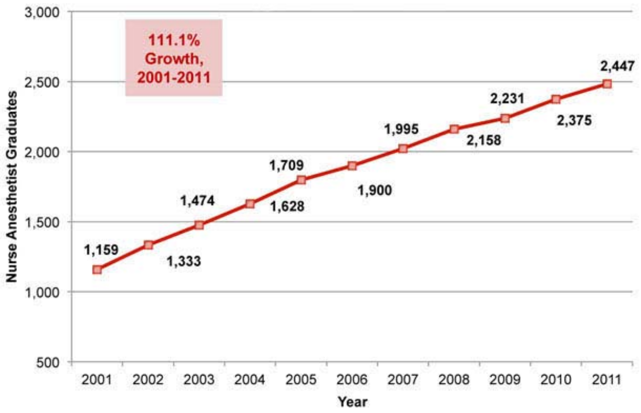
Figure 26. Nurse Practitioner Graduates, 2001 to 2011



Data Source: HRSA compilation of data from the AACN Annual Survey (in collaboration with the National Organization of Nurse Practitioner Faculties for collection of nurse practitioner data)
Note: Counts include master's and post-master's degree NP and NP/Clinical Nurse Specialist graduates as well as Bachelor's-to-Doctorate of Nursing Practice graduates.

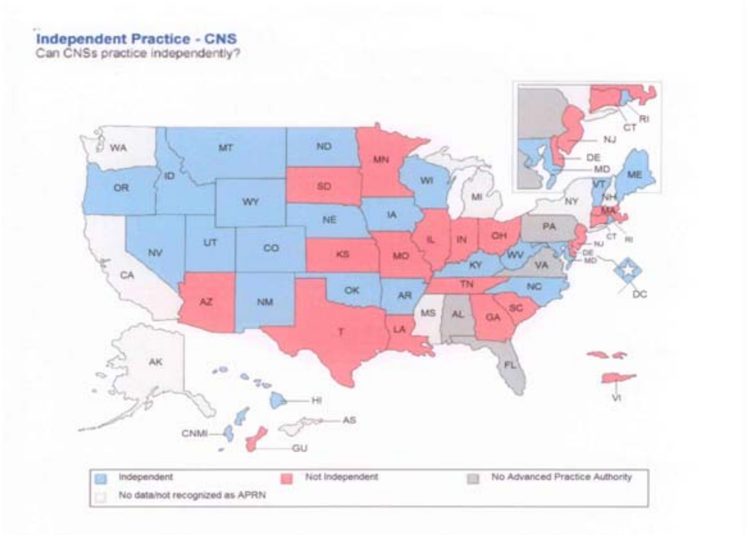
2014 Full Practice Authority CRNA





Data Source: National Board of Certification and Recertification for Nurse Anesthetists

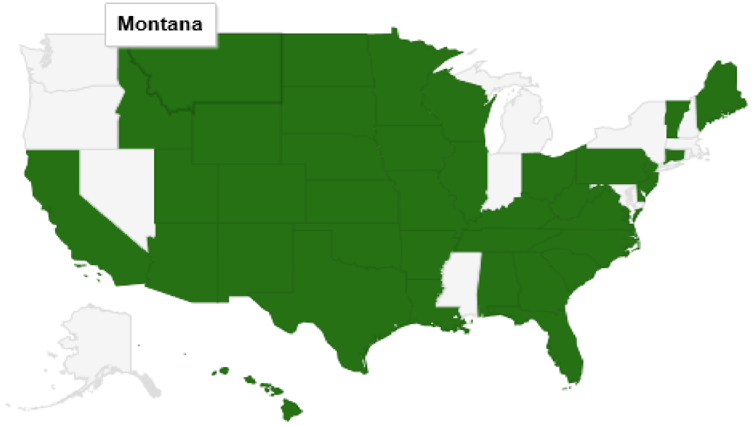
2014 Full Practice Authority CNS



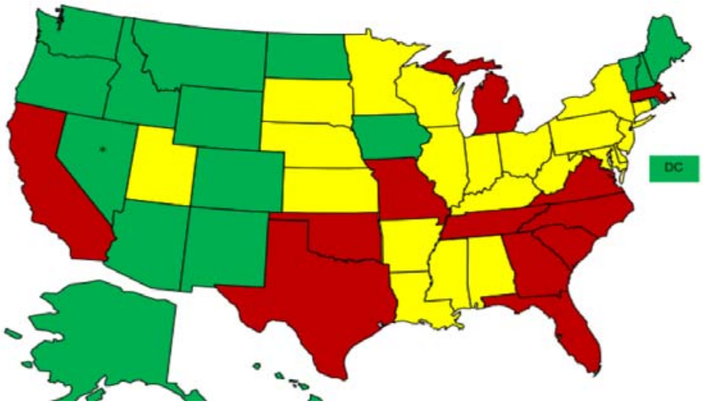
CCNS Certification for CNS In Acute & Critical Care

- AACN has contacted the State Boards of Nursing in all 50 states to request recognition of the **CCNS certification exam for clinical nurse specialists in acute and critical care**.
- Depending on the wording of its specific statute or rule, each state that recognizes the clinical nurse specialist role for advanced practice status may have the option to provide some type of approval of the CCNS exam process.

Approved CCNS Certification for APRNs



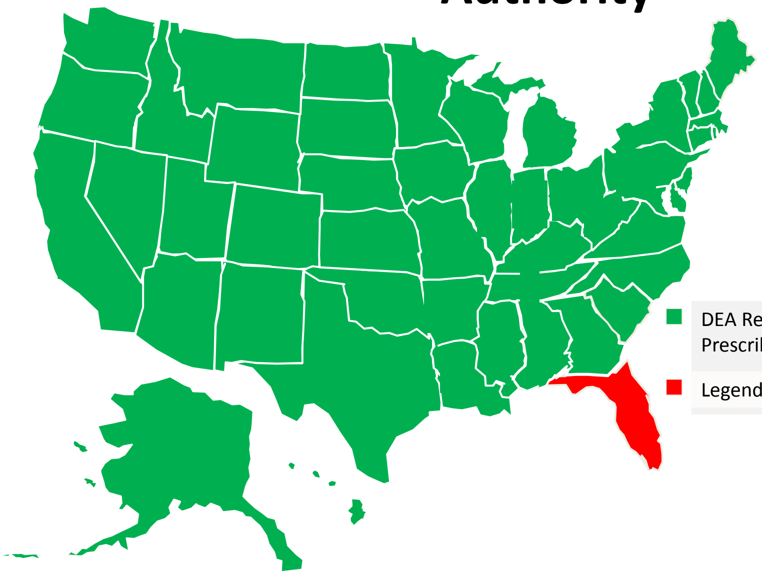
2014 Nurse Practitioner State Practice Environment



🟩 Full Practice
🟨 Reduced Practice
🟥 Restricted Practice

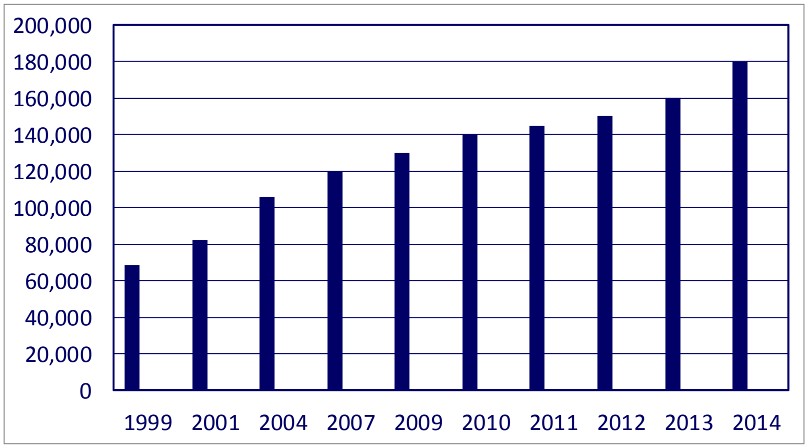
Sources:
State Nurse State Practice Acts and Administration Rules, 2012
© American Association of Nurse Practitioners, 2013

2014 Nurse Practitioner Prescriptive Authority



🟩 DEA Recognition to Prescribe
🟥 Legend Only

NP Growth 1999-2014



NP Scope of Practice

- Diagnosis and management of both acute episodic and chronic conditions
- Emphasis of health promotion and disease prevention
- Services include, but not limited to:
    - ordering, conducting, supervising, and interpreting diagnostic studies
    - prescription of pharmacologic and non-pharmacologic therapies
- Prescriptive authority in all states & DC

Nurse Practitioner Facts

189,000 NPs in U.S.

- Over 916 million annual visits to NPs in 2013
- NPs hold prescriptive authority in all 50 states, with controlled substances in 49 states
- 18% of NPs practice in rural areas or frontier settings
- 88% of NPs are prepared in primary care; 68% of NPs practice in at least one primary care site
- 87% of NPs see patients covered by Medicare

Nurse Practitioners Facts

- The majority of NPs spend 85% or more of their professional time in clinical practice
- 69.5% of NPs see 3 or more pts/hr
- Currently 12,000 recent graduates entering the profession
- 43% hold hospital privileges; 15% have long term care privileges

Geographic Distribution

- **Of PCPs, NPs most likely to practice in rural communities**
  - -20% of population resides in rural areas
  - -18% NPs practice in rural areas
  - -9% of physicians practice in rural areas

NPs in rural communities

- -Well experienced (mean=10 years NP experience)
- -Remain in community long-term (mean=6.4 years current practice)

Source: AANP Practice site survey 2012

NP Outcomes: Quality

- Bakerjian (2008)- review of literature related to nursing home residents cared by APNs/NPs:
  - Less likely to have falls, UTIs, ulcers
  - More improved functional status
  - Better managed chronic illnesses
- Ohman-Strickland et al (2008)-Cross-sectional study of 46 practices
  - Practices with NPs more likely to perform better on quality measures (e.g. A1C, microalbumin)
- Lenz, Mundinger, Kane, Hopkins, & Lin (2004)-2-year study
  - No differences among patients managed by physicians vs NPs on health status, physiologic measures, satisfaction, ED use

NP Education

- Entry level requires a graduate degree
  - Approximately 450 universities and institutions have one or more NP specialty tracks
    - Preparation builds on basic nursing education
    - Preparation is within specialty (family, adult, pediatrics, gerontology, women's health, mental health, acute care, etc)
    - Movement towards Doctor of Nursing Practice (DNP) as entry-level preparation
- Continuing education and practice are the norm for maintenance of clinical competency

Nurse Practitioner Education

- NP education model is different than, not less than that of medicine
- Typical MSN-preparation pathway:

4 year baccalaureate (BSN)

↓

10+ years RN experience

↓

2+ year master's program (MSN)

The Evolution of the DNP

…2003/04/05 — 2006 — *2013*

N=2-3 Programs

N=247 + 100 pending

Advanced Practitioners
- Direct Patient Care
- Management Populations/ Admin/Systems

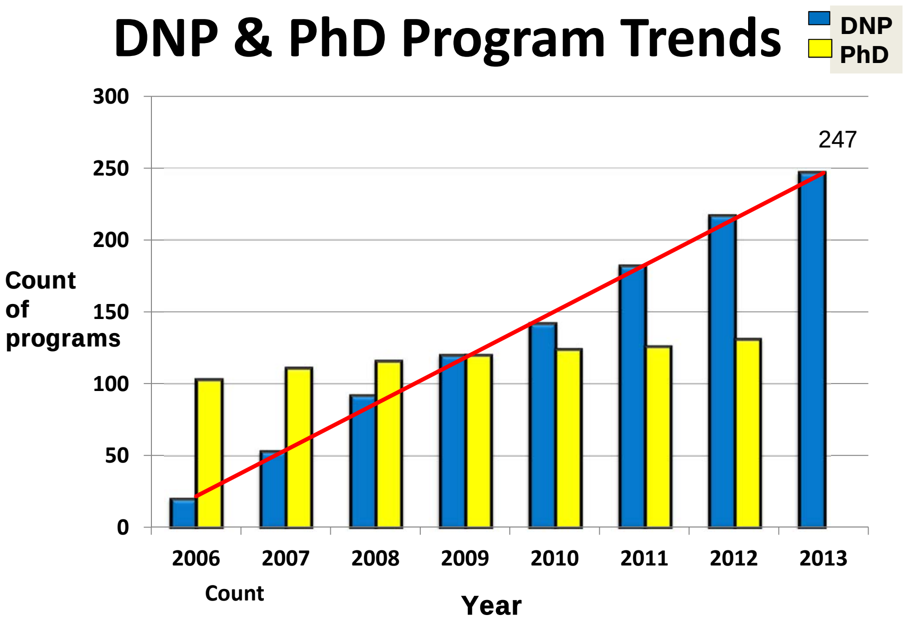
Post MSN-DNP
Post BSN-DNP

Advanced Practice Model (NP/CRNA/CNM)
Executive Leader/Admin
Informatics
Education/Teaching

DNP (Doctor of Nursing Practice)

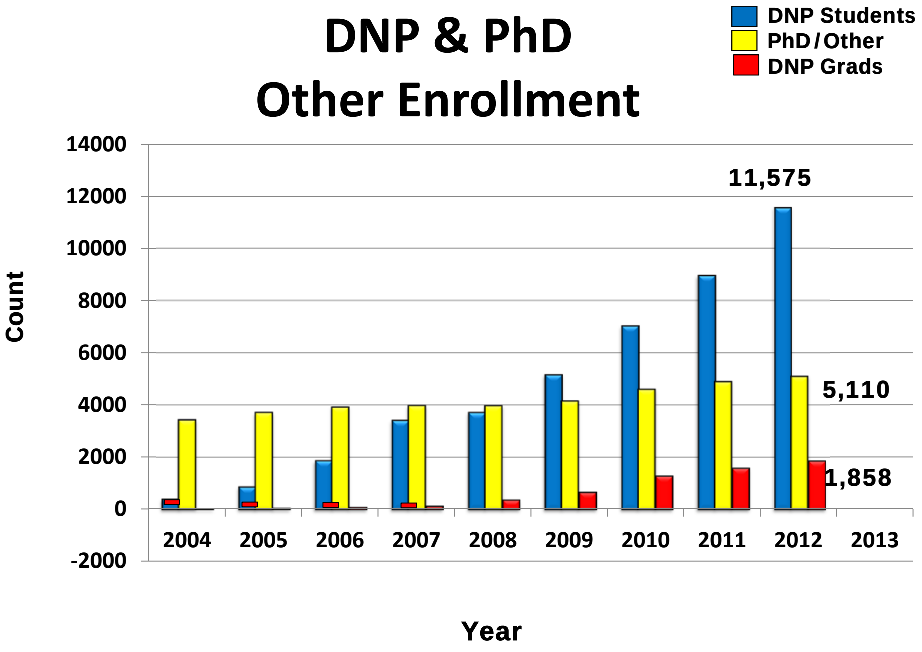
- Degree Transition
- Curriculum Changes
- **No Change in Certification**
- No DNP examination needed
- Goal for full transition 2015

DNP & PhD Program Trends



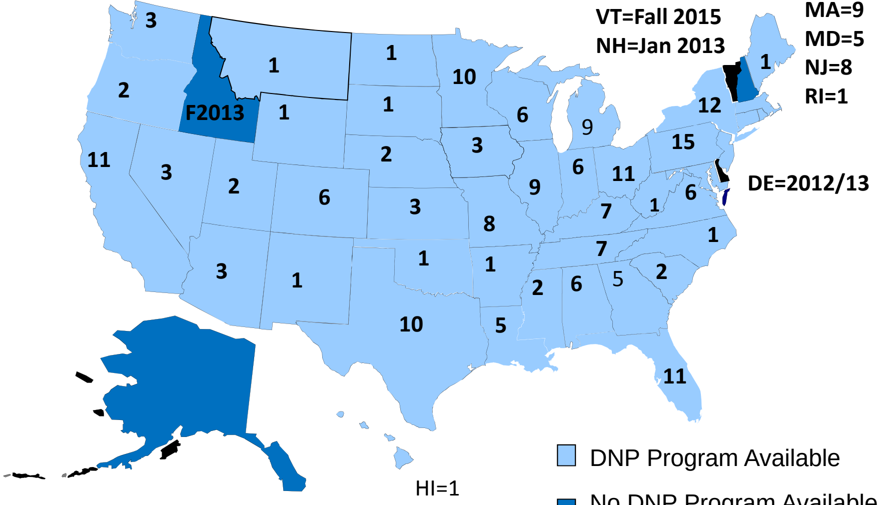
Kirschling (2011, 2013): AACN

DNP & PhD
Other Enrollment



Kirschling (2011, 2013): AACN

Current DNP Programs, Count by State (N=34)
Current States (N=14)



☐ DNP Program Available

■ No DNP Program Available)

Note. Informal information, AK has DNP program started in state

Data: AACN, 2013 ; AANP, 2013; supplemented Pearce, 2013

Institute of Medicine (IOM) Report

The Future of Nursing: Leading Change, Advancing Health

IOM Report

- The IOM released a report in 2010 with recommendations for **an action-oriented blueprint on the future of nursing**
- Recommendations call for significant improvements in public & institutional policies at the national, state & local level

IOM Report

Key Recommendations:

- **Nurses should practice to the full extent of their education and training.**
- Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.
- **Nurses should be full partners, with physicians and other health care professionals, in redesigning health care in the United States.**
- Effective workforce planning and policy making require better data collection and information infrastructure.

IOM Report

- Nurses should practice to the full scope of their education & training
- Empowering nurses, physicians & other healthcare professionals to practice to the best of their abilities
- **Do what you were educated & trained to do**
- **Federal agencies, states & health care institutions will play a critical role in fulfilling this recommendation.**

IOM Report

APRN Specifics Within IOM

Congress:

- Expand Medicare to include coverage of APRNs just as physician services are covered.
- Authorize APRNs to admit patients into skilled long term care.
- Order home health and hospice care services.
- Equity in Medicaid reimbursement.

State:

- **Reform State Practice Acts to be consistent with the NCSBN Consensus Model.**
- Direct Insurance reimbursement payment mandate.

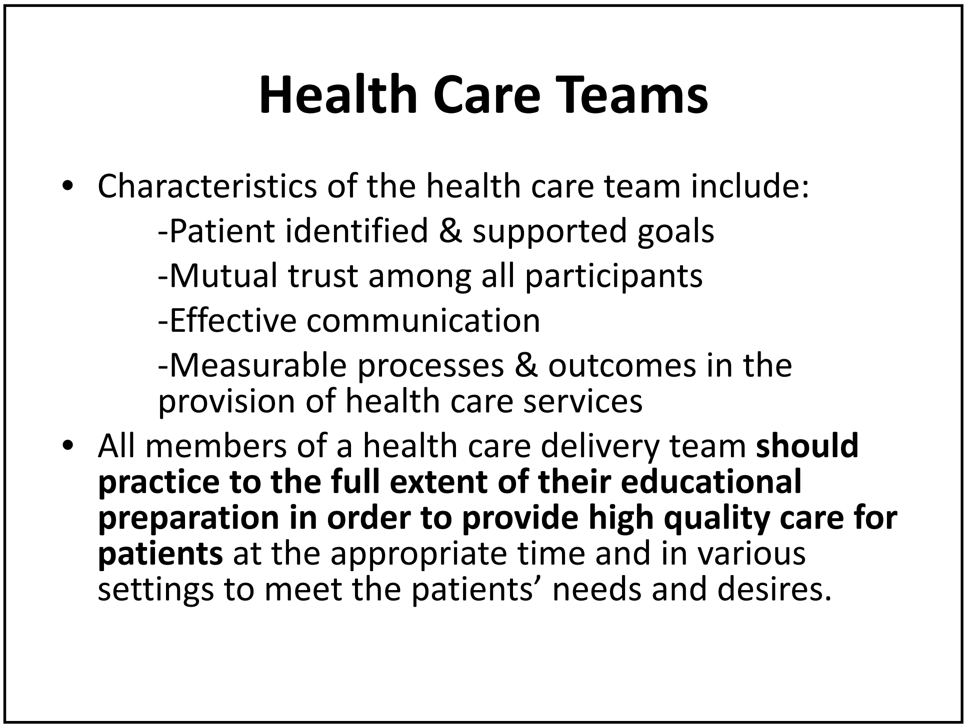
Promotion of Interdisciplinary Collaboration/Team Based Care

:

- ➢ Hundreds of research studies demonstrate the cost reductions and quality improvements available when nurse practitioners are allowed to work within the full scope of their education and preparation, **<u>without</u>** unnecessary restrictions and requirements for physician oversight.
- ➢ APRNs are fully educated to meet primary care needs and to work with other health professionals when specialty services are required.

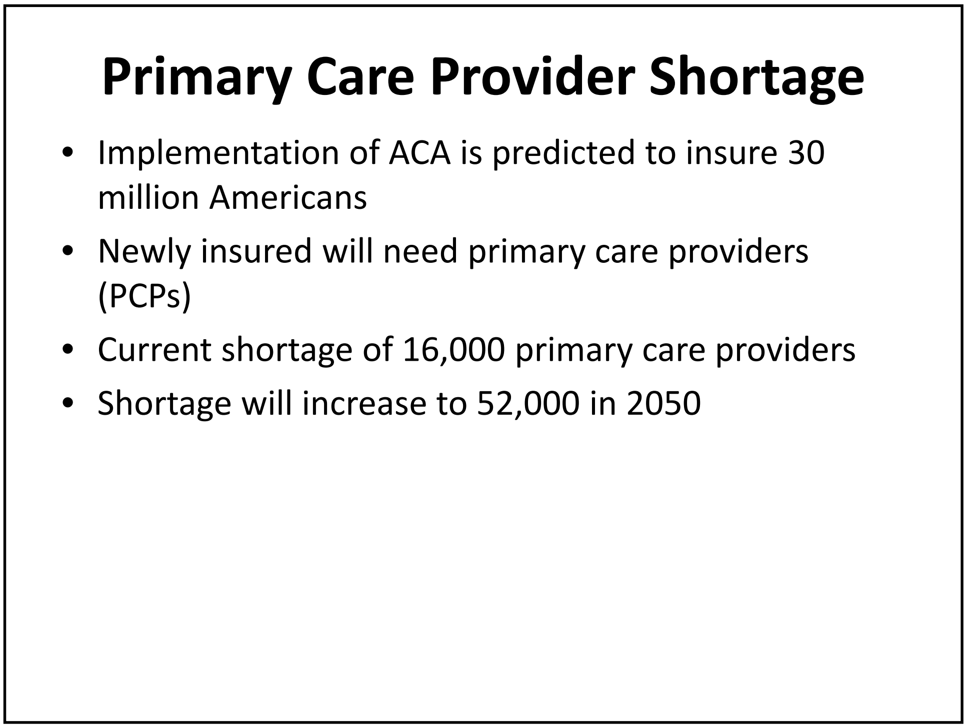
Team Based Care

- The Institute of Medicine’s (IOM) concept of team based care; “ the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively, to the extent preferred by each patient.”
- Collaboration is defined as the communication, coordination & cooperative efforts of health care professionals around care delivery
- **Team based care is a systems approach to care delivery & is not a regulatory construct**



Health Care Teams

- Characteristics of the health care team include:
  - -Patient identified & supported goals
  - -Mutual trust among all participants
  - -Effective communication
  - -Measurable processes & outcomes in the provision of health care services
- All members of a health care delivery team **should practice to the full extent of their educational preparation in order to provide high quality care for patients** at the appropriate time and in various settings to meet the patients' needs and desires.



Primary Care Provider Shortage

- Implementation of ACA is predicted to insure 30 million Americans
- Newly insured will need primary care providers (PCPs)
- Current shortage of 16,000 primary care providers
- Shortage will increase to 52,000 in 2050

New Models of Primary Care Ease Physician Shortage

- Implement new care models
- **Expand role of NPs**
- Expansion of patient-centered medical homes & nurse managed health centers
- **Efficient use of NPs will help eliminate 50% of PCP shortage by 2025**
    - -VHA 5,000 → Nurse Practitioners
- Achieving goal will require policy change
- Team Based Care/Medical Home (accounts for 15% of primary care delivery nationally)

NP Led Medical Home Certification/Accreditation

- Joint Commission on Accreditation of Health Organizations (JCAHO)
- National Committee for Quality Assurance (NCQA)
- Utilization Review Accreditation Commission (URAC)
- Accreditation Association for Ambulatory Health Care (AAAHC)

VA Authority Under Federal Law

- United States Code under Title 38 authorizes VA to prescribe rules/regulations appropriate to carry out its statutory role as a national health care system provider
- **Exception is controlled-substance prescribing**
- VA licensed professionals required to follow VA rules/regulations for clinical practice—even if more expansive/inconsistent with State Practice Acts.

Source: VA Memo VAOPGCADV 7.2011

VHA Nursing Handbook

- The VHA Nursing Handbook was developed by the Office of Nursing Services (ONS) to establish policy for the process of care delivery and the elements of nursing practice
- VHA is proposing the authorization of full practice authority (FPA) for all Advanced Practice Registered Nurses (APRNs)
- Except for the dispensing, prescribing, and administering of controlled substances
  - As full practice providers, APRNs including CRNAs would deliver care under a set of privileges, based upon education, training and certification

VHA Nursing Handbook

- This proposed change would **increase access to care, decrease variability throughout the system**, and ensure continuity of the highest quality of care for Veterans
- The handbook is currently under review and VHA is seeing input from VA program offices and external professional stakeholders, prior to any regulatory action

VHA Nursing Handbook

- VHA's proposed nursing handbook is consistent with the 2010 IOM landmark report, *"The Future of Nursing: Leading Change, Advancing Health,"* recommendation for **removal of scope-of-practice barriers, which would allow APRNs to practice to the full extent of their education & training**
- As an integrated federal health care system, the proposed policy parallels current policies in the DOD and IHS.

VHA Nursing Handbook

- The VHA Nursing Handbook would establish full practice for CRNAs, but would not, in any way, require CRNAs to become aligned with Nursing Services.
- The recognition of CRNAs as full practice providers does not require any change in the Anesthesia Service Care Team Model.

Credentialing

- Institutional guidelines typically developed by the credentials committee or the medical staff through amendments to the medical staff bylaws
- Specifies types of educational & professional qualifications required for privileges
- Graduate of an accredited program, passed the national certifying exam & be registered with the state's medical or nursing licensing board

Privileging

- Hospitals & other health care institutions grant medical professionals the privilege or authority to practice in their facility
- Privileging refers to authorizing the credentialed individual to perform and order specific diagnostics or therapeutic services
- Credentialing and privileging are two administrative processes that are intended to ensure that practitioners have the necessary qualifications to provide clinical care to patients

VHA APRN FPA Support

- Over 5,000 letters sent to Congress in support of FPA for APRNs
- Professional Organizations Supportive: AANA, AANP, ANA,AVANA, AACN, AARP & others
- Congressional Letter of Support
  - Rep. Lois Capps & Rep. David Joyce
  - Signatures from 28 Members of the House

Questions

Does practicing to the full extent of one's education and training suggest, the local Chief of Medicine or Ambulatory Care will not have input regarding the level of practice in the privileging process for APRNs including nurse practitioners?

No. The local Chief of Medicine or Ambulatory Care will have the same input regarding the level of practice in the privileging process of nurse practitioners as he/she currently does for staff physicians. Privileges are currently determined by the local Professional Standards Board, or its equivalent for staff physicians; privileges for staff APRNs are also recommended by the Service Chief or equivalent, and confirmed by the local Professional Standards Board, or its equivalent.

Questions

Will this change affect the quality of anesthesia care or patient safety in VA?

No. The VHA Office of Quality, Safety, and Value has requested an evidence synthesis review be conducted on APRN practice evaluating evidence-based outcomes, to ensure this policy change is safe for patients.

What is the rationale for the change?

VHA makes every effort to utilize its resources to the greatest advantage for Veterans. Recognizing full practice authority for APRNs represents good business, good value, good practice and good health care for Veterans.

May Veterans request a physician rather than a CRNA for anesthesia care? Yes

Questions

What will be the relationship between an ONS Handbook and the Anesthesia Service Handbook, when the existing Anesthesia Service Handbook favors a Care Team? How would the conflict between the ONS statement of FPA for the CRNA be resolved with the Anesthesia Care Team model?

The recognition of CRNAs as full practice providers is a licensing and privileging matter that will not in any way affect the current VA Anesthesia Service Care Team Model. CRNAs and Anesthesiologists will continue to practice under the direction of the Chief of Anesthesia or Chief of Surgery depending on the administrative structure of the anesthesia program at each VA facility. As a national health care system, VA already recognizes FPA for CRNAs licensed and privileged in those states where full practice is authorized.

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Physician Assistants in American Medicine: The Half-Century Mark

James F. Cawley, MPH, PA-C; and Roderick S. Hooker, PhD, PA

Background: The concept of the physician assistant (PA) was developed by US physicians in the 1960s as a workforce strategy to improve the delivery of medical services. Then as now there is an anticipated shortage of physicians, particularly in primary care. Use of PAs is viewed as 1 possible strategy to mitigate this growing gap in provider services.

Objectives: To describe the PA in US medicine for policy background and analysis.

Description: In January 2013, approximately 89,500 PAs were licensed: 65% were women. Four-fifths were under the age of 55 years. PAs are trained in 2.5 years at one-fourth the cost of a physician and begin producing patient care 4 years before a physician is independently functional. One-third of PAs work with primary care physicians; 65% work in non–primary care practices. Popular specialties are family medicine, emergency medicine, surgery, and orthopedics. PAs are revenue producers for employers and expand access and clinical productivity in most practice settings. Roles for PAs have expanded into hospital settings and graduate medical education programs. About 7300 PAs graduate annually, and this number is expected to grow to 9000 by the end of the decade. Predictive modeling suggests that demand for medical services will grow faster than the combined supply of physicians, PAs, and nurse practitioners, particularly in primary care. PA quality of care appears indistinguishable from that of physician-delivered services.

Conclusions: Optimal organizational efficiency and cost savings in health services delivery will depend on how well the PA can be utilized.

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For author information and disclosures, see end of text.

A prevailing issue within the US medical workforce is the adequacy of the physician supply to meet the needs of a nation undergoing health service expansion. Despite an increase in the number of medical schools and boosted enrollment, substantial shortages of physicians are predicted. The Association of American Medical Colleges estimates a shortage of 124,000 full-time equivalent (FTE) physicians by 2025, with primary care accounting for the largest share of the deficit (37% or ~46,000 FTEs). Family medicine put this primary care estimated shortage at 52,000 physicians by 2025. Beyond calling attention to a physician shortage in general, and a diminishing supply of primary care physicians in particular, there is a clear indication that other providers are needed.[1] Increasingly, physician assistants (PAs) are expected to help fill workforce shortages. As the profession approaches the half-century mark, an update of the PA profession may serve as a reference point for policy analysis.

The PA was a workforce idea created by physicians in the 1960s as a policy response to the shortage and uneven distribution of generalist doctors. The intention was to increase the public's access to healthcare.[2] The National Commission on the Certification of Physician Assistants records that there are approximately 100,000 PAs who have ever been certified.[3] Taking into account those who have left the workforce and those who are entering as new graduates we estimate 89,500 PAs with active licenses in 2013. There are 173 PA programs, with 60 in development. While all are trained in the generalist model, PAs are employed in primary care, specialty, and subspecialty medicine, and work in collaboration with physicians in most clinical practice settings.[4]

DEFINITION AND LEGAL STATUS

Physician assistants are health professionals licensed to practice medicine with physician supervision. They share an interdependent relationship with physicians sociologically described as "negotiated performance autonomy."[5] The PA scope of practice corresponds to the supervising physician's practice and varies according to the training, experience, facility policy, and state law. Qualifications for PA licensure are (1) graduation from an accredited PA program and (2) passage of the Physician Assistant National Certification Examination administered by the independent National Commission on Certification of Physician Assistants. Licensed PAs

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Take-Away Points

Physician assistants (PAs) receive generalist training that permits their widespread use in most areas of medicine under doctor supervision.

- The PA concept has been a successful health workforce innovation in US medicine and is spreading globally.
- The contributions of PAs to primary care involving effectiveness, safety, patient satisfaction, and outcomes of care are comparable to those of physicians.
- The addition of PAs to primary care teams tends to improve coordinated, comprehensive care and helps to maintain the continuity of care.

have prescribing authority in all states, although laws vary with regard to certain prescribing privileges and supervisory requirements.[6]

In their work, PAs routinely perform a comprehensive range of medical duties, spanning primary care to high-technology specialty procedures. In primary care, they serve as front-line providers working typically with family physicians. In surgery they serve as first assistants as well as providing preoperative and postoperative care.[7] In some rural areas where physicians are in short supply, PAs work semiautonomously, conferring with their supervising physicians as needed and as required by law.[8,9]

EDUCATION

As of 2013 there were more than 173 accredited PA programs, a number that has grown rapidly over the past decade (**Figure 1**). An additional 45 programs have applied for initial accreditation; 20 more are in the development pipeline progressing toward accreditation status by 2017 (J. McCarty, CEO of the Accreditation Review Commission on Education for the Physician Assistant [ARC-PA], written communication, April 2013; ARC-PA website updated April 12, 2013). The average program length is 27 months, operates year-round, and typically comprises 1 year of classroom and laboratory instruction and a second year of clinical experience.[10] Physician assistant programs graduate, on average, 44 persons per program each year. The 2012 graduating cohort was 7300 (estimated); this number is projected to increase to 9000 annual graduates by 2020.[11] Two-thirds of matriculates are female and the median age at graduation is 29 years (range, 23-55 years).

Although accredited PA programs have demonstrated compliance with a core set of educational standards (ARC-PA *Standards*, 4th edition), they have the discretion to offer a variety of academic degrees, with the master's degree as the norm. The curriculum resembles a competency-based (and shorter) form of medical education with basic sciences and clinical rotations. Students complete an average of 2000 hours of supervised clinical practice prior to graduation with the average length of clinical clerkships approximately 52 weeks.[10]

From a policy standpoint, PA education has been supported through Title VII, section 747, which provides incentives for programs to have diverse student selection, a primary care training focus, and deployment to rural and underserved settings.[12] Since the early part of this century Title VII funding has been reduced for PA education with an exception in 2010 when one-time funding was created under the American Recovery and Reinvestment Act of 2009. During this phase, Expansion of Physician Assistant Training grants were used to bolster primary care. As of 2012, 39 of the 173 PA programs received some amount of federal training support.

Typical PA programs are sponsored by a university school of medicine, school of health sciences, or similar college within the institution.[13] An average start-up cost of a PA program is approximately $2.5 million (direct cost in 2010 dollars) spread over the first 5 years.[14] Without federal start-up funds, the cost is borne by the home institution. Tuition cost of a PA education averages $65,000 (2010 dollars; 28 months).[10] Student debt is estimated around $55,00 on average with a range between $0 and $150,000 for 2012.[15]

DEMOGRAPHICS

In 2013, more than 89,500 PAs held an active state license to practice. Approximately 80% of all PAs are under the age of 55 years, making this one of the more youthful health professions (**Figure 2**).[3,16] The median age of PAs in clinical practice is 41 years (range, 23-74 years); 65% are women.[4,10]

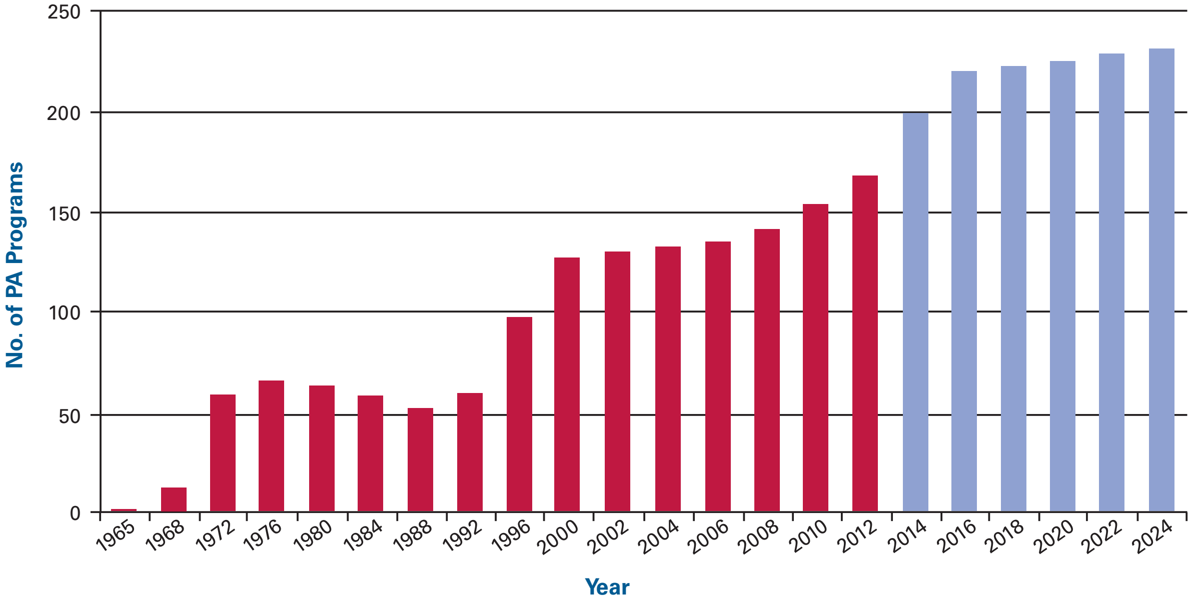
Although PAs are widely distributed across the nation, the highest density per capita is in Alaska and the lowest in Mississippi. New York, Pennsylvania, Florida, California, and Texas have the greatest number of PAs and also have the largest concentration of PA programs per capita. Physician assistants working in nonmetropolitan census tracts are found in every region, but more so west of the Mississippi River.[17]

The PA profession has grown from 29 graduates in 1969 to 100,000 ever-graduated in 2012, with growth particularly pronounced in recent years.[3] More specifically, the number of people with an active license to practice will exceed 100,000 by the year 2016. This annual growth is projected at 7% and an annual attrition rate is estimated at 4% to 5% out to 2025.[11]

INTERPROFESSIONAL PRACTICE

Team-based care is the byword among various health professionals as the demand for services increases. It is a term

■ **Figure 1.** Total and Projected Number of Accredited Physician Assistant Programs, Select Years, 1965-2024



PA indicates physician assistant.

mentioned frequently by family medicine practitioners as they face a growing demand for their services.[18] Evidence of the benefit of team-based care as it applies to PAs is growing; in 1 health maintenance organization they improved the outcomes of some chronic diseases in the elderly, and at the same time patient satisfaction with care was higher than it was for physician-only care.[19] A Wisconsin primary care network study demonstrated that service delivery by physicians, PAs, and nurse practitioners (NPs) was similar regardless of the complexity of the patient and the type of service. In this example, panels of patients assigned to PAs and NPs had higher proportions with Medicaid, disability, and depression.[20] Findings on PAs in primary care are growing, and a shortage of primary care physicians in the pipeline suggests that the employment of PAs is likely to grow more in this domain.[21] In orthopedics the use of PAs as first assistants freed up family medicine physicians for more clinical work, increased the throughput of hip and knee replacements by 42%, and decreased the wait times by one-third compared with the preceding year without PAs.[7]

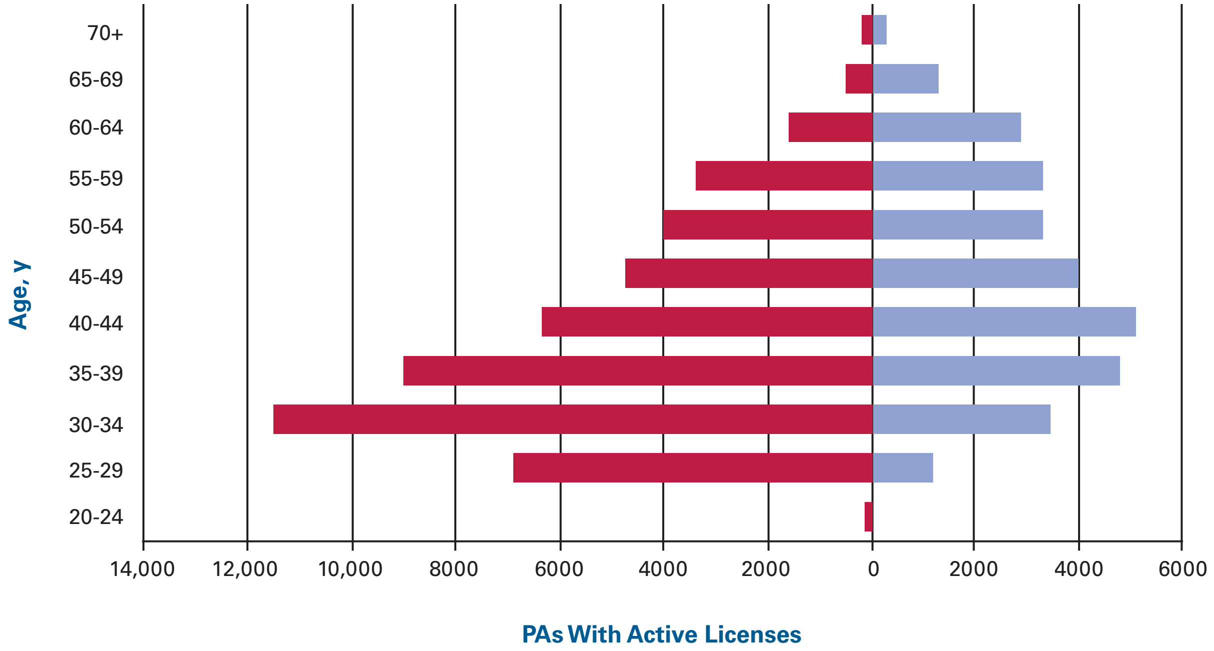
FEDERAL POLICY SUPPORT

The development of the PA arose from federal health policy initiatives, and the results gained wide support in the public and medical sectors. The major funding source, Title VII, section 747, provides support for PA education and has waned, with roughly one-fifth of programs receiving federal support of less than $10 million.[12] This decreased funding is in contrast to the Department of Health and Human Services awarding about $200 million to 5 hospitals to train additional advanced practice registered nurses.

PRIMARY CARE

There appears to be an increasing reliance on PAs and NPs to deliver primary care services.[22] A report from the National Center for Health Statistics indicated that care managed by PAs and NPs in nonfederal hospital outpatient departments increased from 10% in 2001 to 15% in 2009.[23] This increase indicates that PAs are being more widely utilized, particularly in settings where a large number of primary care services are delivered. Physician assistant involvement in providing services varied by location, with these providers handling 36% of visits in nonmetropolitan centers versus only 6% of visits in urban hospitals. Also, the size of the hospital correlated with increased use of PAs or NPs; the smaller the hospital, the more likely that the hospital was using them.[23] Physician assistants and NPs also delivered care more often in clinics associated with nonteaching hospitals and handled a higher percentage of Medicaid, Children's Health Insurance Program, or uninsured patients, as well as younger patients. Physician assistants and NPs saw a higher percentage of patients where a new problem was the major reason for the visit (22%) compared with visits for a chronic condition (11%) or pre/postsurgical care (6%). In addition PAs and NPs saw a higher percentage of patients with preventive care visits (17%) compared with visits for a routine chronic condition or pre/postsurgical care.[23]

■ **Figure 2.** Physician Assistants Holding an Active License, 2013



PA indicates physician assistant.
Source: Optum, Provider 360.

Ambulatory visit analyses suggest that PAs and NPs are used to a greater degree in smaller facilities located in nonurban areas to serve populations that may be otherwise medically underserved, trends that are consistent with the policy intentions of their creators. The National Center for Health Statistics report confirms that PAs and NPs "continue to provide a critical healthcare function" by administering care in communities that are prone to physician shortages, including rural, small, and nonteaching hospitals. Physician assistants and NPs tend to provide care that is more prevention oriented than physician care and are proportionally more likely than physicians to see patients without private insurance.[24,25]

In primary care, the major issue is provider supply.[21] While the absolute number of primary care providers is expected to rise in the coming years, these changes are not expected to be sufficient to meet the demands of an aging population, changes in service use, new technology, and trends connected with a major expansion of insurance coverage.[18,26] The best estimates of the primary care provider supply continue to indicate that there are significant shortages. According to 2009 numbers from the Agency for Healthcare Quality and Research, only about one-third of the nation's 625,000 practicing physicians, or about 208,000 providers, work in primary care; and, as of 2010, about 43.4% (n = 30,300) of the estimated 70,333 PAs in practice and 43% (n = 55,626) of the estimated 106,000 NPs in practice are currently in primary care.[27]

RURAL HEALTH

Significant shifts in PA distribution and utilization patterns have resulted in an increase in rural primary care since the early 2000s. Historically, PAs provided such services in rural and urban areas that often lacked sufficient access to healthcare.[9,28,29] Many small rural clinics in the far West are staffed with a PA alone; arrangements are worked out to supervise the PA remotely and for the physician to visit the clinic periodically to review charts and see patients together with the PA.[8]

For populations with large groups of medically underserved and economically disadvantaged individuals, the PA is making an impact.[29] Some evidence is emerging that PAs and NPs are proportionally more likely than family physicians to be in these settings.[28] Community Health Centers, another creation of the 1960s, are sometimes medically staffed at 50% PA/NPs, more than twice that of private practices.[23] Many Community Health Centers are considered highly efficient centers for primary care experimentation and delivery and are rapidly achieving patient-centered medical home status. Between 2010 and 2016 Community Health Centers are scheduled to grow 50%, and recruitment for all 3 types of clinicians has intensified.[30]

The numbers of PAs and NPs involved in chronic disease management are growing. One study that examined 10 million primary care visits in the Veterans Health Administration between 2005 and 2010 found that PAs and NPs attended

30% of all visits, with little difference in patient characteristics or diagnoses among the 3 types of clinicians.[31] Significant regional variations in ratios of the 3 types of providers suggest primary care staffing configuration is more a function of attitude than administrative rationale.

SPECIALIZATION AND SETTING

Although their training is focused on primary care, two-thirds of PAs practice in surgical specialties or medical subspecialty areas such as cardiology, rheumatology, and inpatient medicine; orthopedics, dermatology, and emergency medicine are particular areas of strong demand and utilization. While the majority of PAs are in full-time clinical practice, some also incorporate their clinical knowledge into other employment settings such as clinical research, education, and administration. One-fourth (24%) of PAs work in single-specialty group practices; the largest single practice setting for PAs is multispecialty group practices.[4] The specialty fields with the largest proportion of those in clinical practice are family/general medicine (25%), surgical subspecialties (22%), subspecialties of internal medicine (11%), emergency medicine (10%), and general internal medicine (7%). Types of employment settings with the largest proportions of PAs include single-specialty and multispecialty group practices, solo practice physician offices, hospital operating rooms, emergency departments, and inpatient and outpatient units of hospitals.[4]

QUALITY OF CARE AND LIABILITY

The liability of PAs in the United States is considerably less than that of physicians in comparable roles, as measured by medical insurance premiums and malpractice cases. Physician assistants have fewer than 1% of all medical malpractice payment reports.[32] Several studies have shown the quality of care provided by PAs is at the level of that provided by physicians in comparable situations, with high levels of patient satisfaction.[25] In primary care practices, PAs handle common patient complaints, follow-up visits, and patient counseling. Use of PAs permits patients to receive prompt attention, with routine problems addressed effectively with the expertise of the available physician if needed. This strategy can provide more time for a physician to focus on different aspects of the practice (eg, managing more complex or time-consuming patients).

The quality of care provided by PAs was assessed in the US Air Force, where PAs deliver a considerable portion of primary care formerly provided by physicians. Quality-of-clinical-care determinations were made on the basis of responses to predetermined diagnostic, therapeutic, and referral and disposition criteria. Therapeutic criteria included desirable actions on the part of the healthcare provider (eg, prescribing the appropriate class of antibiotic for infectious otitis media at the first visit) and undesirable actions (eg, prescribing an antibiotic for viral syndrome with gastroenteritis). On 5 of 6 such criteria, PAs performed as well as or better than physicians in identifying desirable therapeutic actions.[33]

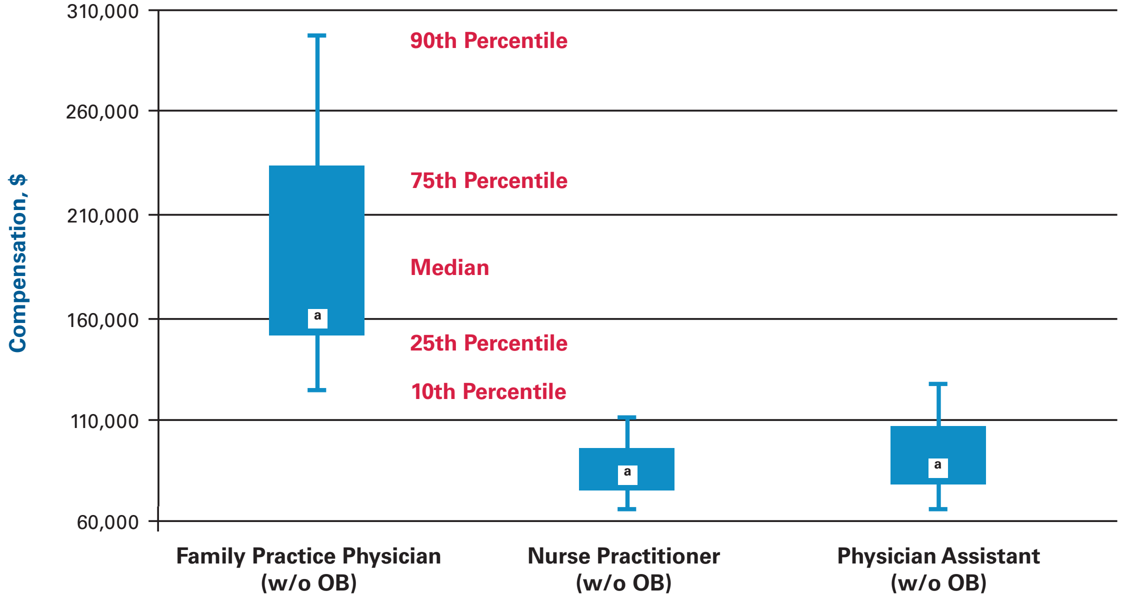
ECONOMICS

The benefit of PA employment is rooted in labor economics and industrial engineering. From a management standpoint, PAs receive less compensation than physicians. While compensation differs substantially across specialties and employment settings, the salary differential of a PA and a family physician in the same location is approximately 45% (**Figure 3**[34]). The employing organization, duration of a PA career, contract arrangements, return on revenue, and benefits will affect the overall salary. This 45% salary differential between a board-certified family physician and a family medicine PA, as measured by the Medical Group Management Association, has been a constant for over a decade.[34] However, substantial differences occur in other areas such as cardiology, dermatology, emergency medicine, neurology, cardiovascular surgery, and orthopedics. In the entrepreneurial setting, the labor input of PAs can generate multiples of their salary in revenue received.

The organizational aspect of PA employment strongly influences how they are used—either as *substitutes* or *complements*—to improve productivity (economically a substitute usually is not identical to what it is replacing). By any measure, PAs are productive and would not be employed if they were not so. Their annual compensation-to-production ratio (as measured by revenue) is one of the highest in the health professions industry.[34] They are used in high ratios to physicians in most vertically integrated systems such as Kaiser Permanente, Geisinger, Cleveland Clinic, Group Health Cooperative of Puget Sound, and the Mayo Clinic, to name a few. Their output compares favorably with that of physicians when they are employed largely as labor substitutes in specialties such as emergency medicine, family medicine, and dermatology (although patients can be differentiated for select PA services and to improve system throughputs).[35,36] The PA in family medicine sees a wide variety of patients with diagnoses that are 85% to 90% of the full range of a family medicine physician.[29]

In terms of utilization, the federal government has been an employer of PAs since 1968 and the largest single employer to date.[37] The Veterans Health Administration could not meet the needs of its growing and aging population in 150 medical centers and 900 community-based outpatient clinics without a large cadre of PAs and NPs.[31,38] The military is a major employer of PAs, and these PAs must be prepared for multiple

Figure 3. Compensation for Family Physicians, Physician Assistants, and Nurse Practitioners, 2010[a]



OB indicates obstetrics; w/o, without.

[a] Sample sizes for the comparison of compensation for primary care providers are as follows: family practice physician (n = 5524), nurse practitioner (n = 718), and physician assistant (n = 800).

Source: Medical Group Management Association 2010.[34]

roles such as battlefield traumatologists, family medicine clinicians in military treatment facilities, public health officers in refugee situations, and occupational medicine officers in barracks.[37] Within the US Coast Guard, the ratio of PAs to medical doctors is 2.5 to 1, and PAs may be the sole medical officer on polar-bound ships. The Interservice Physician Assistant Program graduates approximately 180 PAs per year.

Clinical productivity of PAs has been demonstrated in health maintenance organization organizational efficiency studies where staffing in family medicine, pediatrics, and obstetrics/gynecology sometimes exceeded 50% PA/NPs.[39] Physician assistants are first assistants in surgery, oversee the admission and discharge of patients, staff intensive care units, and are the main providers of care in low- and mid-acuity emergency medicine.[36,40] Productivity is comparable to that of physicians when trauma acuity scores and patient characteristics are held constant.[41] Generally PAs improve work flow and organizational efficiency when economies of scale and divisions of labor are introduced.[42]

Employing PAs appears to be cost-effective. A study of state practice environments reported: "Within their areas of competency, and within appropriate training and supervision, these practitioners may provide medical care similar in quality to that of physicians at less cost."[6] In Utah, the utilization of PAs in primary care results in more annual productivity than comparable roles for physicians and NPs.[43,44] Physician assistants enable surgeons to delegate performance of preoperative histories and physical examination, ordering and compiling of necessary tests, and part of the postoperative care. Familiarity and experience of the physician-PA surgical team result in efficiency in the theater that can reduce operative and anesthesia times.[7,45]

ROLES IN GRADUATE MEDICAL EDUCATION

The 2004 Accreditation Council for Graduate Medication Education resident work hour restrictions accelerated the use of PAs in graduate medical education in lieu of and with physician residents, along with cutbacks in house staff and the diminishing availability of international medical graduates. Graduate Medical Education programs report positive experiences in major centers when PAs are used to provide inpatient services.[46] Such utilization has allowed in-house coverage of patients, protects the educational integrity of the physician residency programs by allowing time for residents' conferences, maintains the continuity of clinics, and prepares residents for practice on multidisciplinary teams.[47] In a number of instances, PAs are performing advanced procedures such as cardiac catheterization as safely and effectively as physician residents.[48]

The downsizing of residencies and the migration of trainees to outpatient settings created an increased need to maximize residents' educational experiences and to maintain standards of hospital care. The literature about the safety and efficacy of using PAs as resident substitutes in teaching hospital settings is growing.[49,50] The primary reason cited by most academic health centers for employing PAs and NPs was resident duty hour restrictions (27%). Secondary reasons for employing PAs and NPs include increasing patient throughput (88%), increasing patient access (77%), improving patient safety and quality of care (77%), reducing length of stay (73%), and improving continuity of care (73%). However, 69% of academic health centers report they have not successfully documented the financial impact or outcomes associated with individual PA or NP care.[49] The biggest concentration of care resides in the 6000 or so acute care hospitals in this nation with a bed census of approaching 1 million. More than 40% of PAs work in hospital-based settings. New roles for PAs in these settings are as hospitalists and intensivists to offset the increasing demand for hospital-based physician services.[51]

Physician assistants appear to be an alternative for trauma centers unable to maintain a surgical residency program.[52] Although surgical residents who were able to provide skilled and cost-effective labor have traditionally staffed these centers, cutbacks in surgical specialty house officers have required substitutions for traditional trauma care providers.[53] In 1 example, the use of PAs in a large community hospital's level III trauma center resulted in decreases in transfer time to the operating room (43%), transfer time to the intensive care unit (51%), the length of stay for new admissions (13%), and the length of stay for neurotrauma intensive care unit (33%) patients.[53]

In an era of health reform, graduate medical education is undergoing scrutiny. In 2012, the Institute of Medicine formed a committee to examine the structure of Graduate Medical Education and to make recommendations regarding the issue of revising the number of Medicare-funded residency positions. In an era of growing debt and expansion of healthcare, Congress does not appear ready to put more money into training more physicians. However, redistribution of existing dollars should certainly be on the table. It is estimated that the 2010 Graduate Medical Education training system is costing the country $100,000 per resident per year. If the average residency is 4 years in length, then it costs $400,000 to train the typical doctor, and that is only after graduating from medical school (doctors are graduating from medical school with an average of $150,000 of debt). Physician assistants can be trained to provide many of the same tasks (especially in primary care) at an equal level of quality, and finding the right proportion of PAs and doctors could provide a ready-made mechanism for overall cost savings.

SUPPLY OF PHYSICIAN ASSISTANTS

The Affordable Care Act of 2010 is intended to strengthen primary care and will provide opportunities for PAs and NPs. It is estimated that expanded insurance coverage under the Affordable Care Act will bring in an additional 25 million newly insured Americans by 2015, who will be seeking care from an already overburdened primary care system. Some predict that in order to deliver care to these newly insured persons, the workforce will require additional PAs, NPs, and other health professionals.[54] However, expansion of the number of enrolled students is limited by the shortage of qualified faculty and available clinical training sites. Expanding and new medical schools, PA programs, and NP programs all compete for similar clinical training slots. In addition, nursing education programs under Title VIII increase the amount available for federal nursing student loans.

CLINICAL FLEXIBILITY

A unique aspect of the PA role is career flexibility: the opportunity to change specialties over the course of their career. Because PAs are prepared as medical generalists, they are able to adapt to the clinical practice setting of the physician. Physician assistants might work in an emergency department for a decade, switch to orthopedics for a few years, and then settle into a rural health practice in family medicine. In the course of a career, at least half of PAs have changed specialties at least once.[14] This role flexibility is believed to contribute to a high degree of job satisfaction and the retention of PAs in clinical medicine.[14,55,56]

Increased demand for primary care as more people gain coverage will likely stress system capacity in some sectors and is expected to lead to greater reliance on PAs and NPs in primary care. Under health reform, millions of newly insured people are expected to enter the healthcare system. As the Affordable Care Act expands coverage to 32 million individuals—mostly adults who were previously uninsured—through expansion of Medicaid and health insurance exchanges, an estimated shortage of 91,000 physicians has been predicted by 2020.[57] By most accounts, the demand for physician services will continue to exceed supply by large margins and the ratio of physician to population will shrink for the foreseeable future.[58] Although a growing cadre of PAs and NPs offsets this ratio to some extent, the ratio will not keep up with a demand that increases annually.[18] The theory of pent-up demand suggests that more Americans will want more medical services since they will be able to afford them. The confluence of lifestyle of physicians, scaling back of the house officer work week, and more technology and intensity of service mean less annual productivity than has been historically seen. Other drivers of this excess demand are the growing number of Accountable Care Organizations, patient-centered medical homes, and internists selecting to limit their panels of patients in concierge medicine arrangements.

To augment physician shortages, policy makers have suggested boosting the supply of NPs and PAs in the pipeline.[59] The Affordable Care Act aims to bolster the primary care practitioner workforce through scholarships, loans, and loan repayment programs, as well as through the creation and expansion of training opportunities. A sum of $1.5 billion is available for the National Health Service Corps for scholarships and loan repayment for primary care physicians, PAs, and NPs. Physician assistant students can also qualify for the Primary Care Loan program and will benefit from the limited service obligation, decreased penalties for noncompliance, and exclusion of parental financial status when determining need.

INTERNATIONAL VIEWPOINTS

There are PA education programs in Australia, Canada, The Netherlands, the United Kingdom, and South Africa. There are emerging PA programs in Germany, India, Korea, Ghana, and Saudi Arabia.[60,61] This concept is not new, and throughout Africa and South America there are many names for formally trained health personnel who produce medical services in the absence of a doctor.[62] Although having less formal education than American PAs, they tend to function in a wide variety of settings, provide primary care services, and contribute to the health of community.[63]

CONCLUSION

The PA movement in America began in the 1960s and has flourished for half a century.[2] The educational preparation is rigorous and prepares graduates for medical service in most healthcare environments. Acceptance by consumers seems as high as that of physicians.[25,64] Uniform education, accreditation, and a national certification process have created a framework of standards for all state licenses (although limited licensure remains in one-fifth of states). Physician assistants work under the supervision of a physician but in a negotiated role of autonomy. They are permitted to prescribe and obtain reimbursement in all 50 states. Of the 100,000 individuals ever formally trained as PAs, more than 80% are in practice. Because this is a largely youthful profession (the average age of a clinical PA is 42 years and 80% are under the age of 50 years), the number of American PAs is expected to top 100,000 by 2017. As expansion of Medicaid coverage increases the annual number of primary care visits, the demand for additional primary care physicians, PAs, and NPs will grow.[65] Physician assistants will best serve the American system as adaptable health professionals able to move into areas of greatest need, but equally as likely to move as the market dictates.

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Primary care

Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors

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Abstract

Objective To determine whether nurse practitioners can provide care at first point of contact equivalent to doctors in a primary care setting.

Design Systematic review of randomised controlled trials and prospective observational studies.

Data sources Cochrane controlled trials register, specialist register of trials maintained by Cochrane Effective Practice and Organisation of Care Group, Medline, Embase, CINAHL, science citation index, database of abstracts of reviews of effectiveness, national research register, hand searches, and published bibliographies.

Included studies Randomised controlled trials and prospective observational studies comparing nurse practitioners and doctors providing care at first point of contact for patients with undifferentiated health problems in a primary care setting and providing data on one or more of the following outcomes: patient satisfaction, health status, costs, and process of care.

Results 11 trials and 23 observational studies met all the inclusion criteria. Patients were more satisfied with care by a nurse practitioner (standardised mean difference 0.27, 95% confidence interval 0.07 to 0.47). No differences in health status were found. Nurse practitioners had longer consultations (weighted mean difference 3.67 minutes, 2.05 to 5.29) and made more investigations (odds ratio 1.22, 1.02 to 1.46) than did doctors. No differences were found in prescriptions, return consultations, or referrals. Quality of care was in some ways better for nurse practitioner consultations.

Conclusion Increasing availability of nurse practitioners in primary care is likely to lead to high levels of patient satisfaction and high quality care.

Introduction

Recent policy developments in the National Health Service, including NHS walk-in centres, NHS Direct, and nurse led personal medical services schemes, have been based on nurses rather than doctors acting as first point of contact with the health service.[1 2] Several factors have led to this expansion in the role of nurses, including issues of cost, the need to increase provision of care to improve access, the availability of doctors, and the skills and expertise of nurses.

Particular interest has been shown in the concept of nurse practitioners providing front line care in general practice and in emergency departments. In this way they may potentially substitute for doctors, particularly in the management of patients with acute illness. Nurse practitioners have undergone further training, often at graduate level, to work autonomously, making independent diagnoses and treatment decisions.[3] It is important to consider whether the evidence supports the notion that nurse practitioners can substitute for doctors by providing safe, effective, and economical front line management of patients.

Nurse practitioners have been established in North America for several decades, and studies of their role have been reviewed previously.[4 5] But these reviews are dated and of limited applicability to the United Kingdom. After the expansion of nurse practitioners in the NHS during the 1990s, several relevant randomised controlled trials have been published that directly compare nurse practitioners and doctors. We aimed to systematically review research that assesses the process, costs, or outcomes of care provided by nurse practitioners compared with doctors, working in primary care as a first point of contact for any patient with undifferentiated health problems.

Methods

Selection of studies for review

We included randomised controlled trials and observational studies with a prospective experimental design comparing nurse practitioners and doctors working in a similar way as concurrent controls. Because of inconsistency in the use of the term "nurse practitioner," we developed criteria to determine whether papers should be included. We included studies where nurses provided first point of contact, made an initial assessment, and managed patients autonomously, whether or not they were described as nurse practitioners. We used sensitivity analysis to examine the effect on our results of including or excluding "ambiguous" studies where inclusion was debatable.

We also included studies if the nurse provided care at first point of contact for unselected patients in primary care including general practice, out of hours centres, walk-in centres, and emergency departments. The main focus of our review was previously undiagnosed patients with undifferentiated health problems. We limited our review to studies from devel-

P+
Additional tables and references appear on bmj.com

oped countries (Europe, North America, Australasia, Israel, South Africa, and Japan) to increase its relevance for the UK system. Some studies concerned care provided at a single consultation, others concerned care over a period of time. We included both types of study, but we used sensitivity analysis to compare the results from these different types. Finally, we only included studies if they provided data about one or more of the following outcomes: patient satisfaction, health status, health service costs, or process of care measures (consultation length, number of prescriptions, investigations, referrals, admissions, return consultations, patient adherence, or measures of quality of care).

Identification of studies

We identified studies from searches of electronic databases and hand searches of recent editions of relevant journals, bibliographies, and reference lists of other reviews and papers.[6,7] We scrutinised the following databases with no language restrictions: Medline (1966-2001), Embase (1980-2001), CINAHL (1982-2001), science citation index, database of abstracts of reviews of effectiveness, national research register, Cochrane controlled trials register and the specialist register of trials maintained by the Cochrane Effective Practice and Organisation of Care Group. We used the Cochrane optimal search strategy for randomised controlled trials, with advice from university librarians. All educational centres offering training for nurse practitioners in the United Kingdom and nurse practitioner organisations in the United States, South Africa, and Australia were approached for any unpublished studies. We contacted authors of included studies for additional research and for missing data. Data were extracted by one reviewer (SH) and one of two other reviewers (EA or CS) working independently. Disagreements were resolved by discussion with the third reviewer.

Assessment of study quality

We assessed methodological quality on the basis of the criteria of the review group of the Cochrane Effective Practice and Organisation of Care Group. We did not calculate a composite score for study quality in view of the current debate about the validity of such scores.[8,9]

Data analysis

We conducted our analyses with Meta-View Rev-Man software version 4.1. We calculated odds ratios for dichotomous outcomes and standardised mean differences for continuous outcomes. We used random effects methods in the analysis because of the degree of heterogeneity of the studies. If standard deviations were not available we used the average standard deviation reported by other studies for that outcome. We used meta-analytic techniques to combine data from the randomised controlled trials where at least two studies provided data on a particular outcome. For the observational studies we compared the findings qualitatively. These studies were carried out in a variety of settings; many were small and had other methodological shortcomings, making quantitative synthesis inappropriate. We analysed studies set in emergency departments or minor injury units together and separately from those based in general practice owing to the degree of heterogeneity between these different settings.

We investigated heterogeneity by examining the results from studies conducted in differing settings, studies of individual consultations or care over time, and studies of nurse practitioners with different levels of qualification. We carried out sensitivity analysis to explore the impact of including or excluding studies where there was ambiguity regarding inclusion.

Results

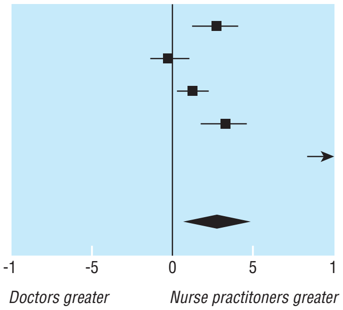
Searches identified 119 potentially relevant papers, of which 35 reporting 34 studies fulfilled the inclusion and exclusion criteria. These papers comprised 11 randomised controlled trials (table A on bmj.com) and 23 observational studies (table B on bmj.com). Tables C and D on bmj.com show the quality assessment of the included studies.

The results for the observational studies may be obtained from the authors. The findings of the observational studies replicated those of the randomised controlled trials for all outcomes except costs and investigations, despite shortcomings in their design.

Patient satisfaction

Nine randomised trials reported patient satisfaction (one of these was unpublished).[10–18] One paper could not be included in a meta-analysis owing to a lack of detail in the reporting of results.[13] Five trials reported continuous data on patient satisfaction (figure). These

Study	No of patients in nurse practitioner group	Mean (SD)	No of patients in doctor group	Mean (SD)	Weight (%)	Standardised mean difference (95% CI)
Kinnersley et al 2000[12]	334	68.6 (8.8)	403	65.9 (10.8)	22.7	0.27 (0.13 to 0.42)
Mundinger et al 2000[14]	644	4.45 (0.83)	389	4.46 (0.83)	23.4	-0.01 (-0.14 to 0.11)
Shum et al 2000[11]	635	78.6 (16.0)	657	76.4 (17.8)	24.0	0.13 (0.02 to 0.24)
Venning et al 2000[10]	388	4.4 (0.46)	390	4.24 (0.52)	22.8	0.33 (0.18 to 0.47)
Winter 1981[18]	25	94.78 (9.0)	25	74.03 (17.0)	7.1	1.50 (0.87 to 2.14)
Total (95% CI)	2026		1864		100.0	0.27 (0.07 to 0.47)



Test for heterogeneity χ^2=32.01, df=4, P<0.00001
Test for overall effect z=2.67, P=0.008

Studies reporting continuous data on patient satisfaction

Process measures

	No of studies	No in intervention group	No in control group	Odds ratio or weighted mean difference (95% CI)	Heterogeneity		Overall effect	
					χ^2	P value	Z value	P value
Consultation length	5	2277; mean 14.89 min	2286; mean 11.14 min	3.67 (2.05 to 5.29)*	81.67 df=4	<0.00001	4.44	0.00001
Prescriptions	4	1685/2503	1944/2861	1.02 (0.90 to 1.15)	3.26 df=3	0.35	0.32	0.8
Investigations	5	932/2573	1015/2896	1.22 (1.02 to 1.46)	6.31 df=4	0.18	2.18	0.03
Return consultations	6	835/2919	913/3247	1.05 (0.87 to 1.28)	12.06 df=5	0.034	0.54	0.6
Referrals	2	44/1293	59/1367	0.71 (0.30 to 1.70)	4.07 df=1	0.044	0.76	0.4

*Weighted mean difference. Only one study reported admissions and none reported patient adherence.

were all in general practice settings, three in the United Kingdom and two in the United States.[10–12 14 18]

The figure presents the summary statistics for studies using continuous data. These suggest that patients were more satisfied with consultations with nurse practitioners than those with doctors. The results showed considerable heterogeneity, which was explored by comparing studies of individual consultations with care over time and by comparing studies based on nurse practitioners with different levels of training. Although there remained considerable heterogeneity between the studies, all analyses suggested that patients were more satisfied with consultations with nurse practitioners. Three randomised controlled trials reported results with dichotomous data.[15–17] Two of them were set in emergency units.[16 17] No significant difference was found in patient satisfaction for patients attending either provider with these studies (all studies (n=3), odds ratio 1.56, 0.56 to 4.34; overall effect z=0.85, P=0.4; and all studies of emergency units (n=2), 3.27, 0.41 to 25.98; z=1.12, P=0.3).

Health status

Any measure used by the authors to determine either health status or quality of life and its validity for this purpose were recorded. Seven randomised controlled trials reported on these outcomes.[10–12 14 16 19 20] These results were not analysed with meta-analysis because of the heterogeneity between measures and episode of care length, but a comparison of the results showed no significant differences in patient health outcomes (table E on bmj.com).

Process measures

The results for process outcomes for which there were sufficient data for meta-analysis showed that nurse practitioners undertook significantly more investigations and had longer consultations than doctors (table).

Quality of care

Quality of care measures may include communication skills, accurate diagnosis, investigations appropriately carried out, and appropriate advice on self management or medication.[21] Six randomised controlled trials reported quality of care outcomes (see table F on bmj.com).[11–13 15–17] Heterogeneity of measures used meant that analysis was restricted to qualitative review only. Nurse practitioners seemed to identify physical abnormalities more often.[13] In one study nurse practitioners gave more information to patients.[11] Interestingly this study also reported no apparent difference in patients' intention to self treat next time. Nurse practitioners made more complete records and scored better on communication than did doctors.[16 17] They also offered more advice on self care and management.[11 12] Two studies set in emergency departments tested the appropriateness of investigations and ability to interpret *x* ray films.[16 17] The results suggested that nurse practitioners were as accurate as doctors at ordering and interpreting *x* ray films, with small in-study variations depending on the relative experience of both providers.

Discussion

Nurse practitioners can provide care that leads to increased patient satisfaction and similar health outcomes when compared with care from a doctor. Nurse practitioners seemed to provide a quality of care that is at least as good, and in some ways better, than doctors.

Although all of the randomised trials found no significant differences between doctors and nurse practitioners in health outcomes, the research has important limitations. The studies used many different outcome measures, reflecting the difficulty in measuring changes in health outcomes after single consultations predominantly about minor illnesses. None of the studies in our review was adequately powered to detect rare but serious adverse outcomes. Since one important function of primary care is to detect potentially serious illness at an early stage, a large study with adequate length of follow up is now justified.

Limitations of the review

Ambiguity exists over the use of the term "nurse practitioner," with much debate about this role.[22 23] The overlap between nursing roles in the United Kingdom and the introduction of another advanced practice nursing title, nurse consultant, adds to the difficulty in understanding the role definitions in nursing.[1 2 24] Although specific training for nurse practitioners is available, the content of this varies.[25] Because of this ambiguity, the definition used in our review was purposefully inclusive.

Our review was limited by the quality of the available studies. There were few recent randomised trials, and the larger number of observational studies were generally of poor quality. Because of these problems we based our conclusions primarily on the randomised trials, the more recent of which were of generally high quality, although only one study used patients new to both providers.[14]

Noticeable heterogeneity was observed between the studies on almost all outcomes. Although differences between studies in terms of setting, level of nurse training, and the period of time studied were anticipated and explored in our review, much heterogeneity remained after allowing for these factors. This probably reflects the diverse ways in which nurse practitioners currently work. Despite these differences, the direction of the effect for the main findings was consistent between different studies and also between the randomised controlled trials and the observational studies.

It was not possible to conduct a robust economic analysis of the costs of care from nurse practitioners compared with doctors. Only five studies provided data about costs.[10 12 15 16 26] These used different approaches to the valuing of resources and were inadequately powered for economic analysis. The lack of good evidence about the economic impact of substituting nurse practitioners for doctors needs to be addressed in future research, otherwise changes may be introduced that are thought to be efficient when they may not be so.[27]

Policy implications

Our review lends support to an increased involvement of nurse practitioners in primary care. However, most recent research has been based on nurse practitioners providing care for patients requesting same day appointments predominantly for acute minor illness and working in a team supported by doctors. It cannot be assumed that similar results would be obtained by nurse practitioners working in different settings or with different groups of patients, nor that they could substitute entirely for general practitioners.

Unresolved issues

Future research should address several unresolved issues. Firstly, if patients are more satisfied with care provided by nurse practitioners then the factors that lead to this effect should be elucidated. Satisfaction with care could be related to differences in the training and consultation skills of nurses, patients' expectations, or the extra length of time that nurse practitioners spend in consultations.

Secondly, nurse practitioners and doctors did not necessarily work under similar circumstances or with similar pressures on their time, even in the controlled trials. It is necessary to determine whether the differences between nurse practitioners and doctors in patient satisfaction and quality of care remain if they work under identical circumstances, particularly with the same rates of booked consultations.

Thirdly, research on nurse practitioners needs to be broadened to encompass a wider range of patient groups, including those with complex psychosocial problems or chronic diseases. Research is also necessary that extends beyond the scope of comparing individual nurses with doctors and evaluates different models of organisation, such as several nurse practitioners providing care at first point of contact supported by a smaller number of general practitioners providing second line advice.

Finally, the role of a nurse practitioner is not clearly defined in the United Kingdom and includes nurses from a wide range of educational backgrounds. In addition, nurses are increasingly involved in assessing and advising patients with minor illness in settings such as NHS Direct and NHS walk-in centres without a recognised qualification for this role. It is important to study the training, skills, and experience that nurses need in order to offer the benefits to patients shown by our review.

What is already known on this topic

Nurse practitioners have existed in North America for many years

An increasing number of such nurses are being employed in the United Kingdom in general practice, emergency departments, and other primary care settings

Reviews suggest that nurse practitioners are equivalent to doctors on most variables studied, but the relevance of this in the context of the NHS is unclear

What this study adds

Patients are more satisfied with care from a nurse practitioner than from a doctor, with no difference in health outcomes

Nurse practitioners provide longer consultations and carry out more investigations than doctors

Most recent research has related to patients requesting same day appointments for minor illness, which is only a limited part of a doctor's role

Conclusion

Patients are at least as satisfied with care at the point of first contact with nurse practitioners as they are with that from doctors. Although assessments of the quality of care and short term health outcomes seem to be equivalent to that of doctors, further research is needed to confirm that nurse practitioner care is safe in terms of detecting rare but important health problems.

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A memorable patient

Bridging medicine

In the early 1990s, as a registrar at J J Hospitals in Mumbai (Bombay), I had the experience of a lifetime. J J Hospitals was situated in a Muslim area of the city, and most of its catchment population were Muslim community whereas most of the doctors were Hindu. With trust between patients and doctors paramount, the different religious beliefs had never vitiated the congenial atmosphere at the hospital.

Then, on 6 December 1992, some Hindu radicals demolished the Babari mosque at Ayodhya, igniting widespread riots. Fundamentalists in both communities set on each other—destroying shops, burning vehicles, and attacking individuals of the opposite faith. Hundreds were killed and thousands injured. The normally busy, vibrant city of Bombay, an epitome of religious harmony, was transformed into a virtual war zone, with seething hatred and distrust. Faced with the stupendous task of managing the countless casualties pouring in, every resident was working relentlessly.

In the casualty department I saw a young Muslim teenager brought by his elder brother. His three fingers were partially cut, but when I rushed to offer first aid I was suddenly rebuffed by the patient's brother, who held me back vehemently with an angry and suspicious stare. Clearly he wasn't prepared to risk his brother being treated by a Hindu doctor. A lot of persuasion was in vain. Ultimately, I had to request one of my Muslim colleagues to take the patient to the operation theatre for further management and tried to forget this as an unpleasant event.

Six hours later, the elder brother himself was wheeled into casualty bleeding profusely from a stab in the groin. Without immediate surgical intervention, he would bleed to death. He looked very angry as I approached and obviously still didn't trust me but realised that his life was at stake. Taking his silence as tacit approval, I rushed him to the operating theatre, controlled the bleeding, and cleaned and sutured the wound. Luckily, no major neurovascular structures were injured. Assuming him to be another religious fanatic, I ignored him once he was settled postoperatively. I had the next patient to look after, and the next, and the next.

Two days later, the atmosphere was still tense. I was working in my own ward when I saw my reluctant patient walking towards me holding a plastic bag with something suspicious within. I also noticed his brother with the injured fingers standing at the end of the ward guarding the door. The ward was a cul-de-sac with no place to run or hide. Panicked, I looked around for a security guard, but none was there. As the man came closer, I knew my life was in danger. Not knowing what was ahead of me, I shut my eyes tightly preparing for any eventuality. He lifted my hand and placed the plastic bag on it, then hugged me tightly and whispered in my ear, "Shukria Bhaijan" ("Thank you, big brother").

I can't remember how long we stood like this, but I could feel tears running down his cheeks. The plastic bag contained a present—chicken biryani his mother had prepared specially for us, the Hindu doctors. I was completely overwhelmed by his gesture, and tears ran down my cheeks. The whole ward was at a standstill, in a state of a shock, watching a Hindu and a Muslim hugging each other in the midst of a city burning in Hindu-Muslim riots.

Until then, I had considered medicine as merely a science used to heal human bodies. But that day I realised medicine can also touch hearts, unite minds, bridge religious divides, and provide memories to cherish life long.

Kishor Choudhari *consultant neurosurgeon, Royal Victoria Hospital, Belfast*

We welcome articles up to 600 words on topics such as *A memorable patient, A paper that changed my practice, My most unfortunate mistake,* or any other piece conveying instruction, pathos, or humour. If possible the article should be supplied on a disk. Permission is needed from the patient or a relative if an identifiable patient is referred to. We also welcome contributions for "Endpieces," consisting of quotations of up to 80 words (but most are considerably shorter) from any source, ancient or modern, which have appealed to the reader.

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BY TRICIA MARRIOTT, PA-C, MPAS, DFAAA

Measuring Productivity

Calculating Your Contribution

MY PRACTICE TELLS ME that I consistently have negative numbers." Time and time again, PAs run into this problem. Measuring PA productivity is a constant struggle, especially when payers don't enroll PAs—see January's *PA Professional* for more on that—and claims go out and are paid under the physician's provider number. Incident to and shared visits, billed to Medicare under the physician's National Provider Identifier, add to the difficulties. Since claims data seem to be the only method for practices to track productivity, PAs can appear to be a cost burden rather than an asset.

PAs working in surgical practices are at further disadvantage, as they perform office and hospital visits in the global period. Global work is work that must be done and would otherwise have to be handled by a physician if the practice did not employ PAs. Unfortunately, global visits have no monetary value. By performing the global work, the PA enables a physician to schedule revenue-generating encounters, such as new patients, consultations and procedures, in time slots that would have been otherwise closed out by the non-revenue-generating global visits. Conceptually, it is obvious that the PA contributes to the financial success of the practice. From a pure accounting, claims-based/accounts-receivable standpoint; however, it appears that the PA constantly has "negative" numbers.

Measuring Productivity Explained

Tracking Relative Value Units: An RVU is a nonmonetary standard unit of measure assigned to most CPT® codes, which indicates the value of services performed by physicians, non-physician providers and other health care professionals. The total RVU for a given procedure or encounter consists of three components:

1. Work RVUs
2. Practice expense RVUs
3. Malpractice RVUs.

These values are found in the Physician Fee Schedule on the CMS Web site, *www.cms.hhs.gov.*

To "quantify" the PA's contribution to the practice, the work RVUs can be tracked for all encounters performed by the PA by using the CPT© code billed. Many billing software programs have the RVUs already loaded.

Tracking 99024: Global visits are designated by CPT code 99024 and typically are not included in the billing system because they do not generate a bill. By putting 99024 into the billing system, the office can track the volume of those visits for each provider.

If, for example, at the end of the fiscal year, the PA has handled 500 global visits and the physician has handled 20, you might be able to extrapolate that the PA enabled the physician to cover 480 revenue-generating encounters. Another way to look at it is to take those 480 encounters, split the revenue for the encounters in half and attribute 50 percent to the PA, subtracting 50 percent from the physician's revenue line. Remember, if the PA had not seen those patients, the physician would not have had open slots for the new patients/new problems/consultations. The PA's work contributed to the physician's revenue numbers.

Global Work Formula: Medicare has assigned percentages to the pre-op, intra-op and post-op work associated with global packages. This formula can be applied to surgical fees to assess the PA's contribution to the practice.

Medicare fee breakdown:

11 percent for pre-op work
76 percent for intra-op work
13 percent for post-op care

Thus, 24 percent of the global payment is for non-OR services.

Confused? Let's look at the example of a total knee (27447), payable at $1,769, with the final figure affected by the geographic index).

Here's a breakdown of the payment when the above formula is applied, with the final figures affected by geographic index:

Pre: $194.59
Intra: $1,344.44
Post: $229.97

If a PA does the pre-op exam and post-op global rounding/office visits, $424.56 could be "credited" or "allocated" to the PA. A separate payment of $240.58 could be officially credited to the PA for the first assist (13.6 percent of a surgeon's fee).

A true measure of PA "value" might be a first-assist payment of $240.58, plus a share of the global payment of $424.56. That's a total of $665.14.

If you are using claims data only, it is still difficult to get at the office E/M performed by the PA when it is billed under the physician's name. Tracking encounters, CPT codes, and RVUs by provider can help mitigate that hole in the data.

Applying these concepts can help physician-PA teams assess the PA's contribution to the practice.

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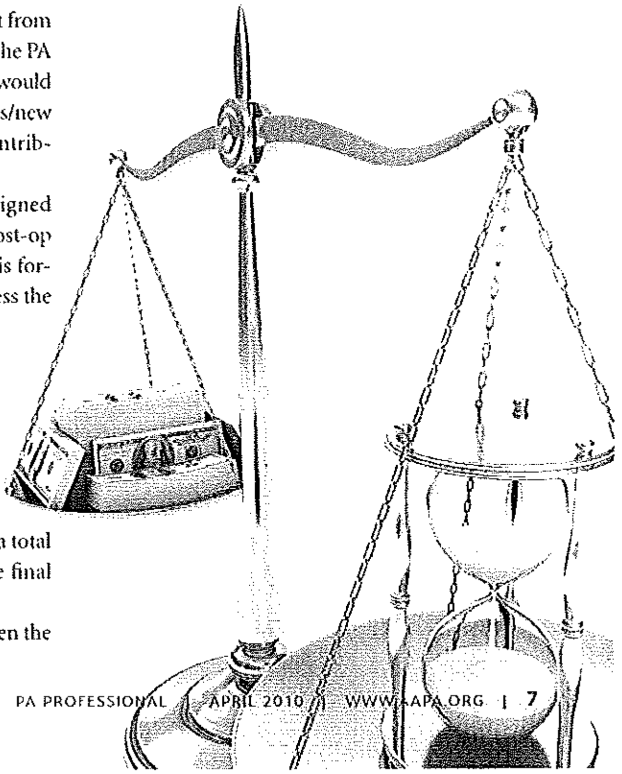

BY TRICIA MARRIOTT, PA-C, MPAS, DFAAPA

PA Productivity

Pitfalls and Pearls

ARE YOU CONSIDERING a production-based compensation package? Do you have full access to your production data? Unless you can thoroughly ascertain that all of your work is attributed to you, is appropriately valued and is incorporated into the data used to calculate your productivity, you may sell yourself short. Proceed with caution.

Physician work is often evaluated by tracking Work Relative Value Units, or wRVUs. Each CPT code is assigned a wRVU. A fair and equitable method of tracking work, wRVU-based formulas are calculated by information drawn from claims data. The wRVU is a standard that applies to all providers, no matter who performs the service or how it is reimbursed.

Claims for the physician's work are always submitted under the physician's NPI. Because the billing rules for PAs are different from those for physicians, PAs must NOT rely solely on claims data. Extra steps must be taken to ensure that PAs are recognized for their contributions to the overall production of the physician-PA team. This requires a basic understanding of PA billing and reimbursement rules:

- Many commercial payers, self-insured companies, workers' compensation plans and state Medicaid programs (25 states) do not enroll PAs. As a result, claims for services provided by the PA must be submitted under the physician's NPI number, rendering PAs "invisible" on the claim. (See URL in box below.)
- Charges submitted under the physician's NPI (although the encounter was provided by the PA) are remitted to the physician. This creates the appearance that the PA has a fairly empty accounts-receivable "bucket," while the physician's "bucket" is quite full. An accountant will understandably protest when the accounts receivable attributed to the PA barely cover the cost of the PA's salary and benefits.
- Medicare provisions such as "incident-to" and "shared visits" result in claims being submitted under the physician's NPI, making the PA invisible. Pre-op H+Ps (performed by the surgical team) and post-op visits are included in the global surgical package. PAs provide the preponderance of these visits in surgical practices, but no claim is submitted. They carry no dollar or wRVU value. The PA's contribution is invisible. Strategies and concepts to consider:
- The "1500 form," used to submit a claim for professional services, has a "rendering provider" field, Box 24 J. Although this information is not used or required by many payers, the field already exists in the practice management software and can track services provided by the PA.
- For surgical practices, the post-op global visit code 99024, must be tracked. If the PA did not perform these non-revenue-generating encounters, the physician would have to provide them. By tallying the number of 99024 encounters the PA performed, one can extrapolate the number of revenue-generating encounters that were opened up for the physician(s), enhancing productivity.
- Assign wRVUs to the pre-op H+P and post-op encounters. Attribute those wRVUs to the PA, even though the visit did not generate a claim. (For example, a typical post-op visit can be compared with the work performed for an established patient visit, 99213, wRVU= 0.97.)
- If a PA works with one physician at all times, weigh the idea of evaluating the physician-PA team's production together, rather than as individuals.

For information on billing/enrollment policy for payers in your state, see the AAPA payer profiles:

Medicaid
http://bit.ly/jtYLA5

Private/commercial payers
http://bit.ly/9colRO

Workers' Compensation
http://bit.ly/jtdHSx

PHOTOS / STEPHEN TRAVARCA

In addition to the challenges PAs face regarding their true production value, there are many factors that are not within the PA's control. What if a new physician joins the practice, diverting the new patient and commercial payer visits, leaving the lower valued visits to the PA? What if your surgeon does not or cannot operate for a few months, eliminating your first-assist reimbursements? Are you relying on that production compensation to pay your mortgage? Stuff happens. Consider negotiating a fair base salary for peace of mind. View any production-based compensation as a bonus and an incentive to work harder, see that extra patient, or stay longer at the end of the day. Proceed with caution. **PA**

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BY REBECCA S. DEAN, MA, FACMPE,
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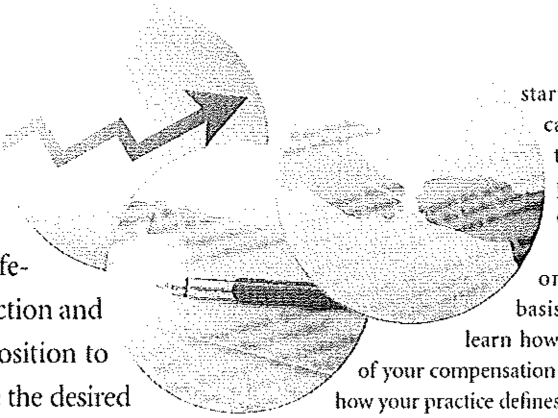
Compensation and Contracting

The Practice Management Perspective



HETHER YOU ARE A NEW GRADUATE seeking your first job or a seasoned provider, it is sound practice to prepare for your employment discussions by recognizing and defining your professional goals and life-balance needs. If you know your criteria for job satisfaction and fulfillment in the workplace, you will be in a better position to negotiate the contract with your employer and achieve the desired result. Prior to negotiating a new employment arrangement or renegotiating an existing agreement, you should define the value of your contribution to the practice through an honest assessment of your scope of clinical responsibility.

The best contracts represent both the PA's and the employer's interests in a way that supports team practice and a long-term working relationship. The growing demand for PAs to expand patient access and bring work-life balance to physicians will give you greater leverage in your negotiations and could allow you to define your employment relationship in new and innovative ways.

From a business perspective, PA employment must bring effective and demonstrable value to the practice. Regardless of the compensation model, the PA must contribute to the practice's operating margin. It is vital to negotiations to conduct research in advance of your interview and prepare an outline of your skills, production and philosophy. You need to know the value of your services and be able to demonstrate how you can build or expand the practice. Working with the practice manager to gather your production data will provide credibility to your negotiation strategies for compensation.

A compensation plan that is fair to both the PA and the practice acknowledges the goals and expectations of both parties. You need to understand how different compensation models function in order to identify the best methodology to meet your goals and those of the practice. PA compensation plans almost always base compensation on one of the following models:

- Salary
- Guaranteed salary base with "incentive" bonus
- Productivity-based salary derived from relative value units (RVUs)
- Productivity-based salary derived from an RVU-defined threshold plus a bonus on RVUs exceeding the threshold
- Full risk incentive plan where compensation is a percentage of actual collected receipts based on individual production
- Hourly wage (less common)

Compensation plans need to be simple to understand and calculate. They also should be structured to show how production and collections are measured. Dashboard models that allow PAs to see their contribution and their personal revenue benchmarks are preferred to plans with ambiguous standards. Transparency and integrity in the compensation system are essential to cement long-term mutual trust.

Regardless of the compensation methodology, it is essential that compensation reflect market conditions. The following tables show current compensation levels for key physician assistant subspecialties from the Medical Group Management Association-American College of Medical Practice Executives (MGMA-ACMPE) "Physician Compensation and Production Survey: 2011 Report Based on 2010 Data." The first table examines the range of compensation by subspecialty, and the second provides insight into starting salary, early career compensation and compensation for established PAs.

If you are paid on a production basis, it is critical to learn how the components of your compensation method function, how your practice defines provider production and the exact formula that is used to convert productivity to compensation. There are differences in how a practice's information system reports provider production metrics such as gross charges, collections, "Work RVUs," and "Total RVUs." One must be sure that the work of the PA is attributed to the PA, regardless of billing/claims submission methodology. Since "knowledge is power," knowing how your practice's compensation system functions is a career-smart asset.

In general, collections or other measures of production have a direct relationship to compensation. The table below shows how increased productivity affects compensation for physician assistants not paid by straight salary. In a productivity or salary-plus-bonus compensation system, the provider is incentivized to increase production, thereby setting up a win-win for both you and your employer.

A competitive and attractive compensation plan acknowledges the professional value of your expertise and your contribution to the practice. A fair compensation plan has several key features:

- It is part of a written and mutually agreed-to employment contract
- It has a market-competitive base salary guarantee
- It describes the expectations for performance and the expected compensation level
- It provides a clear understanding of how production is measured and the formula used to compute compensation
- It recognizes work performed by the PA, regardless of whether the work generates direct income to the practice.

Compensation

	25th %tile	Median	75th %tile	90th %tile
Physician Assistant: Nonsurgical/Nonprimary Care	$83,917	$94,961	$111,024	$129,266
Physician Assistant: Orthopaedic	$89,204	$101,457	$120,809	$139,491
Physician Assistant: Primary Care	$80,274	$92,767	$108,723	$126,157
Physician Assistant: Surgical	$91,530	$106,108	$126,797	$145,728

Median Compensation by Years of Experience

	1 to 2 Years	3 to 7 Years	8 to 17 Years	18 Years or More
Physician Assistant: Nonsurgical/Nonprimary Care	$79,050	$89,322	$103,904	$92,303
Physician Assistant: Orthopaedic	$94,740	$95,526	$102,360	$108,814
Physician Assistant: Primary Care	$78,844	$88,635	$101,292	$95,638
Physician Assistant: Surgical	$97,207	$108,723	$115,055	$138,630

Median Compensation at Different Levels of Production (Total Collections) for Providers Not on Straight Salary

	Total Collections			
	Under $100,000	$100,000 to $175,000	$175,001 to $300,000	Greater than $300,000
Physician Assistant: Nonsurgical/Nonprimary Care	$80,899	$90,758	$93,500	$129,881
Physician Assistant: Orthopaedic	$94,333	$106,959	$123,016	$140,527
Physician Assistant: Primary Care	*	*	$86,452	$106,845
Physician Assistant: Surgical	$112,595	$92,793	*	*

SOURCE: MGMA-ACMPE

* INSUFFICIENT RESPONSES

- It provides for a shared understanding of the liabilities of employment

Professional contracts need expert development, based on solid communications and a clear understanding of commonly negotiated terms. The contract should be comprehensive enough to clarify all expectations of both the practice and the physician assistant. The contract should include the following components:

- Define the scope of practice and the job
- Describe the standard of care, philosophy of care delivery and standard of conduct
- Recognition of the PA's contribution to the practice
- Licensure and credentialing requirements
- Compliance with the practice's policies and procedures
- Expected work hours, practice locations
- Personal and professional fringe benefits
- Days of continued medical education (CME) and the amount of CME funding
- Vacation
- Sick leave
- Professional liability insurance
- Term life and disability insurance
- Health insurance coverage for PA and PA's family
- Criteria and process for incentive bonus
- Description of the compensation/salary plan
- Definitions of benchmarks and measurements
- Evaluation process, both performance and compensation review
- Exit plan with termination clauses

The time to understand, discuss and negotiate contracting points is before you sign a contract, not afterward. Your contentment in a practice will be directly linked to fair compensation and how your professional contribution to the practice is valued. You need to be patient but persistent in your negotiations as you become a knowledge broker on your own behalf. In the end, a well-negotiated contract contributes to your own success, as well as that of the practice team. PA

AAPA Resources:

Contracting advice and resources for contracting can be found at *www.aapa.org/your_pa_career/interviewing_and_contracts.aspx*

Calculating PA Productivity *www.aapa.org/uploadedFiles/content/Your_PA_Practice/Reimbursement/Resource_Items/Calculating%20PA%20Productivity.pdf*

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Scribe: The origin of the word *scribe* is from the Latin scribere, which means "to write." Historically, a scribe was a person who recorded events. In the days before the printing press, scribes were employed to make written copies of documents. The words *describe*, meaning "to give an account," and *transcribe*, meaning to "write down what was said word for word," are commonly used in today's vocabulary. Perhaps the most visible scribe today is the stenographer working in courtrooms across the United States. The court stenographer does not speak, does not testify, does not present evidence and may not interject with arguments or objections. The stenographer's sole function is to record the words of the judge, the arguments of the lawyers and the testimony of the witnesses as they are examined.

Medical Scribes

PAs, Take Note

BY TRICIA MARRIOTT, PA-C, MPAS, DFAAPA

MEDICAL SCRIBING HAS EMERGED IN RESPONSE TO THE INTRODUCTION OF THE ELECTRONIC MEDICAL RECORD (EMR) INTO CLINICAL PRACTICE. Medical practices, hospitals and emergency departments hire scribes to mitigate the inevitable slowdown created by providers who are not adept at typing or navigating the computer screens. Providers who use scribes in their practices report improved productivity, clinical documentation, completion of medical records and provider satisfaction.[1] Patient satisfaction has also been reported to have improved, and thought to be due to the provider's increased attention to the patient, rather than the computer screen and keyboard. Physicians, PAs and NPs are providers authorized to use scribes to document their patient encounters.[2]

Since PAs are providers, they should not act as scribes for another provider. The use of a PA as a scribe is not only poor use of a highly educated and learned medical professional, but also can subject practices to allegations of fraud and abuse. PAs practice medicine, providing services that a physician would otherwise provide.[3,4] PAs perform the history, physical examination, and medical decision making components of a patient encounter, and may submit a claim to a payer for having done so. A medical scribe, on the other hand, may not act independently, and serves solely to record the actions and words spoken as they occur. According to one Medicare contractor, "Scribes may not interject their own observations or impressions into the medical record."[5] It is important to distinguish between the appropriate service of a scribe, which is solely to document an encounter, and the medical evaluation and management services provided by a PA, which is the performance of the encounter itself.

Several Medicare contractors recently have published guidelines for the use of scribes. [6,7,8]They note that PAs and NPs are providing documentation in the medical record of patient encounters in which both the PA and physician appear to have participated, and add that these encounters should not be billed under the physician's NPI because they do not meet the documentation rules for the service to be billed by the physician.

If the PA has performed any of the three key components of the encounter—the history of present illness, the physical exam and/or the medical decision-making—the "shared visit" rules must be met in order to bill under the physician's number to the Medicare program. The moment the PA steps into the provider role and "shares" the work of the encounter with the physician, the shared visit rules come into play, including the specific documentation requirements for the physician to meet. Unless those requirements have been met, the encounter, under Medicare rules, must be billed under the PA's NPI, with reimbursement at 85 percent of the physician fee schedule. This rule is particularly important for initial Medicare patient encounters in the office setting, because the "incident-to" billing guidelines also will not be met.[8]

The provider (MD/PA/NP) and the scribe have specific documentation requirements that must be met. The scribe documents the activities of the provider *as they occur*. The scribe's documentation must include the name and signature of the scribe, the name of the patient and the name of the provider who performed the encounter. The provider

PHOTO / TODD SPOTH

> "The use of a PA as a scribe is not only poor use of a highly educated and learned medical professional, but also can subject practices to allegations of fraud and abuse."

then is required to document an attestation of his or her presence during the encounter, verify that he or she hasreviewed the scribe's documentation and verify the accuracy of the scribe's documentation. The provider may document any additional information as required, and then must sign and date the encounter documentation.[10]

The implementation of the EMR has changed how PAs and other providers document patient encounters. As practices transition from handwritten and dictated medical records to the EMR, hiring scribes has proven to be an effective strategy for improved efficiency and productivity. It is essential, however, for the practice to adhere to the documentation requirements and billing rules for every payer with whom they contract. Each provider must understand the appropriate role and functions of everyone involved, and the compliance officer for the practice must be engaged in the process to ensure proper implementation.

Endnotes

1 Maxine Lewis, "Scribes can help document care, boost efficiency at medical practices," Medical Economics, Oct. 10, 2013. *http://bit.ly/1cNxNz5*

2 The Joint Commission, "FAQ: Use of Unlicensed Persons Acting as Scribes." *http://bit.ly/M62rNQ*

3 Centers for Medicare & Medicaid Services, "Medicare Benefit Policy Manual, Chapter 15: Covered Medical and Other Health Services." *http://go.cms.gov/1acNymP* See §190-Physician Assistant (PA) Services: "Examples of the types of services that PAs may provide include services that traditionally have been reserved to physicians, such as physical examinations..."

4 American Academy of Physician Assistants, "2013-2014 Policy Manual" (2013). *http://bit.ly/1dO7yNs* HP-3100.2.1: "PAs practice medicine with supervision by licensed physicians. As members of the health care team, PAs provide a broad range of medical services that would otherwise be provided by physicians."

5 National Government Services, "Documentation Requirements When Scribes Are Utilized," Dec. 17, 2010. *http://bit.ly/1htbxCF*

6 WPS Medicare, "Guidelines for the Use of Scribes in Medical Record Documentation." *http://bit.ly/19O5kyl*

7 CGS, "Non-Physicians Acting as Scribes for Physicians," April 9, 2012. *http://bit.ly/1gC24WI*

8 Cahaba GBA, "Guidelines for the Use of 'Scribes' in Medical Record Documentation—Reminder," April 11, 2013. *http://bit.ly/1eiSZ2D*

9 Novitas Solutions, "Evaluation & Management (E/M) Articles: Incident to Service Guidelines," Nov. 22, 2011. *http://bit.ly/KvzkTZ*

10 Note: This attestation is not to be confused with the "teaching attending" attestation statements applied to resident documentation in academic medical centers, as residency billing rules do not in any way apply to services provided by PAs. See: U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, "Fact Sheet: Guidelines for Teaching Physicians, Interns, and Residents" (2011). *http://go.cms.gov/1aEorGa*

Other Resources:

Medicare incident-to billing, *http://bit.ly/19YZl2p.*

Medicare shared visit billing, *http://bit.ly/1cWgpfP.*

Deborah Ferguson, "Scribes Take Notes for Better Patient Care," NBC 5 Dallas-Fort Worth, Dec. 31, 2010. *http://bit.ly/1lzmG4Q*

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ORIGINAL CONTRIBUTION

Primary Care Outcomes in Patients Treated by Nurse Practitioners or Physicians

A Randomized Trial

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Context Studies have suggested that the quality of primary care delivered by nurse practitioners is equal to that of physicians. However, these studies did not measure nurse practitioner practices that had the same degree of independence as the comparison physician practices, nor did previous studies provide direct comparison of outcomes for patients with nurse practitioner or physician providers.

Objective To compare outcomes for patients randomly assigned to nurse practitioners or physicians for primary care follow-up and ongoing care after an emergency department or urgent care visit.

Design Randomized trial conducted between August 1995 and October 1997, with patient interviews at 6 months after initial appointment and health services utilization data recorded at 6 months and 1 year after initial appointment.

Setting Four community-based primary care clinics (17 physicians) and 1 primary care clinic (7 nurse practitioners) at an urban academic medical center.

Patients Of 3397 adults originally screened, 1316 patients (mean age, 45.9 years; 76.8% female; 90.3% Hispanic) who had no regular source of care and kept their initial primary care appointment were enrolled and randomized with either a nurse practitioner (n = 806) or physician (n = 510).

Main Outcome Measures Patient satisfaction after initial appointment (based on 15-item questionnaire); health status (Medical Outcomes Study Short-Form 36), satisfaction, and physiologic test results 6 months later; and service utilization (obtained from computer records) for 1 year after initial appointment, compared by type of provider.

Results No significant differences were found in patients' health status (nurse practitioners vs physicians) at 6 months ($P = .92$). Physiologic test results for patients with diabetes ($P = .82$) or asthma ($P = .77$) were not different. For patients with hypertension, the diastolic value was statistically significantly lower for nurse practitioner patients (82 vs 85 mm Hg; $P = .04$). No significant differences were found in health services utilization after either 6 months or 1 year. There were no differences in satisfaction ratings following the initial appointment ($P = .88$ for overall satisfaction). Satisfaction ratings at 6 months differed for 1 of 4 dimensions measured (provider attributes), with physicians rated higher (4.2 vs 4.1 on a scale where 5 = excellent; $P = .05$).

Conclusions In an ambulatory care situation in which patients were randomly assigned to either nurse practitioners or physicians, and where nurse practitioners had the same authority, responsibilities, productivity and administrative requirements, and patient population as primary care physicians, patients' outcomes were comparable.

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THE MANY PRESSURES ON THE US health care system and greater focus on health promotion and prevention have prompted debates about primary care workforce needs and the roles of various types of health care professionals. As nurse practitioners seek to define their niche in this environment, questions are often raised about their effectiveness and appropriate scope of practice. Several studies conducted during the last 2 decades[1-4] suggest the quality of primary care delivered by nurse practitioners is equal to that of physicians. However, these earlier studies did not directly compare nurse practitioners and physicians in primary care practices that were similar both in terms of responsibilities and patient panels.

Over time, payment policies and state nurse practice acts that constrained the roles of nurse practitioners have changed. In more than half the states, nurse practitioners now practice with-

For editorial comment see p 106.

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out any requirement for physician supervision or collaboration, and in all states nurse practitioners have some level of independent authority to prescribe drugs.[5] Additionally, nurse practitioners are now eligible for direct Medicaid reimbursement in every state, direct reimbursement for Medicare Part B services as part of the 1997 Balanced Budget Act,[6] and commercial insurance reimbursement for primary care services within limits of state law. Finally, state law determines whether nurse practitioners are eligible for hospital admitting privileges, either by regulating access at the state level or by allowing local hospital boards to decide. The combination of authority to prescribe drugs, direct reimbursement from most payers, and hospital admitting privileges creates a situation in which nurse practitioners and primary care physicians can have equivalent responsibilities. The present study is a large randomized trial designed to compare patient outcomes for nurse practitioners and physicians functioning equally as primary care providers.

The opportunity to compare the 2 types of providers was made possible by several practice and policy innovations at the Columbia Presbyterian Center of New York Presbyterian Hospital in New York City. In 1993 when the medical center sought to establish new primary care satellite clinics in the community, the nurse practitioner faculty were asked to staff 1 site independently for adult primary care. This exclusively nurse practitioner practice was to be similar to the clinics staffed by physicians. All are located in the same neighborhood, serve primarily families from the Dominican Republic who are eligible for Medicaid, and follow the policies and procedures of the medical center. The nurse practitioner practice, the Center for Advanced Practice, opened in the fall of 1994.

New York State law allows nurse practitioners to practice with a collaboration agreement that requires the physician to respond when the nurse practitioner seeks consultation. Collaboration does not require the collaborating physician to be on site and requires only quarterly meetings to review cases selected by the nurse practitioner and the physician. The state also grants nurse practitioners full authority to prescribe medications, as well as reimbursement by Medicaid at the same rate as physicians. The medical board granted nurse practitioners who were faculty members in the school of nursing hospital admitting privileges, thereby making the basic outpatient services, payment, and provider responsibilities the same in the nurse practitioner and physician primary care practices. Additionally, nurse practitioners and physicians in the study were subject to the same hospital policy on productivity and coverage, and a similar number of patients were scheduled per session in each clinic.

While it has been posited that nurse practitioners have a differentiated practice pattern focused on prevention with lengthier visits,[7] this study was purposely designed to compare nurse practitioners and physicians as primary care providers within a conventional medical care framework in the same medical center, where all other elements of care were identical. Nurse practitioners provided all ambulatory primary care, including 24-hour call, and made independent decisions for referrals to specialists and hospitalizations. The Spanish language ability of the nurse practitioners and physicians was similar, although the physicians had somewhat better Spanish facility on average. All of the nurse practitioners (n = 7) and most of the physicians (n = 11) had limited knowledge of Spanish, and 6 physicians were either fluent or bilingual. Staff who served as interpreters were available at each study site. The central hypothesis was that the selected outcomes would not differ between the patients of nurse practitioners and physicians.

METHODS

Participants and Randomization

Between August 1995 and October 1997, adult patients were recruited consecutively at 1 urgent care center and 2 emergency departments that are part of the medical center. Patients who reported a previous diagnosis of asthma, diabetes, and/or hypertension, regardless of the reason for the urgent visit, were oversampled to create a cohort of patients for whom primary care would have an impact on patient outcomes, as has been postulated in previous studies.[8,9] Patients were screened by bilingual patient recruiters and asked to participate if they had no current primary care provider at the time of recruitment and planned to be in the area for the next 6 months. The study was approved by the institutional review board of Columbia Presbyterian Medical Center. After an oral explanation of the consent form, written informed consent was obtained from each patient (both English and Spanish explanations and forms were available).

Those who provided informed consent were randomly and blindly assigned to either the nurse practitioner or 1 of the physician practices. Different assignment ratios were used during the recruitment period. Initially the ratio was 2:1, with more patients assigned to the nurse practitioner practice, because it opened after the physician practices and was able to accept more new patients. Subsequently, the ratio was changed to 1:1 as the nurse practitioner practice's patient panel increased. Despite this change, the mean number of days between the urgent visit at which patients were recruited and the follow-up appointments was similar (8.6 days for patients assigned to nurse practitioners compared with 8.9 days for patients assigned to physicians).

Recruited patients were then offered the next available appointments at the assigned clinic, and project staff made reminder calls the day before the appointments. Patients who missed their appointment were offered another appointment at the assigned practice. After patients kept their initial appointments, they were considered enrolled in the study and eligible for follow-up data collection.

Patients were told which provider group they were assigned to after randomization, and the type of provider could not be masked during the course of care. Patients who refused to participate or were deemed ineligible for the study were given follow-up primary care appointments by the study recruiters to the same practices. Additionally, during the study period, all practices received new patients from usual sources such as hospital discharges, recommendations from friends and family, referrals from other physicians, direct access by the patients themselves, and advertising. The study did not require a different process of care or documentation for enrolled patients.

At the initial visit, the patients became a part of the nurse practitioner or physician practices' regular patient panel, and all subsequent appointments, care, and treatments were arranged through the practice site of the assigned primary care nurse practitioner or physician. The primary care nurse practitioners and physicians had the same authority to prescribe, consult, refer, and admit patients. Furthermore, they used the same pool of specialists, inpatient units, and emergency departments. No attempt was made to differentiate study patients from other patients in the practice or to influence the practice patterns of the participating nurse practitioners and physicians. However, patients were free to change their source of medical care during the study. Medicaid in New York is currently fee-for-service and patients could go to other providers, go to a specialist directly, or use the emergency department without notifying their primary care provider. Approximately 3% of patients (n = 43) went to another clinic after keeping the first randomly assigned appointment, and 9% (n = 116) went to multiple primary care clinics during the 6-month period.

Data Collection

At the time of recruitment, patients provided demographic and contact information and completed the Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36). After the initial primary care visit, interviewers contacted the enrolled patients either by telephone or in person, if necessary, to administer a satisfaction questionnaire. Six months after this initial appointment, the enrolled patients were again contacted and asked to complete a second, longer interview. The decision to interview patients 6 months after the initial primary care visit was based on prior survey experience with this patient population.[10] The primary care patients served by the medical center are primarily immigrants and frequently change residences, travel between New York and their countries of origin, and have interruptions in telephone service. Attempts were made to locate all enrolled patients for this follow-up, including those who could not be located for the initial satisfaction interview. At the 6-month interview, the SF-36 and the satisfaction questionnaire were repeated, and additional questions were asked about health services utilization. A research nurse accompanied the interviewers, and for patients who reported a diagnosis of asthma, diabetes, or hypertension, physiologic data were collected.

Data on all health services utilization at the assigned practice and all other medical center sites were obtained from the medical center computer records for both the 6 months prior to recruitment and for 6 months and 1 year after the initial primary care appointment. These data were collected for all patients who were enrolled, including those who could not be located for the 6-month follow-up interview. Utilization data were also available for patients who were recruited but who did not keep their initial primary care appointment and therefore were not enrolled in the study. For these patients, the data were collected for the 6 months prior to recruitment and 6 months and 1 year after the date of the missed appointment they were given at recruitment.

Main Outcome Measures

The SF-36 was used as a baseline and follow-up measure of health status. This instrument elicits patient responses to 36 questions designed to measure 8 health concepts (general health, physical function, role-physical, role-emotional, social function, bodily pain, vitality, and mental health)[11] or to create 2 summary scores (physical component summary and mental component summary).[12] The origin and logic of the item selection, as well as the psychometrics and tests of clinical validity, have been reported by the survey's developers.[13,14] Additionally, the survey's utility for monitoring general and specific populations, measuring treatment benefits, and comparing the burden of different diseases has been documented in 371 studies published between 1988 and 1996.[15,16] For example, the SF-36 has been used to measure differences in function between chronically ill patients with and without comorbid anxiety disorder[17]; has demonstrated that it can detect changes in health status that correspond to clinical profiles for 4 common conditions[18]; and has shown that it reflects changes in health status that correspond to a predicted clinical course for elective surgery patients.[19]

Patient satisfaction was measured by using "provider-specific" items from a 15-item satisfaction questionnaire used in the Medical Outcomes Study.[20] Three items related to clinic management were included in the survey to provide the medical center administration with information about patients' perceptions of the clinic, but those items were not intended for use in the comparison of providers.

The survey instruments used in the study were written in English and then translated into Spanish. The bilingual members of the study team reviewed the Spanish versions to ensure that the meaning had not been changed. Approximately 80% (78.8% at recruitment and 83.7% at 6 months) of the interviews were conducted in Spanish.

Physiologic measures included disease-specific clinical measurements taken by a research nurse at the time of the 6-month follow-up interview. Blood pressure was determined for patients with hypertension, peak flow for those with asthma, and glycosylated hemoglobin for those with diabetes.

Utilization data included hospitalizations, emergency department visits, urgent care center visits, visits to specialists, and primary care visits within the Columbia Presbyterian Medical Center system. Only visits with a nurse practitioner or physician at a primary care site were counted as primary care. Specialty visits were defined as visits to a medical specialty clinic or specialist physician office. Emergency department and urgent care center visits were combined before analysis.

Sample Size

Recruitment and enrollment goals were established based on estimates of the sample size needed to detect a difference of 5 points on a 100-point scale for the SF-36 scores on all scales when comparing 2 groups with repeated measures. As the randomization ratio was projected to change during the course of the study with availability of appointments, it was projected that the final ratio between the 2 groups would be 1 patient in the physician group for every 1.5 patients in the nurse practitioner group. The sample size estimates for unequal groups were extrapolated from those presented by the instrument's developer for equal groups, assuming $\alpha = .05$, 2-tailed t test, and power of 80%. Differences of more than 5 points are considered clinically and socially relevant, according to the guidelines for the interpretation of the survey.[11]

Analysis

Baseline demographics and health status for the nurse practitioner and physician groups at randomization and following enrollment were compared using χ^2 and t tests. Ten of the 12 satisfaction questions were factor analyzed (the 11th question that asks whether the patient would recommend the clinic to family and friends was left as a separate item; an item about medication instructions was dropped, as it was not applicable to the majority of respondents who were not prescribed any medications at their first visit). There were 3 factors with eigenvalues greater than 1, indicating that they represented reasonable constructs. The first, "provider attributes" (Cronbach $\alpha = .80$) rated the provider on technical skills, personal manner, and time spent with the patient on a 5-point scale from poor to excellent. "Overall satisfaction" (Cronbach $\alpha = .86$) was the factor created from 2 items addressing the quality of care received and overall satisfaction with the visit. The "communications" factor (Cronbach $\alpha = .59$) combined 5 areas in which patients may have had problems understanding the provider's assessment and advice. Mean scores were computed for each factor.

Using the data collected at recruitment, mean baseline scores on the SF-36 for the scales and summary scores were used to establish the comparability of the nurse practitioner and physician groups in terms of health status. Four types of analyses were conducted using the SF-36 as an outcome measure. The first 2 included t tests to compare mean scores for nurse practitioner and physician patients at 6-month follow-up (both unadjusted and adjusted for baseline demographics and health status) and baseline to 6-month change scores. The third was a subgroup analysis designed to compare the sickest patients. Patients whose baseline score on the physical component summary of the SF-36 was in the bottom quartile (sickest) of the study sample were selected, and 6-month follow-up SF-36 scores were compared using the same analyses used for the total sample.

The fourth analysis classified patients into categories according to the change from baseline to follow-up in each patient's individual scores on the summary measures. This analysis was modeled on a comparison of patients treated in health maintenance organization and fee-for-service systems.[21] The SE of measurement was used to create 3 categories: "same" (change not greater than what would be expected by chance), "better" (improved more than expected), and "worse" (declined more than expected).[12] While these definitions are based on a statistical construct, they provide results that may be more clinically relevant than mean scores or mean change in scores over time. A χ^2 test was then used to compare the distribution of the nurse practitioner and physician patients among these groups. In addition, the change from baseline to follow-up for the entire sample was compared using paired t tests.

Ranges and mean values for the physiologic measures were obtained, and mean values for the 2 groups were compared using t tests.

For the analyses of health services utilization, data were obtained for 6 months prior to the date of recruitment, 6 months after, and 1 year after the first primary care visit. Neither the recruitment visit nor the assigned primary care visit was included. Comparisons between the nurse practitioner and physician patients' health services utilization after enrollment were made using χ^2 tests (unadjusted) and Poisson regression (adjusted). To compare the utilization prior to recruitment with that following, signed rank tests were used.

The 159 patients (12.1%) who, after the first visit, either went to a clinic other than the one assigned or to multiple primary care clinics were maintained in the initially assigned group for the analyses, consistent with an intent-to-treat analysis. All analyses were repeated without these 159 patients, and the results were the same.

RESULTS

Recruitment, Enrollment, and Loss to Follow-up

Of the 3397 patients screened and given follow-up appointments, 41.6% were not randomized because they either refused to participate (11.2%) or did not meet the screening criteria (30.4%). Of the 1981 patients who were randomized, 1181 (59.6%) were assigned to the nurse practitioner clinic and 800 (40.4%) to the physician clinics. The average age of the randomized patients was 44.4 years and 74.6% were female; 84.9% were Hispanic, 8.8% were black, and 1.1% were white. There were no statistically significant differences in the demographics or health status of the patients randomized to nurse practitioners or physicians (TABLE 1).

The 1316 patients (66.4%) who kept their initial primary care appointments following randomization were considered enrolled in the study. This rate is comparable to the normal rate of appointments (65%) kept at the participating clinics (P. Craig, MA, RN, e-mail message, August 4, 1999). Compared with the 665 patients (32.4%) who did not keep their appointments, those who did (the enrolled patients) differed significantly at baseline in several respects. Enrolled patients were older (45.9 vs 41.3 years); a higher proportion were female (76.8% vs 70.2%) and Hispanic (90.3% vs 82.9%); a higher percentage reported a history of 1 or more of the selected chronic conditions (53.7% vs 45.0%); and they had to wait fewer days for their follow-up appointments (7.8 vs 10.7). These findings are consistent with other studies of patient behavior relative to keeping or missing appointments.[22-24]

Our analysis of the data available on patients who did not keep their primary care appointments found no differences in health services utilization after 1 year among the patients assigned to the nurse practitioner group and physician group.

The difference in the retention rates between recruitment and enrollment for the nurse practitioner group (68.2%) and the physician group (63.8%) was statistically significant ($\chi^2_1 = 4.3$, $P = .04$). However, neither the patients who enrolled nor those who failed to keep their appointments differed significantly between the nurse practitioner and physician groups in terms of baseline demographics, SF-36 scores, or patient-reported prior diagnosis of the selected chronic conditions (Table 1).

Among the nurse practitioner patients, 59% saw the same provider for all primary care visits in the first year after the initial visits compared with 54% of the physician patients, and this difference was not statistically significant ($\chi^2_1 = 2.7$, $P = .11$).

Initial satisfaction interviews were completed for 90.3% (n = 1188) of all patients who made a first clinic visit (90.8% of the nurse practitioner group and 89.4% of the physician group). Almost 92% of all completed interviews took place within 6 weeks of the initial appointment.

Six-month interviews were completed for 79% of all enrolled patients (80.5% of the nurse practitioner group and 76.7% the physician group). This completion rate is considered high for a transient immigrant population and is comparable to or better than that achieved by other studies in the area served by the medical center. The majority of completed interviews (91.4%) took place between 180 and 240 days after the initial appointment. The most common reasons for loss to follow-up were the inability to locate the patient

Table 1. Randomized and Enrolled Patient Characteristics at Baseline*

	Randomized Patients				Enrolled Patients			
	Nurse Practitioner Group (n = 1181)	Physician Group (n = 800)	Comparison	*P* Value	Nurse Practitioner Group (n = 806)	Physician Group (n = 510)	Comparison	*P* Value
Mean age, y	44.0	44.9	$t = 1.347$	.18	45.5	46.7	$t = 1.324$	.19
Female sex, %	74.2	75.3	$\chi^2 = 0.291$	.59	75.9	78.2	0.932	.33
Race, %								
Hispanic	88.2	87.3	$\chi^2 = 6.853$	.14	91.0	89.3	$\chi^2 = 5.675$	.23
Black	8.3	10.4			5.5	8.1		
White	1.3	0.9			1.5	0.8		
Other	1.8	1.4			1.7	1.8		
Unknown	0.4	0.0			0.3	0.0		
Mean No. of days between recruitment and initial appointment	8.6	8.9	$t = 0.478$	.63	7.9	7.5	$t = -0.709$	.48
Prevalence of selected chronic conditions, % of patients reporting each condition								
Asthma	20.2	17.6	$\chi^2 = 2.10$	.15	17.9	16.1	$\chi^2 = 0.702$	.40
Diabetes	10.2	11.8	$\chi^2 = 1.25$	.26	11.5	14.3	$\chi^2 = 2.183$	.14
Hypertension	30.0	34.1	$\chi^2 = 3.79$	.05	33.9	38.0	$\chi^2 = 2.371$	.12
MOS SF-36 subscale scores, mean								
Physical functioning	63.1	61.5	$t = -1.27$	.21	61.4	59.2	$t = -1.347$	.18
Role-physical	40.1	39.0	$t = -0.554$	.58	38.0	34.5	$t = -1.402$	.16
Bodily pain	44.5	44.6	$t = 0.032$	.98	44.0	43.2	$t = -0.416$	.68
General health	44.5	45.8	$t = 1.097$	.27	43.7	43.4	$t = -0.211$	.83
Vitality	48.4	48.3	$t = -0.016$	.99	47.8	46.7	$t = -0.827$	.41
Social functioning	60.0	60.0	$t = -0.074$	.94	59.3	57.8	$t = -0.979$	.33
Role-emotional	48.5	47.4	$t = -0.505$	.61	46.9	42.3	$t = -1.694$	.09
Mental health	55.0	55.7	$t = 0.603$	.55	54.6	53.7	$t = -0.608$	.54
Summary scores								
Physical component	38.4	38.0	$t = -0.637$	.52	37.9	37.2	$t = -1.041$	.30
Mental component	41.3	41.4	$t = 0.222$	.83	41.1	40.2	$t = -1.135$	.26

*MOS SF-36 indicates Medical Outcomes Study Short-Form 36.

(65.9%) or that the patient had moved out of the area (17%). A small number of patients (23 [2.8%] in the nurse practitioner group and 16 [3.1%] in the physician group) refused to complete the interview when they were contacted. Five patients (2.9%) were located but were unable to complete the interview due to physical limitations or mental illness, and 3 patients (1.1%) were deceased. The FIGURE summarizes the participation rates at each major stage in the study.

Satisfaction

There were no significant differences in the scores between nurse practitioners and physicians for any of the satisfaction factors after the first visit (TABLE 2). At the 6-month interview there were no statistically significant differences in "overall satisfaction" or "communications" factors or in willingness to refer the clinic to others. The difference in mean score for the "provider attributes" factor, however, was significant, with the physician group rating providers higher than the nurse practitioner group (4.22 vs 4.12 out of a possible 5; *P* = .05). The provider attribute consists of patients' ratings of the providers' technical skill, personal manner, and time spent with the patient. The clinical significance of a 0.1 difference on a 5.0 scale is unlikely.

Self-reported Health Status

Overall, the health status of the study group improved from baseline to follow-up, and the improvement was statistically significant on every scale (TABLE 3).

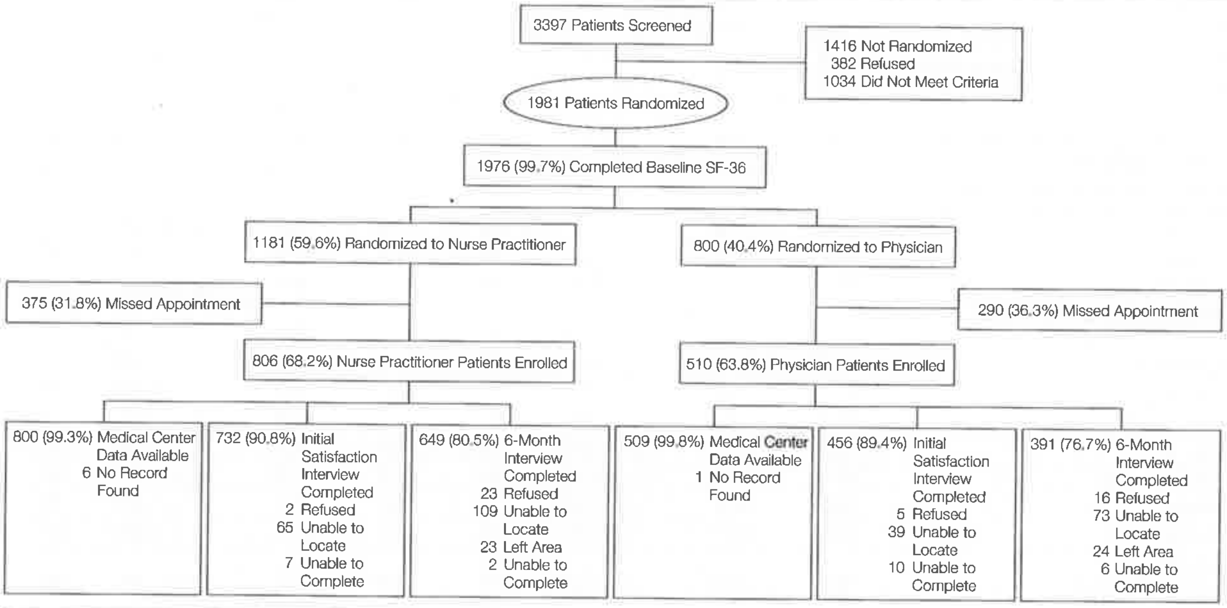
There were no significant differences between the nurse practitioner and physician patients on any scale or summary score at 6 months. This is true for both the unadjusted scores and scores adjusted for demographics and baseline health status. The additional analysis (not shown) of the summary scores, using the change categories of "same," "better," and "worse" to characterize the clinical course of each patient, also revealed no significant differences between provider types.

Finally, 152 nurse practitioner patients and 103 physician patients were defined as the sickest (health status scores in the bottom quartile of the sample at baseline) and their scores analyzed separately. Again, there were no differences between nurse practitioner and physician patients in scale scores or summary measures at 6 months (both unadjusted and adjusted), nor did the change in scores from baseline to follow-up differ between nurse practitioner and physician patient groups.

Physiologic Measures

The physiologic measures taken at the time of the interview for patients who reported 1 of the selected chronic illnesses were not statistically significantly different between the nurse practitioner and physician patients for asthma and hypertension. The mean peak flow measurements for the 64 physician patients with asthma was 292 L/min, compared with 297 L/min for the 107 nurse practitioner patients (*t* test = −0.29, *P* = .77). Glycosylated hemoglobin mean value for the 46 physician patients with diabetes was 9.4% vs 9.5% for the 58 nurse practitioner patients (*t* test = −0.22, *P* = .82).

Figure. Study Profile



SF-36 indicates Medical Outcomes Study 36-Item Short-Form Health Survey.

For patients with hypertension, there was no statistically significant difference in the systolic reading: 139 mm Hg for the 145 physician patients and 137 mm Hg for the 211 nurse practitioner patients (t test = 1.08, P = .28). The mean diastolic reading, however, was statistically significantly lower for the nurse practitioner patients at 82 mm Hg compared with 85 mm Hg for the physician patients (t test = 2.09, P = .04).

Utilization

For our comparison of outcomes we analyzed utilization of health care services for nurse practitioner and physician patients who enrolled in the study by keeping their initial primary care appointment. There were no statistically significant differences between the nurse practitioner and physician patients for any category of service during either the first 6 months or the first year after the initial primary care visit for either unadjusted or adjusted use rates (TABLE 4). When the utilization analyses were repeated for the subsets of "sickest" patients as defined in the "Self-reported Health Status" section

Table 2. Patient Satisfaction: Initial Visit and 6-Month Follow-up Interviews

	Initial Visit				6-Month Follow-up			
	Nurse Practitioner Group (n = 726)	Physician Group (n = 453)	Comparison	P Value	Nurse Practitioner Group (n = 644)	Physician Group (n = 389)	Comparison	P Value
Provider attributes mean score*	4.16	4.19	t = 0.815	.42	4.12	4.22	t = 1.963	.05
Overall satisfaction mean score*	4.59	4.60	t = 0.144	.89	4.45	4.46	t = 0.161	.87
Problems, % of patients reporting†								
0	74.4	70.2	χ^2 = 2.605	.46	59.1	62.7	χ^2 = 2.146	.54
1	15.4	18.7			25.1	23.5		
2	6.5	7.2			10.2	7.8		
3-5	3.7	3.9			5.6	5.9		
% of patients who would recommend clinic to others	98.7	98.2	χ^2 = 0.544	.46	95.0	95.1	χ^2 = 0.000	.99

*Calculated from items rated on a 5-point scale, in which 5 is the most positive response.
†Percentages may not add to 100% due to rounding.

Table 3. Health Status Based on MOS SF-36 Results*

	Comparison of Baseline and 6-Month Scores for Entire Sample (n = 1040)			6-Month Scores for Nurse Practitioner Group (n = 649) and Physician Group (n = 391)					
				Unadjusted Mean Scores			Adjusted Mean Scores†		
	Baseline	6 mo	Change (Paired t tests)‡	Nurse Practitioner Group	Physician Group	Comparison	Nurse Practitioner Group	Physician Group	Comparison§
Physical functioning	60.30	64.26	t = 4.631	64.94	62.90	t = −1.126 P = .26	64.21	63.78	t = 0.394 P = .77
Role-physical	36.06	53.31	t = 10.519	53.74	52.62	t = −0.375 P = .71	52.92	53.38	t = −0.192 P = .85
Bodily pain	42.74	53.01	t = 9.133	53.66	52.07	t = −0.748 P = .45	52.91	52.73	t = 0.092 P = .93
General health	42.94	48.75	t = 7.662	48.79	48.67	t = −0.070 P = .95	48.42	49.04	t = −0.454 P = .65
Vitality	47.02	53.45	t = −7.771	53.86	52.79	t = −0.635 P = .53	53.27	53.38	t = −0.072 P = .94
Social functioning	58.51	70.47	t = 12.507	70.39	70.59	t = 0.114 P = .91	70.25	70.70	t = −0.279 P = .78
Role-emotional	44.70	56.26	t = 7.105	56.71	55.24	t = −0.488 P = .63	55.81	56.34	t = −0.192 P = .85
Mental health	53.51	60.17	t = 8.177	60.75	59.45	t = −0.742 P = .46	60.37	59.63	t = 0.491 P = .62
Physical component summary	37.46	40.63	t = 8.706	40.83	40.29	t = −0.728 P = .47	40.53	40.60	t = −0.102 P = .92
Mental component summary	40.56	44.58	t = 9.438	44.64	44.29	t = −0.398 P = .69	44.55	44.48	t = 0.103 P = .92

*MOS SF-36 indicates Medical Outcomes Study Short-Form 36.
†Adjusted for age, sex, baseline MOS subscale scores, and each selected chronic condition.
‡P values for change are all <.001.
§Adjusted t test is based on a regression model, with age, sex, baseline MOS subscale scores, and each condition entered as covariates.

above, no differences were found in the health care services utilization between the nurse practitioner and physician patients (TABLE 5). In the 6 months and 1 year after the initial primary care visit, enrolled patients in both groups made significantly more primary care and specialty visits and fewer emergency/urgent visits than in the 6 months prior to recruitment. The percentage of enrolled patients hospitalized was not significantly different for either 6 months or 1 year after the initial primary care appointment.

COMMENT

This study was designed to compare the effectiveness of nurse practitioners with physicians where both were serving as primary care providers in the same environment with the same authority. The hypothesis predicting similar patient outcomes was strongly supported by the findings of no significant differences in self-reported health status, 2 of the 3 disease-specific physiologic measures, all but 1 of the patient satisfaction factors after 6 months of primary care, and in health services utilization at 6 months and 1 year.

The difference between the nurse practitioner and physician patients' mean ratings of satisfaction with provider attributes was small but statistically significant. It may be attributable to the fact that the nurse practitioner practice was moved to a new site after 2 years and before recruitment and data collection were completed; the physician practices were not moved during the study period. When the "provider attribute" subscale scores for the nurse practitioner and physician patients whose 6-month follow-up period overlapped this move were compared, the ratings by nurse practitioner patients were significantly lower than those of the corresponding physician patients (4.16 vs 4.36; $P = .04$). There was no significant difference in ratings among patients not affected by the move. Additional research will be needed to determine whether this is a persistent difference or if it results from conditions unique to this study.

A statistically significant, but small, difference was discerned in the mean diastolic blood pressure of patients with hypertension, with the nurse practitioner group having a slightly lower average reading at 6 months. Given the size of this change and the lack of differences in self-reported health status, there does not seem to be an obvious reason for this difference.

Although insufficient statistical power to discern differences has been a problem in much of the previous research comparing nurse practitioners and physicians, the sample size in this study was adequate to test the hypothesized similarity of nurse practitioner and physician groups. At the end of the study, power calculations were repeated using final sample size and the means and SDs from these data. These revealed that the sample size was adequate to detect differences from baseline to follow-up between the 2 patient groups of less than 5 points for 6 of the 8 scales

Table 4. Health Services Utilization*

	Change for Entire Sample, %			6 Months After Initial Primary Care Visit, %			1 Year After Initial Primary Care Visit, %		
	6 mo Prior (N = 1309)	6 mo After (N = 1309)	Change, z Score†	Nurse Practitioner Group (n = 800)	Physician Group (n = 509)	Comparison	Nurse Practitioner Group (n = 800)	Physician Group (n = 509)	Comparison
Primary care visits									
0	88.8	21.2	−26.809	20.6	22.2	$\chi^2 = 0.059$ $P = .81$	18.0	19.1	$\chi^2 = 1.033$ $P = .31$
1	5.7	22.4		22.6	22.0		18.4	16.1	
2	2.9	17.3		18.0	16.3		13.8	13.4	
3	2.6	13.8		14.5	12.8		10.3	8.8	
4	0	9.8		9.6	10.0		9.3	8.8	
5	0	6.1		5.3	7.5		7.5	6.1	
≥6	0	9.3		9.4	9.2		22.9	27.7	
Specialty visits									
0	89.1	62.3	−15.578	61.8	63.1	$\chi^2 = 0.678$ $P = .41$	54.5	54.8	$\chi^2 = 0.265$ $P = .61$
1	5.6	14.2		13.3	15.7		13.9	16.5	
2	2.3	9.3		10.8	7.1		8.9	6.3	
≥3	3.1	14.2		14.3	14.1		22.8	22.4	
ED and urgent care									
0	58.1	76.5	−12.937	77.4	75.0	$\chi^2 = 0.428$ $P = .51$	65.8	66.2	$\chi^2 = 0.286$ $P = .59$
1	16.4	16.2		15.3	17.7		20.4	17.7	
2	16.4	4.0		4.3	3.7		7.4	8.6	
≥3	9.1	3.3		3.1	3.5		6.5	7.5	
Hospitalizations									
0	94.5	95.3	−0.884 $P = .38$	95.9	94.3	$\chi^2 = 1.703$ $P = .19$	91.5	90.2	$\chi^2 = 0.664$ $P = .42$
≥1	5.5	4.7		4.1	5.7		8.5	9.8	

*Percentages may not add to 100% due to rounding. ED indicates emergency department.
†Except for hospitalizations, $P < .001$ for column.

(3.2 for general health; 3.3 for vitality; 3.4 for mental health; 3.4 for social function; and 4.2 for bodily pain) and less than 6 points on 2 scales (5.9 on role-physical and role-emotional). This magnitude of difference is similar to differences commonly reported in studies comparing groups[21,25] and in studies of change over time within 1 group.[17,26]

There is evidence that the outcome measures chosen were sensitive enough to discern any important differences. The SF-36 is a widely used outcome measure and its sensitivity has been documented in several studies.[11,18,27] In this study, there were sizable and statistically significant changes for both nurse practitioner and physician patients in all scale scores and summary measures from baseline to follow-up. Some improvement would be expected, even over a 6-month period with or without primary care, following the urgent care visits at which subject recruitment occurred; the SF-36 did detect improvement. The utilization indicators are in widespread use in cross-sectional and longitudinal studies. With the exception of number of hospitalizations, which stayed the same in both groups, these measures also changed significantly over time.

Strengths of this study included adequate sample size and the ability to randomize patients to equivalent clinical settings and to providers with equal responsibilities. However, there were also several limitations.

Patients could not be randomized at the point of initial contact with the provider. Because the nurse practitioner and physician practice sites were geographically separate, patients had to be randomized when they were recruited in the emergency department or urgent care center to give them follow-up appointments at various locations with different appointment schedules. This time and location gap likely contributed to the loss of almost one third of the sample between randomization and enrollment. Although this is substantial, it is within the range reported in similar randomized trials.[28]

While the loss rate was significantly different for the nurse practitioner and physician groups, there is no reason to suspect that this represents a systematic violation of the protocol or any compromise of randomization. Patients dropped out before receiving care, and the dropout rate was higher for those assigned to the traditional model of physician care. This suggests that assignment to the new model of nurse practitioner care did not negatively influence patient behavior. There is no evidence of selection bias in that there were no significant differences in demographics, baseline health status, or prerecruitment health services utilization patterns between nurse practitioner and physician randomized patients, for either those who enrolled or those who did not keep their appointments.

Table 5. Subgroup Analyses*

SF-36 Subscales	Nurse Practitioner Group (n = 152)	Physician Group (n = 103)	Comparison
6-Month MOS SF-36 Scores for the Sickest Patients, Mean (SD)†			
Physical functioning	46.69 (27.05)	48.17 (27.46)	$t = 0.425$ $P = .67$
Role-physical	33.55 (42.88)	32.28 (43.53)	$t = -0.231$ $P = .82$
Bodily pain	38.10 (29.72)	39.25 (29.36)	$t = 0.306$ $P = .76$
General health	38.06 (23.02)	37.08 (23.48)	$t = -0.333$ $P = .74$
Vitality	43.06 (25.21)	42.43 (25.14)	$t = -0.197$ $P = .84$
Social functioning	62.67 (28.87)	60.56 (29.33)	$t = -0.568$ $P = .57$
Role-emotional	42.39 (47.25)	43.04 (47.06)	$t = 0.109$ $P = .91$
Mental health	52.56 (28.11)	50.92 (52.47)	$t = -4.77$ $P = .63$
Physical component summary	23.71 (3.12)	23.84 (3.58)	$t = 0.293$ $P = .77$
Mental component summary	39.57 (13.35)	40.39 (12.70)	$t = 0.490$ $P = .63$
Health Services Utilization for the Subgroup of "Sicker Patients," No. (%)			
	(n = 151)	**(n = 101)**	
Primary care visits			
0	30 (19.9)	17 (16.8)	$\chi^2 = 0.144$ $P = .71$
1	31 (20.5)	21 (20.8)	
2	27 (17.9)	21 (20.8)	
≥3	63 (41.7)	42 (41.6)	
Specialty visits			
0	82 (54.3)	56 (55.4)	$\chi^2 = 0.390$ $P = .53$
1	23 (15.2)	21 (20.8)	
2	20 (13.2)	8 (7.9)	
≥3	26 (17.2)	16 (15.8)	
ED and urgent care center visits			
0	108 (71.5)	79 (78.2)	$\chi^2 = 1.81$ $P = .18$
1	28 (18.5)	17 (16.8)	
2	9 (6.0)	2 (2.0)	
≥3	6 (4.0)	3 (3.0)	
Hospitalizations			
0	142 (94.0)	99 (96.1)	$\chi^2 = 0.542$ $P = .46$
1	7 (4.6)	3 (2.9)	
2	1 (0.7)	1 (1.0)	
3	1 (0.7)	0 (0)	

*Percentages may not add to 100% due to rounding. MOS SF-36 indicates Medical Outcomes Study Short-Form 36; ED, emergency department.

†Selection of "sickest patients" was determined using MOS SF-36 scores using the bottom quartile of the baseline physical component summary. Patients with a score below 28.16 were included.

A 1-year follow-up for SF-36 and patient satisfaction would have been more useful than taking these measures at 6 months. In part, we believed a population with limited access to health care would show changes in these measures in 6 months. But more influential in the decision regarding follow-up was the knowledge that this population is difficult to track because of changing addresses, changing eligibility for Medicaid, and frequent extended trips out of the country. Although we do have service utilization data for both 6 months and 1 year, data on satisfaction and self-perceived health status were not collected for 1 year.

Finally, the study had some characteristics that limit the generalizability of results. It was conducted in medical center–affiliated, community-based primary care clinics, which may differ from individual providers or small group practices. The providers were faculty from a university medical center, hence were not necessarily typical of those in nonacademic practice settings. The patients were predominantly immigrants from the Dominican Republic who were eligible for Medicaid and many did not speak English. This differs from the setting in which many commercially insured patients receive primary care but does resemble other academic, public and safety net providers, and the Medicaid populations they serve. While the setting and patient population are limitations, they are also what permitted randomized assignment and an environment in which nurse practitioners and physicians were able to function equally as primary care providers. The ability to do this type of study, even in a setting atypical for some patients, adds significant weight to the results from prior studies that have demonstrated the competence of nurse practitioners.

Who provides primary care is an important policy question. As nurse practitioners gain in authority nationally with commercially insured and Medicare populations now accessing nurse practitioner care, additional research should include these populations. As cost and quality issues pervade the public debate on managed care, those who are the first-line health care providers become pivotal resources in the emerging health care system. Nurse practitioners have been evaluated as primary care providers for more than 25 years, but until now no evaluations studied nurse practitioners and physicians in comparable practices using a large-scale, randomized design. The results of this study strongly support the hypothesis that, using the traditional medical model of primary care, patient outcomes for nurse practitioner and physician delivery of primary care do not differ.

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Advanced Practice Nurse Outcomes 1990-2008: A Systematic Review

Executive Summary

- Advanced practice registered nurses have assumed an increasing role as providers in the health care system, particularly for underserved populations.
- The aim of this systematic review was to answer the following question: Compared to other providers (physicians or teams without APRNs) are APRN patient outcomes of care similar?
- This systematic review of published literature between 1990 and 2008 on care provided by APRNs indicates patient outcomes of care provided by nurse practitioners and certified nurse midwives in collaboration with physicians are similar to and in some ways better than care provided by physicians alone for the populations and in the settings included.
- Use of clinical nurse specialists in acute care settings can reduce length of stay and cost of care for hospitalized patients.
- These results extend what is known about APRN outcomes from previous reviews by assessing all types of APRNs over a span of 18 years, using a systematic process with intentionally broad inclusion of outcomes, patient populations, and settings.
- The results indicate APRNs provide effective and high-quality patient care, have an important role in improving the quality of patient care in the United States, and could help to address concerns about whether care provided by APRNs can safely augment the physician supply to support reform efforts aimed at expanding access to care.

QUALITY, ACCESS, AND COST OF health care are high-priority global concerns. In the United States, these issues are pressing due to the escalating cost of managing chronic diseases (Department of Health and Human Services, 2009), the variation in quality of care delivered (Kuehn, 2009), and the inadequate number of primary care physicians (Freed & Stockman, 2009; Kuehn, 2009; Lakhan & Laird, 2009). At this critical time, we still do not know which models of care are best, how to integrate advanced practice registered nurses (APRN) providers, or to what extent APRN providers can contribute to improved access to and quality of health care. These deficits are untenable when the health care needs of society are great and the health reform debate progresses in legislative arenas. How to expand health care services for the American public, at an affordable cost, is central to this dispute.

Advanced practice registered nurses have assumed an increasing role as providers in the health care system, particularly for underserved populations. APRNs complete specialty-specific graduate programs that include education, training, and practice experience needed to complete a national board certification examination before entry into practice. Nurses practicing in APRN roles include nurse practitioners (NPs), clinical nurse specialists (CNSs), certified nurse-midwives (CNMs), and certified registered nurse anesthetists (CRNAs). Several systematic reviews have assessed what is known about NP practice (Brown & Grimes, 1995; Horrocks, Anderson, & Salisbury, 2002; Laurant et al., 2005; Sox, 1979). Similar or better outcomes are found for patient satisfaction (Brown & Grimes, 1995; Horrocks et al., 2002; Laurant et al., 2005; Sox, 1979), patient health status (Horrocks et al., 2002; Laurant et al., 2005), functional status (Brown & Grimes, 1995), and the use of the emergency department (Brown & Grimes, 1995; Laurant et al., 2005). A Cochrane review indicated midwifery care outside the United States was associated with a reduced risk of losing a baby before 24 weeks, a reduced use of regional analgesia, fewer episiotomies or instrumental births, increased chance of a spontaneous vaginal birth, and increased initiation of breastfeeding (Hatem, Sandall, Devane, Soltani, & Gates,

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2008). No systematic reviews of CNS or CRNA outcomes have been published.

Although these reviews provide some information about the effects of APRNs on specific outcomes, an updated comprehensive review of the scientific literature on the care provided by APRNs in the United States is needed to inform educational, public, and organizational policy. This review is the most current and complete assessment of the comparability of APRNs to other providers, strengthening and extending the conclusions drawn from previous reviews by including evidence from over a span of 18 years on all types of APRNs and all outcomes, patient populations, and settings.

This systematic review compared the processes and outcomes of care delivered by APRNs to a comparison provider group, most often physicians. The intent was to consider the broad range of studies and outcome measures across these groups using a systematic, transparent, and reproducible review process.

Aim. The aim of this systematic review was to answer the following question: Compared to other providers (physicians or teams without APRNs), are APRN patient outcomes of care similar?

Methods

Design. A systematic review was conducted following processes specified for Evidence Based Practice Centers funded by the Agency for Healthcare Research and Quality, and guided by an expert co-investigator. Processes were designed to identify and select relevant studies; review, rate, and grade the individual studies; and synthesize the results for outcomes with a sufficient number of studies. Teams were developed for each of the APRN groups, led by a co-investigator. Five Technical Expert Panels (TEPs) were convened: one for each of the APRN groups and one methods panel to review the report of the overall project.

Search methods. The following databases were searched systematically: PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Proquest. For each APRN group, specific search strategies were developed with the assistance of a medical librarian and four APRN role-specific TEPs. The search strategy was intentionally broad to improve search sensitivity.

Inclusion criteria were randomized controlled trial (RCT) or observational study of at least two groups of providers (e.g., APRN working alone or in a team compared to other individual providers working alone or in teams without an APRN), conducted in the United States between 1990 and 2008, and reported quantitative data on patient outcomes. Studies prior to 1990 were not included since practice and interventions have changed both in the scientific basis and the organization of health care providers. Studies were excluded if they were non-English, included no quantitative data, or contained only outcomes that could not be affected by APRNs. For example, if the intervention included free medications for one group only, the outcomes could not be attributed to the care of the APRN alone. Only U.S. studies were included because: (a) the education for and implementation of advanced practice roles and scope of practice are different in the United States compared to other countries; and (b) the health care system in the United Sates (including health care access, health insurance, and costs of care) is very different from health care systems in other countries.

Search outcome. Figure 1 depicts the summary of the literature search results and article inclu-

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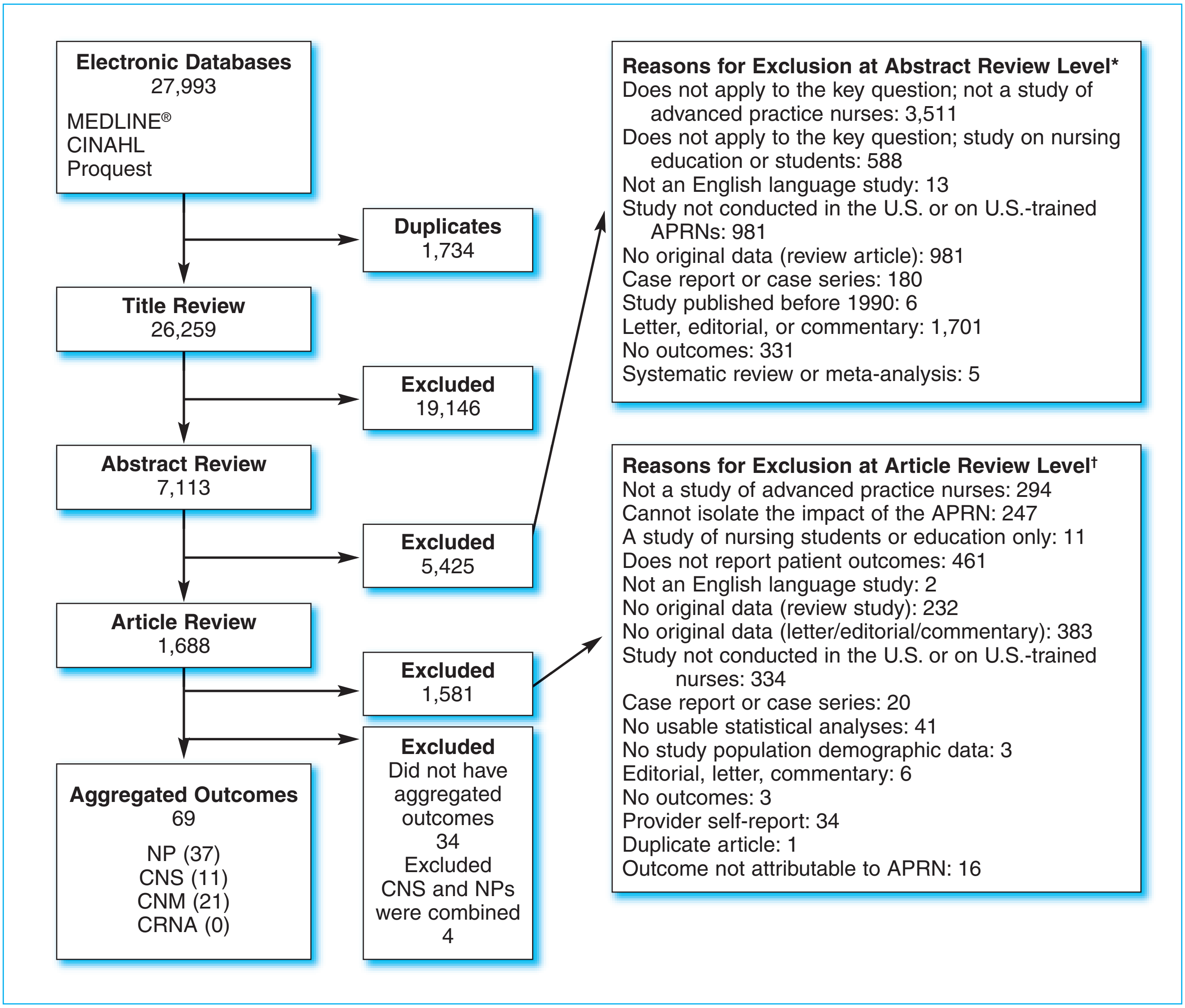
Figure 1.
Summary of Literature Search and Number of Articles



Reasons for Exclusion at Abstract Review Level*
Does not apply to the key question; not a study of advanced practice nurses: 3,511
Does not apply to the key question; study on nursing education or students: 588
Not an English language study: 13
Study not conducted in the U.S. or on U.S.-trained APRNs: 981
No original data (review article): 981
Case report or case series: 180
Study published before 1990: 6
Letter, editorial, or commentary: 1,701
No outcomes: 331
Systematic review or meta-analysis: 5

Reasons for Exclusion at Article Review Level†
Not a study of advanced practice nurses: 294
Cannot isolate the impact of the APRN: 247
A study of nursing students or education only: 11
Does not report patient outcomes: 461
Not an English language study: 2
No original data (review study): 232
No original data (letter/editorial/commentary): 383
Study not conducted in the U.S. or on U.S.-trained nurses: 334
Case report or case series: 20
No usable statistical analyses: 41
No study population demographic data: 3
Editorial, letter, commentary: 6
No outcomes: 3
Provider self-report: 34
Duplicate article: 1
Outcome not attributable to APRN: 16

†* Reason for study exclusion can be attributable to more than one category.

sion and exclusion at each level. A multi-step process was used to conduct the review, proceeding from titles to abstracts and then the full articles. At each step, the citation was reviewed and, if judged to not meet inclusion criteria, the reasons for exclusion were documented. Web-based database software facilitated access to studies and citation management. Standardized abstract forms included in the web-based software were developed by the team specifically for this project.

Data abstraction. Titles, abstracts, and full articles were reviewed by two independent reviewers and included or excluded according to the criteria listed previously. A primary reviewer completed all of the relevant data abstraction forms. The second reviewer checked the first reviewer's data abstraction forms for completeness and accuracy. Reviewer pairs were formed to include personnel with both clinical and methodological expertise. The reviews were not blinded in terms of the articles' authors, institutions, or journal. As with article inclusion, differences of opinion that could not be resolved between the reviewers were resolved through consensus adjudication. If articles were deemed to meet inclusion criteria by both reviewers, they were included in the final data abstraction.

Quality assessment. Once a final set of studies were determined, the quality of each indi-

Table 1.
Quality Assessment Criteria

Criteria	Rating Scale
Were participants in both groups similar?	No (0) Yes (1)
Was setting of both groups similar?	No (0) Yes (1)
Was sample size in both groups adequate?	Less than 30 per group (0) 31-60 per group (1) >60 per group (2)
Were measures reliable and valid?	No (0) Yes (1)
Was bias controlled?	No (0) Yes (1)
Can the outcome be attributed to the APRN?	Yes (2) Partial (1) No (0)
Potential range	0-8

vidual study was assessed using a modified scale informed by the Jadad scale (Jadad et al., 1996). Table 1 includes the quality assessment criteria. Since the Jadad scale was designed for RCTs (e.g., use of double-blinding), additional quality criteria were constructed to account for the observational studies represented in this review (e.g., similarity of groups and settings, group sample sizes, sources of bias). The additional quality criteria included comparability of participants and settings, sample size, reliability and validity of measures, bias control, and attribution of outcome to APRN. Attribution of the outcome to the APRN was assessed by considering if the APRN (a) worked independently, as a team member, or was directly supervised; and (b) if the outcome was directly linked to APRN care.

Study quality was assessed by agreement of at least two team members using an eight-point scale. A score was assigned for each item only if the specific criterion was completely satisfied. Two reviewers independently rated the quality of each study and discussed those items on which they disagreed, and then consensus was reached. A score of ≥5 was considered high quality, and a score of ≤4 was considered low quality.

Data synthesis and analysis. A set of detailed evidence tables was created for each APRN group. Information extracted from the eligible studies was rechecked against the original articles for accuracy. If there was a discrepancy between the data abstracted and the data appearing in the article, this discrepancy was addressed by the investigator in charge of the APRN-specific data set and the data were corrected in the final evidence tables.

Outcomes were aggregated for each APRN group when there was a minimum of three studies with the same outcome. The decision to only aggregate studies with three similar outcomes was based on the rational that: (a) One or two studies do not provide adequate evidence to summarize results or assess a body of evidence; and (b) This systematic review was intentionally broad to assess all APRN outcomes, rather than a few outcomes as is common in most systematic reviews.

Grading of evidence. At the completion of the abstraction and the rating of study quality, the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Working Group Criteria (Atkins et al., 2004) was applied to the overall evidence for each aggregated outcome.

Evidence first was classified into one of four baseline categories: high, moderate, low, or very low. A high baseline category was designated if there were at least two RCTs or one RCT and two high-quality observational studies. A moderate baseline category was designated if there was one RCT, one high-quality observational study, and one low-quality observational study or three high-quality observational studies. A low baseline category was designated if there were fewer than three high-quality observational studies.

Next, the overall grading questions in Table 2 were then applied to the body of research for each outcome. Table 3 includes the overall quality categories and definitions. An overall grade category was assigned by considering the number of studies, design, study quality, consistency of results, directness (extent to which results directly addressed the question), and likelihood of reporting bias.

The grade was decreased by one level for each question if indicated by a positive answer to each question. For example, if study results were inconsistent, outcomes with a baseline category of high would be reduced one level to moderate. The final strength-of-evidence grade was then assigned.

In grading the evidence, the direction of effects was evaluated as favoring APRNs, favoring the comparison group, or no significant difference. In many cases, showing equivalence of outcome was considered a good outcome, similar to equivalence trials where the aim is to show the therapeutic equivalence of two treatments (Jones, Jarvis, Lewis, & Ebbutt, 1996). This was the case when comparing care involving NPs, CRNAs, or CNMs with care involving only physicians.

Effect sizes were not calculated for the multiple outcomes, rather the significance or nonsignificance reported by the authors was recorded. Calculating effect sizes for these

Table 2.
Assessment of Overall Evidence

Criteria	Rating System	Definition
Based on the number of studies and numbers of patients, is this sparse?	-1	Sparse = fewer than three studies per outcome; fewer than two RCTs when RCTs are appropriate
As a body of evidence, are the study designs the strongest designs to answer the question?	-1	Determination of strongest study designs is outcome dependent. RCTs are not always feasible, and in some instances, observational studies provide better evidence (e.g., RCT for physiologic outcome such as blood pressure, lipids, glucose — RCT desirable; outcomes that are rare events, such as death, complications — observational desirable).
Is the quality of the studies acceptable?	-1	Quality refers to the study methods and execution. Quality of studies is reflected in the individual study-quality rating (0_8) and designated as low or high (≥5 = high, ≤4 = low).
Is there important inconsistency across the studies?	-1	Consistency is similar estimates of the effect. Inconsistency is demonstrated through differences in direction of effects and significances of differences across all studies. For outcomes for which equivalent nonsignificant outcomes are favorable (NP, CNM, CRNA), inconsistencies are present when the significant difference favors the comparison group.
Is there concern about the directness of the evidence?	-1	Directness is the extent to which study participants, measures, and outcomes are similar to the population of interest.
Is there a high probability of reporting bias? This includes publication bias and selective reporting of outcomes.	-1	Probability of reporting bias that would result in more significant differences in comparison groups than actually exist

Table 3.
Overall Quality Categories and Definitions

Overall Quality	Definition
High	Further research is very unlikely to change our confidence in the estimate of effect.
Moderate	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low	Any estimate of effect is very uncertain.

SOURCE: Atkins et al. (2004).

multiple broad outcomes would be problematic for several reasons. First, for many outcomes the studies represent widely varying populations, definitions, time periods, and study designs. Second, the publications did not consistently include the necessary data to calculate effect size (e.g., Ns and standard deviations for subsamples) since many of the studies were not designed specifically to make APRN comparisons to other providers.

A draft of the evidence report was reviewed by four TEPs, one for each APRN category and one methodological TEP including other stakeholders (consumer statistician and physician leader). Each TEP submitted written comments and recommendations that were addressed by the research team.

Results

Across the four APRN groups, 107 studies met inclusion criteria (NP, 49; CNS, 22; CNM, 23; CRNA, 4; and CNS and NP combined, 9). Based on the decision to focus on outcomes with at least three supporting studies, 69 studies (20 RCTs and 49 observational studies) were included in outcome aggregation. The summary of studies and overall strength of evidence grades are included for NPs

Table 4a.
Summary of Study Characteristics for Nurse Practitioners

Author, Year	Compared Groups	Disease/Condition	Patient Population	Setting	Study Quality
RCTs (n=14)					
Becker et al., 2005	NP to MD	Coronary artery disease	African Americans, 30-59 y/o, sibling of probands <60 y/o	Community	High
Büla et al., 1999	GNP + team to MD	Varied	>74 y/o, without cognitive or functional impairment	Community	High
Callahan et al., 2006	GNP + team to MD	Alzheimer's disease	In home with caregiver	Community	High
Counsell et al., 2007	NP + team to MD	Varied	>64 y/o; income <200% of federal poverty level	Community	High
Fanta et al., 2006	PNP + attending MD to resident + attending MD	Condition requiring inpatient trauma care	Children between 2 months and 17 years of age	Inpatient	Low
Krichbaum, 2007	GNP to MD	Hip fracture	>64 y/o with hip fracture repair	Inpatient	Low
Lenz et al., 2004	NP to MD	Varied	Hispanic adults with recent urgent care or ED visit	Community	High
Lenz et al., 2002	NP to MD	Diabetes	Adults; primarily Hispanic; no current health care provider	Community	High
Litaker et al., 2003	NP to MD	Hypertension and diabetes	Adults without complex medical conditions	Community	High
Mundinger et al., 2000	NP to MD	Chronic conditions	Hispanic adults with recent urgent care or ED visit	Community	High
Nelson et al., 1991	PNP to usual ED care	Infectious or emergent condition	Children <8 y/o without chronic illness	Community	High
Paez & Allen, 2006	NP to MD	Coronary artery disease	Adults undergoing revascularization procedure	Community	High
Pioro et al., 2001	NP to MD	Varied medical conditions	18-69 y/o; admitted to general medical units	Inpatient	High
Stuck et al., 1995	GNP to MD	Varied conditions	>74 y/o; living at home without preexisting functional impairment	Community	High
Observational (n=23)					
Ahern et al., 2004	NP to MD	Chronic hepatitis C	Adults	Community	Low
Aigner et al., 2004	NP to MD	Chronic diseases	Residents in eight nursing homes	Nursing home	High
Aiken et al., 1993	NP to MD	HIV/AIDS	Adults with HIV/AIDS seen in specialty clinic	Community	Low
Bissinger et al., 1997	NNP to MD	Conditions encountered in low-birthweight infants	Low-birthweight neonates between 500-1,250 grams	Inpatient	High
Borgmeyer et al., 2008	PNP to MD	Asthma	Children admitted to general units with exacerbation of asthma	Inpatient	Low
Dahle et al., 1998	NP to MD	Uncomplicated decompensated heart failure	Adults admitted to hospital	Inpatient	High

Table 4a. (continued)
Summary of Study Characteristics for Nurse Practitioners

Author, Year	Compared Groups	Disease/Condition	Patient Population	Setting	Study Quality
Observational (n=23) (continued)					
Garrard et al., 1990	NP to MD usual care	Varied	Nursing home resident	Nursing home	Low
Gracias et al., 2008	ACNP to MD	Varied postoperative	Adults admitted to surgical ICU	Inpatient	High
Hoffman et al., 2005	ACNP to MD	Varied medical conditions	Adults receiving mechanical ventilation and admitted to subacute MICU	Inpatient	High
Kane et al., 2004	NP to MD	Varied	Nursing home residents	Nursing home	Low
Karlowicz & McMurray, 2000	NNP to MD	Extremely low-birthweight infants	Newborns admitted to NICU	Inpatient	High
Kutzleb & Reiner, 2006	NP to MD	Heart failure	18-75 y/o	Community	Low
Lambing et al., 2004	NP to MD	Varied	60+ years admitted to geriatric unit or 1 of 2 general medical units	Inpatient	Low
McMullen et al., 2001	ACNP to MD	Varied	Adults admitted to medical unit	Inpatient	High
Meyer & Miers, 2005	ACNP to MD	Varied conditions associated with cardiovascular surgery	Adults undergoing cardiovascular surgery	Inpatient	High
Miller, 1997	GNP to PA	Varied inpatient medical conditions	Nursing home patients admitted to inpatient medicine unit	Inpatient	High
Paul, 2000	NP to MD	Heart failure	Adults with CHF seen in specialty clinic	Community	Low
Pinkerton & Bush, 2000	NP to MD	Diabetes and hypertension	Adults	Community	High
Rideout, 2007	PNP to MD	Cystic fibrosis	Children admitted to adolescent unit	Inpatient	Low
Ruiz et al., 2001	NP to MD	Twin pregnancy	Women diagnosed with twin pregnancy	Community	High
Russell et al., 2002	ACNP to MD	Varied neurological conditions	Adults with tracheostomy admitted to neurological unit	Inpatient	High
Schultz et al., 1994	NNP to MD	Varied neonatal conditions	Infants admitted to transitional care unit	Inpatient	High
Varughese et al., 2006	NP to MD	Varied operative conditions	Children scheduled for outpatient surgery	Ambulatory surgery	Low

Table 4b.
Summary of Study Design, Study Groups, Study Purpose, Patient Population, Outcomes, and Quality for Certified Nurse-Midwives

Author, Year	Compared Groups	Disease/Condition	Patient Population	Setting	Study Quality
RCTs (n=2)					
Chambliss et al., 1992	CNM vs. MD	Low-risk pregnant women	Admitted in one hospital to unit for physician or unit for midwifery management	Inpatient	High
Heins et al., 1990	CNM to MD	Pregnant women	Women attending 1 of 5 state-funded prenatal clinics and considered high risk for low birthweight	Prenatal-inpatient	High
Observational (n=19)					
Baruffi et al., 1990	CNM to MD	Pregnant women	Delivering in hospital with CNM care or hospital with residents and physicians	Inpatient	High
Blanchette, 1995	CNM to MD	Pregnant women	Women in single clinic cared for by CNM or by MD	Prenatal-inpatient	High
Butler et al.,1993	CNM to MD	Low-risk pregnant women	Women delivered in hospital with CNM or MD care	Inpatient	High
Cragin, 2002	CNM to MD	Moderate-risk pregnant women	Women with prenatal care at two sites	Prenatal-inpatient	High
Cragin & Kennedy, 2006	CNM to MD	Low or moderate-risk pregnant women	Women enrolled in obstetric practice who chose either CNM or MD care	Prenatal-inpatient	High
Davis et al., 1994	CNM to MD	Low-risk pregnant women	Women delivering in hospital with both CNM and MD care	Inpatient	High
DeLano et al., 1997	CNM to MD	Low to moderate-risk pregnant women.	Women delivering in hospital with both CNM and MD	Inpatient	High
Fischler & Harvey, 1995	CNM to MD	Retrospective 20-year trend study.	Women cared for in one of three care models and Medicaid, giving birth in single county	Prenatal-inpatient	Low High
Hueston & Rudy, 1993	CNM to MD	Low-income pregnant women	Women receiving care at medical center primary care group	Prenatal-inpatient	High
Jackson, Lang, Ecker et al., 2003a[§]	CNM to MD	Pregnant women	Women enrolling at study site	Prenatal-inpatient	High
Jackson, Lang, Swartz et al., 2003b[§]	CNM to MD	Low-income and low-risk pregnant women	Women enrolling at study site	Prenatal-inpatient	High
Lenaway et al.,1998	CNM to MD	Low-income and low-risk pregnant women	Women presenting to county health department where CNMs are principal providers	Prenatal-inpatient	High
Low et al., 2000[‖]	CNM to MD	Low-income pregnant women	Women voluntarily chose the CNM group practice or faculty obstetricians	Prenatal-inpatient	High
MacDorman & Singh, 1998	CNM to MD	Low-risk pregnant women	Women in linked birth/death data	Inpatient	High

Table 4b. (continued)
Summary of Study Design, Study Groups, Study Purpose, Patient Population, Outcomes, and Quality for Certified Nurse-Midwives

Author, Year	Compared Groups	Disease/Condition	Patient Population	Setting	Study Quality
Observational (n=19) (continued)					
Oakley et al., 1995‖	CNM to MD	Low-risk pregnant women	Women in one medical center	Inpatient	High
Oakley et al., 1996‖	CNM to MD	Low-risk pregnant women	Women in one medical center	Inpatient to home	High
Robinson et al., 2000	CNM to MD	Low-risk pregnant women	Women entering care at study site	Inpatient	High
Rosenblatt et al., 1997	CNM to MD	Low-risk pregnant women	Women initiated care with one of the randomly selected providers	Prenatal to inpatient	High
Sze et al., 2008	CNM to MD	Low-risk pregnant women	Women cared for in single hospital	Inpatient	High

§ Represents same study data
‖ Represents same study data

in Table 4a, CNMs in Table 4b, and CNSs in Table 4c. A summary of the aggregated outcomes are included for NPs in Table 5a, CNMs in Table 5b, and CNSs in Table 5c.

Nurse Practitioner Outcomes

Thirty-seven studies (14 RCTs and 23 observational studies) examined patient outcomes of care by NPs (NP care group) compared with care managed exclusively by physicians (attending physicians with or without interns, residents, and/or fellows) in all but one study. Eleven patient outcomes were summarized: patient satisfaction with provider/care, patient self-assessment of perceived health status, functional status, blood glucose, serum lipids, blood pressure, emergency department visits, hospitalization, duration of ventilation, length of stay, and mortality. The number and type of studies for each outcome will be described.

Patient satisfaction. Six studies (four RCTs) reported patient satisfaction with the provider. Studies were conducted in primary care settings with adults, and from parents of children who had undergone outpatient surgery or been admitted to the hospital after a traumatic injury. When comparing NP and MD care, there is a high level of evidence to support equivalent levels of patient satisfaction.

Self-reported perceived health. Seven studies (five RCTs) examined self-reported perceived health. The instrument used in the studies included the SF-12 or SF-36 physical and mental function scales to rate self-reported perception of health. Studies were conducted with samples of adults cared for in a primary care setting, specialty clinic, or home care in a community setting, and patients hospitalized with general medical conditions. When comparing NP and MD care, there is a high level of evidence to support equivalent levels of self-reported patient perception of health.

Functional status. Ten studies (six RCTs) reported activities of daily living (ADL), instrumental activities of daily living (IADL), 6-minute walk test, or patient self-report.

Studies were conducted with samples of community-dwelling elders who were recently discharged from hospitals and receiving either home care or inpatient rehabilitation, adults hospitalized for general medical problems, and ambulatory patients diagnosed with HIV/AIDS. When comparing NP and MD groups, there is a high level of evidence to support equivalent patient functional status outcomes.

Glucose control. Five studies (RCTs) reported glucose control (glycosolated hemoglobin, serum glucose). Studies were conducted with samples of adults in ambulatory primary care settings. When comparing NP and MD care, there is a high level of evidence to support equivalent levels of patient glucose control.

Lipid control. Three studies (RCTs) reported lipid control. Studies were conducted with samples of adults in primary care settings. When comparing NP and MD groups, there is a high level of evidence to support better management of patient serum lipid levels by NPs.

Blood pressure. Four studies (RCTs) reported blood pressure control. Studies were conducted with samples of adults in primary care settings. When comparing NP and MD groups, there is a high level of evidence to support equivalent levels of BP control.

Emergency department (ED) or urgent care visits. Five studies (three RCTs) reported utilization outcomes through ED or urgent care visits. Studies were conducted with samples of ambulatory patients with diabetes, hypertension, dyslipidemia, asthma, and heart failure; community-dwelling elders; nursing home residents; and otherwise healthy children who had recently been seen in the ED for an emergent condition. When comparing NP and MD groups, there is a high level of evidence to support equivalent rates of ED visits.

Hospitalization. Eleven studies (three RCTs) reported the utilization outcome hospitalization. Studies were conducted with samples of adult patients with heart failure managed in ambulatory care settings, older adults receiving care in nursing homes, or patients discharged home after acute care hospitalizations (premature infants, children with asthma, adults with heart failure, and older adults with general medical conditions). When comparing NP and MD groups, there is a high level of evidence to support equivalent rates of hospitalization.

Duration of mechanical ventilation. Three studies (0 RCTs) reported duration of mechanical ventilation. Studies were conducted with samples in acute care settings with adults or low-birthweight neonates. When comparing NP and MD groups, there is a low level of evidence to support equivalent duration of mechanical ventilation.

Length of stay (LOS). Sixteen studies (two RCTs) reported patient LOS. Studies were conducted with samples in high-risk neonates, children (admitted for exacerbation of asthma, pulmonary complications of cystic fibrosis, or non-thoracic or CNS traumatic injuries), critically ill adults (requiring endotracheal intubation or tracheostomy and mechanical ventilation for respiratory failure), adults (admitted with general medical problems or for cardiovascular surgery), and older adults (admitted from home or a nursing home with general medical problems). When comparing NP and MD groups, there is a moderate level of evidence to support equivalent LOS.

Table 4c.
Summary of Study Design, Study Groups, Study Purpose, Patient Population, Outcomes, and Quality for Clinical Nurse Specialists

Author, Year	Compared Groups	Disease/Condition	Patient Population	Setting	Study Quality
			RCTs (n=4)		
Allen et al., 2002	CNS to usual care	Stroke and transient ischemic attack	Adults discharged to home from hospital or rehabilitation	Community	High
Duffy-Durnin & Campbell-Heider, 1994	CNS to usual care	Medical-surgical admission	>70 y/o	Hospital	High
Swindle et al., 2003	CNS to usual care	Depression	Adult veterans	Community	High
York et al., 1997	CNS to usual care	High-risk pregnancy	Women recruited during first hospital admission	Community	High
			Observational (n=7)		
Ahrens et al., 2003	CNS to standard care	End-of-life care	Patients at high risk of dying	Inpatient	High
Hanneman et al., 1993	CNS to usual care	Varied conditions	Adults admitted to critical care units	Inpatient	High
Koch & Smith, 1994	CNS to usual care	Radical prostatectomy	Men undergoing retropubic prostatectomy	Inpatient	Low
Lombness, 1994	CNS to PA	Coronary bypass graft	Adults for elective surgery	Inpatient	High
Micheels et al., 1995	CNS to usual care	Colon resection	Adults	Inpatient	Low
Sherman & Johnson, 1994	CNS to usual care	Oncology conditions	Adult oncology patients	Inpatient	Low
Wheeler, 2000	CNS to usual care	Total knee replacement	Adults	Inpatient	High

Table 5a.
Summary of Outcomes and Evidence for Nurse Practitioners

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
Patient satisfaction	6 (4 RCTs)	Lenz et al., 2004 (6)* Fanta et al., 2006 (3)* Litaker et al., 2003 (8)*† Mundinger et al., 2000 (8)* Pinkerton & Bush, 2000 (7) Varughese et al., 2006 (2)	Six studies reported patient satisfaction with the provider. Four of the studies were of high quality (Lenz et al., 2004; Litaker et al., 2003; Mundinger et al., 2000; Pinkerton & Bush, 2000). Five studies were conducted in primary care settings with adults (Lenz et al., 2004; Litaker et al., 2003; Mundinger et al., 2000; Pinkerton & Bush, 2000). The other two studies collected data from parents of children who had undergone outpatient surgery or been admitted to the hospital after a traumatic injury (Fanta et al., 2006; Varughese et al., 2006). When comparing NP and MD care, there is a high level of evidence to support equivalent levels of patient satisfaction.	High: Satisfaction is equivalent in NP and MD comparison groups.
Self-reported perceived health	7 (5 RCTs)	Counsell et al., 2007 (7)*† Litaker et al., 2003 (8)* Lenz et al., 2002 (6)* Pioro et al., 2001 (5)* Mundinger et al., 2000 (8)* Ahern et al., 2004 (3) McMullen et al., 2001 (4)†	All used the SF-12 or SF-36 physical and mental function scales to rate self-reported perception of health. Five were judged high-quality RCTs (Counsell et al., 2007; Litaker et al., 2003; Lenz et al., 2002; Mundinger et al., 2000; Pioro et al., 2001). Four of the studies were conducted with adults cared for in a primary care setting (Lenz et al., 2002; Litaker et al., 2003; Mundinger et al., 2000) and one used a sample of adults diagnosed with hepatitis C managed in a specialty clinic (Ahern et al., 2004). A sixth study collected data from older adults receiving home care in a community setting (Counsell et al., 2007). The last two studies reported on results obtained from adults hospitalized with general medical conditions (McMullen et al., 2001; Pioro et al., 2001). One RCT (Counsell et al., 2007) found higher health status in patients cared for by NPs as part of a comprehensive care management team, and the rest of the studies did not find any difference in health status depending on provider type, though two were powered to do so. When comparing NP and MD care, there is a high level of evidence to support equivalent levels of self-reported patient perception of health status.	High: Self-assessed health status is equivalent in NP and MD comparison groups.
Functional Status ADL/IADL	10 (6 RCTs)	Counsell et al., 2007 (7)* Krichbaum, 2007 (3)* Callahan et al., 2006 (5)* Pioro et al., 2001 (5)* Büla et al., 1999 (5)*† Stuck et al., 1995 (8)*† Kutzleb & Reiner, 2006 (2) Aiken et al., 1993 (2) Ahern et al., 2004 (3) Garrard et al., 1990 (3)	Ten studies evaluated the impact of provider (NP vs. MD) on patient functional status in terms of scores on measures of ADL or IADL, 6-minute walk test, or patient self-report. Five of the studies were high quality (Büla et al., 1999; Callahan et al., 2006; Counsell et al., 2007; Pioro et al., 2001; Stuck et al., 1995) and two found NP care was associated with higher functional status (Büla et al., 1999; Stuck et al., 1995). Community-dwelling elders who were recently discharged from hospitals and receiving either home care or inpatient rehabilitation were the focus of five of these studies (Büla et al., 1999; Callahan et al., 2006; Counsell et al., 2007; Krichbaum, 2007; Stuck et al., 1995). One study included adults hospitalized for general medical problems (Pioro et al., 2001) and another included ambulatory patients diagnosed with HIV/AIDS (Aiken et al., 1993). When comparing NP and MD groups, there is a high level of evidence to support equivalent levels of patient functional status.	High: Functional status measured as ADL/IADL is equivalent in NP and MD comparison groups.
Glucose control	5 (5 RCTs)	Becker et al., 2005 (5)*† Lenz et al., 2004 (6)* Litaker et al., 2003 (8)*† Lenz et al., 2002 (6)* Mundinger et al., 2000 (8)*	Blood glucose control (glycosolated hemoglobin, serum glucose) was an outcome in four studies, all high-quality RCTs. All of the studies were conducted in ambulatory primary care settings using samples of adults (Lenz et al., 2004; Lenz et al., 2002; Litaker et al., 2003; Mundinger et al., 2000). When comparing NP and MD care, there is a high level of evidence to support equivalent levels of patient glucose control.	High: Blood glucose levels/control among patients cared for by NPs was comparable or better than that of patients cared for by other providers.

Table 5a. (continued)
Summary of Outcomes and Evidence for Nurse Practitioners

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
Lipid control	3 (3 RCTs)	Paez & Allen, 2006 (8)*† Becker et al., 2005 (5)*† Litaker et al., 2003 (8)*†	Three studies examined the effect of provider on serum lipids. All of the studies were conducted in ambulatory primary care settings using samples of adults (Becker et al., 2005; Litaker et al., 2003; Paez & Allen, 2006). The three RCTs were high quality and also provided evidence NP care was associated with better lipid control compared to care from other providers (Paez & Allen, 2006). When comparing NP and MD groups, there is a high level of evidence to support better management of patient serum lipid levels by NPs (Becker et al., 2005; Litaker et al., 2003).	High: Serum lipid levels/control among patients cared for by NP group was better than the MD comparison group.
Blood Pressure	4 (4 RCTs)	Becker et al., 2005 (5)*† Lenz et al., 2004 (5)* Litaker et al., 2003 (8)* Mundinger et al., 2000 (8)*†	Blood pressure control was an outcome of four RCTs. All of the studies were conducted in ambulatory primary care settings using samples of adults. All four RCTs were high quality, and two of those RCTs found patients cared for by the NP had better-controlled BP than patients cared for by other providers (Becker et al., 2005). When comparing NP and MD groups, there is a high level of evidence to support equivalent levels of BP control.	High: Blood pressure levels/control among patients is equivalent in NP and MD comparison groups.
ED or urgent care visits	5 (3 RCTs)	Counsell et al., 2007 (7)*† Lenz et al., 2002 (6)* Nelson et al., 1991(7)* Aigner et al., 2004 (4) Paul, 2000 (3)	Five studies reported rates of ED visits. All three RCTs were judged to be high quality (Counsell et al., 2007; Lenz et al., 2002; Nelson et al. 1991). Study samples included ambulatory patients with diabetes, hypertension, dyslipidemia, asthma, and heart failure (Lenz et al., 2002; Paul, 2000); community-dwelling elders and nursing home residents (Aigner et al., 2004; Counsell et al., 2007); and otherwise healthy children who had recently been seen in the ED for an emergent condition (Nelson et al., 1991). When comparing NP and MD groups, there is a high level of evidence to support equivalent rates of ED visits.	High: Rates of ED or urgent care visits are equivalent in NP and MD comparison groups.
Hospitalization	11 (3 RCTs)	Counsell et al., 2007 (7)* Stuck et al., 1995 (8)* Lenz et al., 2002 (6)* Schultz et al., 1994 (6) Lambing et al., 2004 (4) Kane, 2004 (4)† Aigner et al., 2004 (5) Paul, 2000 (4)† Dahle et al., 1998 (5) Garrard et al., 1990 (3)† Borgmeyer et al., 2008 (4)	Eleven studies reported rates of hospitalization. Adult patients with heart failure, managed in ambulatory care settings, were the focus of one study (Paul, 2000). Three studies evaluated older adults receiving care in nursing homes (Aigner et al., 2004; Garrard et al., 1990; Kane et al., 2004). The remaining five studies collected data from a variety of individuals discharged home after acute care hospitalizations (premature infants, children with asthma, adults with heart failure, and older adults with general medical conditions) (Borgmeyer et al., 2008; Dahle et al., 1998; Lambing et al., 2004; Schultz et al., 1994). When comparing NP and MD groups, there is a high level of evidence to support equivalent rates of hospitalization.	High: Rates of hospitalization/ rehospitalization are equivalent in NP and MD comparison groups.
Duration of ventilation	3 (0 RCTs)	Hoffman et al., 2005 (7) Russell et al., 2002 (5) Bissinger et al., 1997 (5)	Duration of ventilation was an outcome in three studies. Two found the substitution of an NP for pulmonary fellows and neurosurgical house staff had no deleterious effect on patient duration of ventilation (Hoffman et al., 2005; Russell et al., 2002). Low-birthweight neonates whose care was provided by a neonatal NP or medical residents spent similar lengths of time supported by mechanical ventilation (Bissinger et al., 1997). When comparing NP and MD groups, there is a low level of evidence to support equivalent duration of mechanical ventilation.	Low: Duration of ventilation is comparable among patients cared for by NPs in collaboration with attending MDs compared to duration of ventilation in patients cared for by house-staff MDs in collaboration with attending MDs.

Table 5a. (continued)
Summary of Outcomes and Evidence for Nurse Practitioners

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
LOS	16 (2 RCTs)	Fanta et al., 2006 (3)*† Pioro et al., 2001 (5)* Rideout, 2007 (3) Meyer & Miers, 2005 (6)† Hoffman et al., 2005 (7) Ruiz, 2001 (5)† Karlowicz & McMurray, 2000 (5) Miller, 1997 (5)† Schultz et al., 1994 (6)† Borgmeyer et al., 2008 (4) Lambing et al., 2004 (4)‡ Aigner et al., 2004 (5) Russell et al., 2002 (5)† Paul, 2000 (4) Dahle et al., 1998 (5) Bissinger et al., 1997 (5)	High-risk neonates, children (admitted for exacerbation of asthma, pulmonary complications of cystic fibrosis, or non-thoracic or CNS traumatic injuries), adults (admitted with general medical problems or for cardiovascular surgery), and older adults (admitted from home or a nursing home with general medical problems) were included in these studies. In addition, two studies examined outcomes in critically ill adults requiring endotracheal intubation or tracheostomy and mechanical ventilation for respiratory failure. One study was conducted in a neonatal critical care unit with high-risk newborns (excluding those with congenital malformations). Ten were judged high quality. Results of five of the studies favored the NP (Fanta et al., 2006; Miller, 1997; Ruiz et al., 2001; Russell et al., 2002; Schultz et al., 1994) but one low-quality study favored MDs (Lambing et al., 2004). However, the elderly patients cared for by the NPs in that study had higher acuity scores than patients in the MD group. This difference in acuity may have influenced the subsequent patient LOS. Studies in which NP patients had lower LOS included neurosurgical patients, elders, pediatric trauma patients, and low-birthweight and twin neonates. Ten studies found no difference in LOS depending on the provider (NP outcome comparable to physicians). These studies included adults and elderly patients hospitalized in a subacute MICU, cardiovascular surgical patients, and adults diagnosed with a variety of diagnoses, including heart failure, in addition to low-birthweight neonates and children with acute exacerbations of asthma and cystic fibrosis. When comparing NP and MD groups, there is a moderate level of evidence to support equivalent LOS.	Moderate: LOS is equivalent in NP and MD comparison groups.
Mortality	8 (1 RCT)	Pioro et al., 2001 (5)* Hoffman et al., 2005 (7) Ruiz, 2001 (5) Karlowicz & McMurray, 2000 (5) Gracias et al., 2008 (7)† Kane, 2004 (4) Russell et al., 2002 (5) Bissinger et al., 1997 (5)	Samples included high-risk infants (twins, pre-term, or low birthweight) (Bissinger et al., 1997; Karlowicz & McMurray, 2000; Ruiz et al., 2001), adults with acute and chronic medical conditions (Pioro et al., 2001), older adult residents of nursing homes (Kane et al., 2004), and critically ill adults (diagnosed with respiratory failure, multiple-cause critical illnesses, and after complex neurosurgery) (Gracias et al., 2008; Hoffman et al., 2005; Russell et al., 2002). Seven of the studies were judged high quality (Bissinger et al., 1997; Gracias et al., 2008; Hoffman et al., 2005; Karlowicz & McMurray, 2000; Pioro et al., 2001; Ruiz et al., 2001; Russell et al., 2002). A high-quality quasi-experimental study found mortality rates were lower in patients cared for by NPs (Gracias et al., 2008). The remaining seven studies found no differences in mortality rates. When comparing NP and MD groups, there is a high level of evidence to support equivalent mortality rates.	High: Mortality is equivalent in NP and MD comparison groups.

* RCT
† Favors APRN
‡ Favors comparison group

Mortality. Eight studies (one RCT) reported patient mortality. Studies were conducted with samples of high-risk infants (twins, pre-term, or low birthweight), adults with acute and chronic medical conditions, older adult residents of nursing homes, and critically ill adults (diagnosed with respiratory failure, multiple-cause critical illnesses, and after complex neurosurgery). When comparing NP and MD groups, there is a high level of evidence to support equivalent mortality rates.

Certified Nurse-Midwife Outcomes

Outcomes from 21 studies (two RCTs and 19 observational studies) were aggregated for 13 outcomes of care managed by

Table 5b.
Summary of Outcomes for Certified Nurse-Midwives

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
Cesarean	15 (1 RCT)	Baruffi et al., 1990 (6)[†] Blanchette, 1995 (5)[†] Butler et al., 1993 (6)[†] Chambliss et al., 1992 (7)* Cragin, 2002 (6)[†] Cragin et al., 2006 (5)[†] Davis et al., 1994 (6)[†] DeLano et al., 1997 (5)[†] Fischler & Harvey, 1995 (4)[†] Hueston & Rudy, 1993 (7)[†] Jackson, Lang, Ecker et al., 2003 (5) Jackson, Lang, Swartz et al., 2003 (5)[†] Lenaway et al., 1998 (5) Oakley et al., 1995 (6)[†] Rosenblatt et al., 1997 (7)	The only RCT did not show a significant difference. The purpose was to determine if the differences in cesarean rates between the CNMs and obstetricians were due to selection bias. However, it should be noted the baseline cesarean section rates were very low: 2% for CNMs and 9% for obstetricians. Thirteen of the 14 observational studies were high quality. Thirteen of the 15 studies favor CNMs, and the others are equivalent. There is a high level of evidence that CNM patients have lower rates of cesarean sections compared to MD patients.	High: Lower rates of cesarean sections for CNMs than other providers.
Low Apgar score	11 (1 RCT)	Blanchette, 1995 (5) Butler et al., 1993 (6) Chambliss et al., 1992 (7)* Davis et al., 1994 (6) Fischler & Harvey, 1995 (4) Hueston & Rudy, 1993 (7) Jackson, Lang, Ecker et al., 2003 (7) Jackson, Lang, Swartz et al., 2003 (5) Lenaway et al., 1998 (5)[†] Oakley et al., 1996 (6) Rosenblatt et al., 1997 (7)	The majority of studies measured as Apgar <7. One of these was a RCT (Chambliss et al., 1992) with a quality rating of 7. For the observational studies, nine were high quality and one was low quality. Since equivalent Apgar scores are desirable, having 10 of the 11 studies with non-significant differences and the remaining study favoring the CNM group was considered acceptable. However, it should be noted several studies included deliveries that might be at risk for low Apgar, while others do not, and there was inconsistent use of statistical control. A high level of evidence indicates CNM and MD Apgar scores are comparable.	High: Comparable rates of low Apgar scores between CNM and other provider groups in all studies but one.
Epidural	10 (0 RCTs)	Blanchette, 1995 (5)[†] Butler et al., 1993 (6) Cragin, 2006 (5)[†] Davis et al., 1994 (6)[†] Hueston & Rudy, 1993 (7) Jackson, Lang, Swartz et al., 2003 (7)[†] Oakley et al., 1995 (6)[†] Robinson et al., 2000 (6)[†] Rosenblatt, 1997 (7)[†] Sze et al., 2008 (6)[†]	Nine of the 10 observational studies showed CNMs used less epidural anesthesia. For births in hospitals, women do have access to regional anesthesia (epidural) during labor even when attended by a CNM. Regional anesthesia may not be available in birthing centers. While there was consistency of findings, there were no RCTs, so the evidence of lower or comparable epidural use was graded as moderate.	Moderate: Less epidural use by CNMs than other providers.
Labor augmentation	9 (1 RCT)	Blanchette,1995 (5)[†] Chambliss et al.,1992 (7)*[†] Davis et al., 1994 (6)[†] Hueston & Rudy, 1993 (7)[†] Jackson, Lang, Swartz et al., 2003 (7)[†] Lenaway et al., 1998 (5)[‡] Oakley et al., 1995 (6) Robinson et al., 2000(6)[†] Rosenblatt et al., 1997(7)[†]	One observational study that did not favor the CNM (Oakley et al., 1995) was from a single institution. One study comparing a county-level CNM intervention to two control counties favored the women in the control counties (Lenaway et al., 1998). The authors noted this was contrary to published reports and suggested it may be related to differences in risk or differences in obstetrical practices in institutions. Considering the inclusion of an RCT and the consistency of evidence, the evidence of lower rates of labor augmentation for CNM was graded as high.	High: Lower or comparable use of labor augmentation between CNM and other providers.
Labor induction	9 (0 RCTs)	Blanchette, 1995 (5)[†] Davis et al., 1994 (6)[†] Hueston & Rudy, 1993 (7)[†] Jackson, Lang, Swartz et al., 2003 (7)[†] Lenaway et al., 1998 (5)[‡] Oakley et al., 1995 (6) Robinson et al., 2000 (6)[†] Rosenblatt et al., 1997 (7)[†] Sze et al., 2008 (6)	One of the nine studies showed no significant difference. Seven favored the CNM, while one favored the women in the control counties (Lenaway et al., 1998) similar to labor augmentation. Based on the lack of an RCT study and the inconsistency of the findings, the evidence of lower rates of labor induction for CNM was graded as moderate.	Moderate: Comparable or lower rates of labor induction compared to other providers.

Table 5b. (continued)
Summary of Outcomes for Certified Nurse-Midwives

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
Episiotomy	8 (1 RCT)	Blanchette, 1995 (5)† Chambliss et al., 1992 (7)*† Hueston & Rudy, 1993 (7)† Jackson, Lang, Swartz et al., 2003 (7)† Low et al., 2000 (6)† Oakley et al., 1995 (6)† Robinson et al., 2000 (6)† Rosenblatt et al., 1997 (7)†	All studies were rated as high quality and all favored CNMs. Overall, it was concluded there is a high level of evidence to support that episiotomy rates are lower for CNMs than MDs.	High: Episiotomy rates are lower for CNMs than other providers in all studies.
Low birthweight (<2,500 g)	8 (1 RCT)	Blanchette, 1995 (5) Fischler & Fischler, 1995 (4) Heins et al., 1990 (6)* Jackson, Lang, Swartz et al., 2003 (7) Lenaway et al., 1998 (5) MacDorman & Singh, 1998 (6)† Oakley et al., 1996 (6) Sze et al., 2008 (6)†	The common measure was proportion with low birthweight (<2,500 GMs). All remaining observational studies were rated as high quality. While six of the studies reported no significant differences in low-birthweight rates, the other two favored CNMs. There is a high level of evidence that there are comparable rates of low birthweight between CNMs and other providers.	High: Comparable rates of low birthweight between CNMs and other providers.
Vaginal operative delivery (forceps, vacuum, or both)	8 (1 RCT)	Blanchette, 1995 (5) Butler et al., 1993 (6)† Chambliss et al., 1992 (7)* Cragin, 2002 (6)† Davis et al., 1994 (6)† DeLano et al., 1997 (5) Oakley et al., 1995 (6)† Rosenblatt et al., 1997 (7)†	Eight high-quality studies reported vaginal operative delivery use, including forceps use, vacuum use, or both. The RCT (Chambliss et al., 1992) showed no significant difference in forceps use but was significant for vacuum use. It should be noted the RCT excluded cases with significant maternal or fetal complications. Five of the remaining seven observational studies favored the CNM. The evidence of lower or comparable vaginal operative deliveries among CNMs was graded as high.	High: Lower or comparable vaginal operative deliveries between CNMs and other providers.
Labor analgesia	6 (1 RCT)	Blanchette, 1995 (5) Chambliss et al., 1992 (7)*† Davis et al., 1994 (6)† Hueston & Rudy, 1993 (7) Jackson et al., 2003 (7)† Oakley et al., 1995 (6)†	Analgesia (narcotic) use during labor was reported in six studies, one of which was an RCT (Chambliss et al., 1992). The RCT and five of the six observational studies favored the CNM. The studies were all rated as high quality. All women have access to analgesia during labor, but some women prefer to use non-pharmacologic approaches to manage pain. There is a high level of evidence there is less analgesia use by CNMs than MDs.	High: Less analgesia use by CNMs than other providers.
Perineal lacerations	5 (1 RCT)	Chambliss et al., 1992 (7)*† Hueston & Rudy, 1993 (7)† Low et al., 2000 (6)† Oakley et al., 1996 (6)† Robinson et al., 2000 (6)†	All studies favored the CNM. Perineal lacerations are associated with episiotomy use. A Cochrane review comparing routine versus restricted use of episiotomy found restricted use was associated with less-severe perineal trauma, less suturing, and fewer healing complications (Carroli & Belizan, 1999). Overall, it was concluded there is a high level of evidence rates of third and fourth-degree perineal lacerations are lower for CNMs than MDs.	High: Rates of third and fourth-degree perineal lacerations are lower for CNMs than other providers.
Vaginal birth after cesarean (VBAC)	5 (0 RCTs)	Blanchette, 1995 (5)† Cragin, 2002 (6)† Davis et al., 1994 (6)† DeLano et al., 1997 (5)† Lenaway et al., 1998 (5)	Four of the five studies favored CNMs. The one study that showed no difference (Lenaway et al., 1998) did have a higher proportion but it was not significant in random-effects testing. Not all of the studies excluded women who may not be eligible for VBAC, and there were no RCTs. A moderate level of evidence supports comparable or higher rates of VBAC for CNMs compared to MDs.	Moderate: Comparable or higher rates of VBAC for CNMs compared to other providers.

Table 5b. (continued)
Summary of Outcomes for Certified Nurse-Midwives

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
NICU admission	5 (0 RCTs)	Butler et al., 1993 (6)† Fischler & Harvey, 1995 (4) Hueston & Rudy, 1993 (7) Jackson, Lang, Swartz et al., 2003 (7) Oakley et al., 1996 (6)†	Two of the studies (Butler et al., 1993; Oakley et al., 1996) reported lower admission for the CNM group. One of these (Butler et al., 1993) used statistical control for age, race, year of delivery, infant size, and parity. Based on the lack of RCTs and inconsistent results, the evidence supporting lower NICU admission was considered moderate.	Moderate: Comparable or lower rates of NICU admission for CNM compared to other providers.
Breastfeeding	3 (0 RCTs)	Cragin, 2002 (6)† Jackson, Lang, Swartz et al., 2003 (7)† Oakley et al., 1996 (6)†	Three observational studies reported differences in initiation of breastfeeding. All were rated as high quality and favored CNMs. There is a moderate level of evidence CNM patients have higher breastfeeding rates than MDs.	Moderate: CNM patients have higher breastfeeding rates than other providers.

* RCT
† Favors APRN
‡ Favors comparison group

CNMs compared to outcomes of care managed exclusively by physicians. Infant outcomes reported in the studies included Apgar score, birthweight less than 2,500 grams, admission to neonatal intensive care, and breastfeeding. Maternal outcomes reflected both invasive interventions (cesarean section, epidural anesthesia, labor induction/augmentation, episiotomy, forceps, vacuum use, perineal lacerations) and less-invasive interventions thought to be underused (non-pharmacologic pain relief, vaginal birth after cesarean [VBAC]. The number and type of studies for each outcome will be further described.

Cesarean. Fifteen studies (one RCT) reported differences in cesarean rates between the CNMs and MD patients. When comparing CNM and MD care, there is a high level of evidence CNM groups have lower rates of cesarean sections.

Low APGAR score. Eleven studies (one RCT) reported low infant APGAR scores. When comparing CNM and MD care, CNM have similar infant APGAR scores.

Epidural. Ten studies (0 RCTs) report epidural use. When comparing CNM and MD care, there is a moderate level of evidence CNM groups have lower rates of epidural use.

Labor augmentation. Nine studies (one RCT) reported labor augmentation. When comparing CNM and MD care, there is a high level of evidence to support equivalent levels of labor augmentation.

Labor induction. Nine studies (0 RCTs) reported labor augmentation. When comparing CNM and MD care, there is a moderate level of evidence to support equivalent or lower levels of labor induction of CNM the group.

Episiotomy. Eight studies (one RCT) reported episiotomy rates. When comparing CNM and MD care, there is a high level of evidence to support lower rates of episiotomy for the CNM group.

Low birthweight (<2500 g). Eight studies (one RCT) reported low birthweight infants. When comparing CNM and MD care, there is a high level of evidence to support equivalent levels of low birthweight infants.

Vaginal operative delivery (forceps, vacuum, or both). Eight studies (one RCT) reported vaginal operative delivery. When comparing CNM and MD care, there is a high level of evidence to support comparable levels or lower levels in the CNM group of vaginal operative delivery.

Labor analgesia. Six studies (one RCT) reported labor analgesia. When comparing CNM and MD care, there is a high level of evidence to support lower levels of labor analgesia in the CNM group.

Perineal lacerations. Five studies (one RCT) reported perineal laceration outcomes. When comparing CNM and MD care, there is a high level of evidence to support lower levels of third and fourth-degree perineal laceration rates for the CNM group.

Vaginal birth after cesarean section. Five studies (0 RCTs) reported rates of vaginal birth after cesarean sections. When comparing CNM and MD care, there is a

Table 5c.
Summary of Outcomes for Clinical Nurse Specialists

Outcome	Number of Studies	Author, Year (Study Quality Rating), Significance	Synthesis of Studies	Evidence Grade
Satisfaction	3 (2 RCTs)	Johnson & Sherman, 1994 (4)† Swindle et al., 2003 (7)* York et al., 1997 (7)*	Only one low-quality observational study found a significant difference favoring the CNS group in satisfaction with care in a pre-test post-test inpatient oncology CNS case-management study (Johnson & Sherman, 1994). A high level of evidence supports comparable satisfaction scores, indicating that the CNS may not have a direct effect on patient satisfaction.	High: Satisfaction among patients on units with a CNS was similar to comparison group.
Length of stay	7 (2 RCTs)	Ahrens et al., 2003 (6)† Duffy-Durnin & Campell-Heider, 1994 (5)* Koch & Smith, 1994 (3)† Lombness, 1994 (6)† Micheels et al., 1995 (4) Wheeler, 2000 (8)† York et al., 1997 (7)*	Four of the five observational studies demonstrated lower LOS for patients on units with CNS-enhanced care for populations of post-coronary bypass surgery, patients in end-of-life care, patients undergoing radical prostatectomy, and patients who had a total knee replacement. Two RCTs found no significance difference in LOS when the CNS was involved in the care. However, one of those studies (York et al., 1997) explored CNS in postpartum care, and postpartum LOS is generally fixed, resulting in non-significance. Three high- and one low-quality observational studies demonstrated a difference favoring the CNS group.	High: LOS is comparable or better than patients cared for by a CNS as compared to non-CNS.
Cost	4 (2 RCTs)	Ahrens, 2003 (6)† Koch & Smith, 1994 (3)† Swindle et al., 2003 (7)* York et al., 1997 (7)*†	Three of the studies reported a significantly lower cost; however, the comparisons in each of the three studies were different. The comparisons were between CNS postpartum care and standard care (York et al., 1997) CNS and MD, with MDs in a population of patients at risk to die (Ahrens et al. 2003) and pre-post CNS with guideline implementation (Koch et al., 1994). One RCT reported no difference in the cost of care when utilizing a MD/CNS intervention for patients with major depression in an ambulatory setting (Swindle et al. 2003). A high level of evidence supports utilization of the CNS role decreases costs of care.	High: Cost is lower in CNS group care.
Complications	3 (1 RCT)	Allen et al., 2002 (6)*† Hanneman et al., 1993 (6) (Medical†) Hanneman et al., 1993 (6) (Surgical) Lombness, 1994 (6)	In the RCT of post-discharge care management by a team with a CNS, stroke and transient ischemic attack patients experienced lower complications than usual care. (Allen et al., 2002). In one observational study, patients in a surgical intensive care experienced less endotracheal tube malposition and inadvertent extubation (Hanneman et al. 1993). In two observational studies, no difference in complication rates were found for postoperative cardiac surgery patients managed by a PA or CNS (Lombness, 1994), and in pre- and post-surgical patient pulmonary complications (Hanneman et al. 1993). Because of the predominance of the pretest post-test design and inconsistency in results, a moderate level of evidence supports that CNSs affect lower complication rates.	Moderate: Complications are lower or comparable when CNS is involved in care as compared to non-CNS staff.

* RCT
† Favors APRN
‡ Favors comparison group

moderate level of evidence to support comparable levels or higher rates of vaginal births after cesarean sections in the CNM group.

Neonatal intensive care unit (NICU) admission. Five studies (0 RCTs) reported NICU admission. When comparing CNM and MD care, there is a moderate level of evidence to support comparable levels or lower rates of infant NICU admission in the CNM group.

Breastfeeding. Three studies (0 RCTs) reported maternal breastfeeding post delivery. When comparing CNM and MD care, there is a moderate level of evidence to support higher rates of breastfeeding in the CNM group.

Clinical Nurse Specialist Outcomes

Outcomes from 11 studies (four RCTs and seven observational) were aggregated for four outcomes: satisfaction, hospital length of stay, hospital costs, and complications. The number and type of studies for each outcome are described.

Satisfaction. Three studies (two

RCTs) reported satisfaction. Studies were conducted with samples in inpatient oncology or community settings. When comparing CNS and non-CNS groups, a high level of evidence supports equivalent group satisfaction scores, indicating the CNS does not have a direct effect on patient satisfaction.

Length of stay. Seven studies (two RCTs) reported patient LOS. Studies were conducted with inpatient samples of patients post-coronary bypass surgery, in end-of-life care, undergoing radical prostatectomy, and post total knee replacement. When comparing CNS and non-CNS groups, there is a high level of evidence to support equivalent or lower LOS for patients cared for in the CNS group.

Cost. Four studies (two RCTs) reported cost outcomes. Studies were conducted with samples of CNS postpartum care, a population of patients at risk to die, and guideline implementation for patients with radical prostatectomy. When comparing CNS and non-CNS groups, there is a high level of evidence to support that the CNS group has lower cost of care.

Complications. Three studies (one RCT) reported patient complications. Studies were conducted with samples of patients discharged with a diagnosis of stroke and transient ischemic attack, a surgical intensive care unit, postoperative cardiac surgery, and a pregnancy wellness program. When comparing CNS and non-CNS groups, there is a moderate level of evidence to support that the CNS decreases complication rates.

Certified Registered Nurse Anesthetists

For studies of CRNAs, no outcomes met the criteria for aggregation. Although numerous studies have reported on CRNA clinical interventions, very few studies have compared the outcomes of care involving CRNAs with other providers. Sparse data from single observational studies of low quality suggest equivalent complication rates and mortality when comparing care involving CRNAs with care involving only physicians.

Discussion

This systematic review of published literature between 1990 and 2008 on care provided by APRNs indicates patient outcomes of care provided by NPs and CNMs in collaboration with physicians are similar to and in some ways better than care provided by physicians alone for the populations and in the settings included. Use of CNSs in acute care settings can reduce length of stay and cost of care for hospitalized patients.

These results extend what is known about APRN outcomes from previous reviews by assessing all types of APRNs over a span of 18 years, using a systematic process with intentionally broad inclusion of outcomes, patient populations, and settings. The results indicate APRNs provide effective and high-quality patient care, have an important role in improving the quality of patient care in the United States, and could help address concerns about whether care provided by APRNs can safely augment the physician supply to support reform efforts aimed at expanding access to care.

The results of this systematic review should be interpreted while considering limitations in the bodies of research reviewed. Limitations include the heterogeneity of study designs and measures, multiple time points for measuring outcomes, the limited number of randomized designs, inadequate statistical data for calculating effect sizes, failure to describe the nature of the APRN and physician roles and the responsibilities or relationships of team members, including collaboration with physicians. Attribution of the APRN to specific outcomes was often difficult because of the complexity of the intervention, which sometimes included several components and multiple providers. In addition, attribution was also clouded by the fact APRNs often practice as part of a team or in collaboration with other providers. Despite these limitations, the aim of the review was to summarize the evidence for a broad range of outcomes. The quality assessment and score included transparent, systematic methods to strengthen the process, including assessment of differences in comparison groups, settings, participants, and attribution to address some of these limitations.

The results of this systematic review indicate APRNs can have an expanded role in health care systems, and should be incorporated to the fullest extent possible. One major professional organization, the American College of Physicians (2009), supports appropriate use of NPs as part of its commitment to promote teams of care. APRNs and other providers can use these results to spark interdisciplinary conversations to better understand one another's roles and capabilities. A collaborative effort will ultimately lead to higher quality health care and better health care systems.

There are many policy implications to these results (Newhouse, 2011). Research to test models of care involving APRNs should be expanded to additional settings and populations based on the needs of priority populations and health policy goals. Restrictions on APRN practice and reimbursement must be modified to allow new models of care to be tested. Health care reform initiatives should include APRNs as providers who are used to the full extent of their scope of practice. Billing data need to indicate the actual provider of care (NP, CNM, CNS, CRNA, or physician). Pay-for-performance initiatives should make provision for incorporating

APRNs and other health care providers in the development of initiatives, indicators, and participation for direct and equitable reimbursement.

Conclusion

The ideal health system comprises multiple providers who communicate with and are accountable to each other to deliver coordinated care (Shih & Fund, 2008). This systematic review supports a high level of evidence that APRNs provide safe, effective, quality care to a number of specific populations in a variety of settings. APRNs, in partnership with physicians and other providers, have a significant role in the promotion of health. American health care professionals will need to move forward with evidence-based and more collaborative models of care delivery to promote national unified health goals. **$**

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NEC J1104

Answer/Evaluation Form: Advanced Practice Nurse Outcomes 1990-2008: A Systematic Review

Deadline for Submission: October 31, 2013

Complete the Following:

(This test may be copied for use by others.)

Name: ________________________________

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City: ____________________ State: __________ Zip: __________

Preferred telephone: (Home) ____________ (Work) ____________

☐ Check Enclosed ☐ American Express ☐ Visa ☐ Mastercard

Credit Card Number: ____________________ Exp. Date ________

Registration fee:	*Nursing Economic$* Subscriber:	$10.00
	Nonsubscriber:	$15.00

Answer Form:

1. If you applied what you have learned from this activity into your practice, what would be different?

____

____

____

____

Evaluation	Strongly disagree				Strongly agree
2. By completing this activity, I was able to meet the following objectives:					
a. Describe the expanded role of advanced practice nurses (APNs) as providers in the health care system.	1	2	3	4	5
b. Detail a systematic review of the effectiveness of care between APNs and other health care providers.	1	2	3	4	5
c. Discuss the results of this systematic review and the role of APNs in the health care system, including policy implications.	1	2	3	4	5
3. The content was current and relevant.	1	2	3	4	5
4. The objectives could be achieved using the content provided.	1	2	3	4	5
5. This was an effective method to learn this content.	1	2	3	4	5
6. I am more confident in my abilities since completing this material.	1	2	3	4	5

7. The material was (check one) ☐ new ☐ review for me

8. Time required to complete the reading assignment: ______minutes

I verify that I have completed this activity: ________________________

Comments ________________________________

____

Objectives:

This continuing nursing educational (CNE) activity is designed for nurse leaders and other health care professionals who are interested in advanced practice nurse outcomes. For those wishing to obtain CNE credit, an evaluation follows. After studying the information presented in this article, the nurse leader will be able to:

1. Describe the expanded role of advanced practice nurses (APNs) as providers in the health care system.
2. Detail a systematic review of the effectiveness of care between APNs and other health care providers.
3. Discuss the results of this systematic review and the role of APNs in the health care system, including policy implications.

CNE Instructions:

1. To receive continuing nursing education credit for individual study after reading the article, complete the answer/evaluation form to the left.
2. Photocopy and send the answer/evaluation form along with a check or credit card order payable to Anthony J. Jannetti, Inc. to *Nursing Economic$*, CNE Series, East Holly Avenue/Box 56, Pitman, NJ 08071–0056; or visit **www.nursingeconomics.net**
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This article was reviewed and formatted for contact hour credit by Donna M. Nickitas, PhD, RN, NEA-BC, CNE, *Nursing Economic$* Editor; and Rosemarie Marmion, MSN, RN-BC, NE-BC, Anthony J. Jannetti, Inc., Education Director.

AMERICAN ACADEMY OF PHYSICIAN ASSISTANTS

PROFESSIONAL ISSUES

ISSUE BRIEF

HIRING A PHYSICIAN ASSISTANT — A BENEFIT FOR PHYSICIANS, PRACTICES AND PATIENTS

Physician assistants (PAs) have a generalist medical education and practice as part of a physician-led team. Each PA's scope of practice is defined by the supervising physician's delegation decisions, consistent with the PA's education and experience, facility policy, and state laws. PAs provide care in a variety of practice settings. Not only can PAs perform a range of diagnostic and therapeutic procedures, but they also enhance coordination of care and patient satisfaction.

PAs work in concert with physicians, complementing the physician's ability to deliver a comprehensive range of medical and surgical services to diverse patient populations. PAs' rigorous education, versatility and commitment to individualized treatment help physicians and practices function more efficiently and enhance continuity of health care.

Though more PAs are entering health care each year, there are still some common questions about the PA profession. These questions regard physician supervision roles, PA prescribing capability, third-party reimbursement policies, malpractice coverage concerns and how to hire a PA.

SUPERVISING A PA

The relationship between physicians and PAs is one of mutual trust and reliance. A PA practices medicine within the scope of the supervising physician, taking into account any specific restrictions delineated by state law or institutional policy. All states allow PAs to provide patient

EASING PHYSICIAN WORKLOADS

PAs improve patient flow and free physicians to manage more complex or demanding cases.[1-4] An American Medical Association (AMA) survey found that PAs enhance practice efficiency: Solo practice physicians who employ PAs experience expanded practice, greater efficiency and greater access to care for their patients.[5]

PA COST-EFFECTIVENESS

According to the Medical Group Management Association (MGMA), PAs generate revenues greater than what their compensation costs employers. The most recent report shows that for every dollar of charges a PA generates for the practice, the employer pays, on average, 30 cents to employ the PA.[6]

BOOSTING PATIENT SATISFACTION

Hiring a PA enhances patient satisfaction.[7-9] A study by the Kaiser Foundation Research Institute reports high patient satisfaction levels for services provided by PAs, ranging between 86 and 96 percent.[10] Aspects of patient satisfaction examined included interpersonal care, confidence in provider and understanding of patient problems. Further, with a PA on staff, patient waiting times are decreased, improving patient satisfaction through increased access to health care.[9]

services in sites where the supervising physician is not physically present by requiring the physician to be available by telecommunication. However, there are a few specific exceptions when PAs and supervising physicians must be in the same practice location; check your state PA practice act for details. Within these guidelines, flexibility marks the physician-PA relationship.

The physician-PA team thrives in an environment of autonomy and mutual respect. In an effective team relationship, the physician trusts that the PA will consult him or her when necessary. Likewise, the PA feels confident that the physician will be available when needed, provide learned advice and undertake the care of patients with problems that are beyond the PA's expertise.

The AMA has established guidelines for physician-PA team practice, which are available on the AAPA Web site at *www.aapa.org*.

The relationship between physicians and PAs is one of mutual trust and reliance.

PRESCRIBING

The legal authority for PAs to sign prescriptions has existed in some states since the 1970s. In recent years, the number of states recognizing the value of PA prescribing has greatly expanded.

All states, the District of Columbia, the Commonwealth of the Northern Mariana Islands and Guam permit physicians

to delegate their prescriptive authority to PAs. When PAs have delegated prescriptive authority, it means that at a minimum, they can sign prescriptions for legend drugs without obtaining a physician co-signature. Nearly all states authorize PA prescribing of controlled substances, and PAs who prescribe controlled medications must obtain their own federal Drug Enforcement Administration (DEA) registration numbers.

Third-Party Coverage

Nearly all private payers cover medical and surgical services provided by PAs. However, private health insurance companies do not necessarily follow Medicare's coverage policy rules. Because of the potential variation among insurance companies, practices should verify each company's specific payment and coverage policies for PAs. AAPA has extensive information about private payer policies available at *www.aapa.org/advocacy-and-practice-resources/reimbursement/payer-profiles*.

Medicare pays the PA's employer for medical and surgical services provided by PAs in all settings at 85 percent of the physician's fee schedule. These settings include hospitals (inpatient, outpatient, operating room and emergency departments), nursing facilities, offices, clinics, the patient's home and first assisting at surgery. In certain settings, services that PAs provide may be billed at 100 percent under the supervising physician's provider number by meeting the "incident to" or shared visit billing requirements.

All 50 states and the District of Columbia cover medical services provided by PAs under their Medicaid fee for service or Medicaid managed care programs. The rate of reimbursement is either the same as or slightly lower than that paid to physicians.

For more information about third-party coverage, visit our Reimbursement page at *www.aapa.org/advocacy-and-practice-resources/reimbursement*.

Malpractice

According to information from the National Practitioner Data Bank, maintained by the Division of Quality Assurance of the U.S. Department of Health and Human Services, PAs incur a remarkably low rate of malpractice liability.[11]

How to Hire a PA

AAPA provides several resources to help you find the right PA for your practice. First, the AAPA Web site hosts PA Job Link, an interactive program where PAs can post their résumés and potential employers can list their job openings. Access PA Job Link at *www.aapa.org/for-employers*. Second, AAPA distributes two official publications for practicing graduates and student PAs: *PA Professional* and the *Journal of the American Academy of Physician Assistants (JAAPA)*. *PA Professional* is a monthly publication distributed to all AAPA members, and JAAPA is a monthly clinical journal. Both publications have employment listings where you can advertise. To place an advertisement or to obtain a price quote, please call 800-986-7737.

AAPA's constituent organizations, including state chapters, specialty organizations and caucuses, are additional employment resources. For a list of constituent organizations and contact information, go to AAPA's Web site at *www.aapa.org*.

According to AAPA's Data Services and Statistics Division, more than one-third of all PAs reported that they met their first clinical employer through clinical rotations while attending a PA program. For more information on how to become a preceptor or to learn whether a program provides placement services for graduates, contact an accredited PA educational program in your area. A list of PA programs is available from the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) at *www.arc-pa.org,* or the Physician Assistant Education Association (PAEA) at *www.paeaonline.org*.

Hiring a PA brings about many benefits for employers and patients. Feel free to contact AAPA's Jennifer Anne Hohman at 703-836-2272 ext. 3220 or jhohman@aapa.org for assistance with any questions about working with PAs and making them a part of your practice team.

PAs offer great financial benefits to their employers by providing high-quality medical care for which most public and private third-party payers reimburse.

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AANP
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NURSE PRACTITIONERS™

Nurse Practitioner Cost-Effectiveness

Nurse Practitioners (NPs) are a proven response to the evolving trend towards wellness and preventive health care driven by consumer demand. A solid body of evidence demonstrates that NPs have consistently proven to be cost-effective providers of high-quality care for almost 50 years. Examples of the NP cost-effectiveness research are described below.

Over three decades ago, the Office of Technology Assessment (OTA) (1981) conducted an extensive case analysis of NP practice, reporting that NPs provided equivalent or improved medical care at a lower total cost than physicians. NPs in a physician practice potentially decreased the cost of patient visits by as much as one third, particularly when seeing patients in an independent, rather than complementary, manner. A subsequent OTA analysis (1986) confirmed original findings regarding NP cost effectiveness. All later studies of NP care have found similar cost-efficiencies associated with NP practice.

The cost-effectiveness of NPs begins with their academic preparation. The American Association of Colleges of Nursing has long reported that NP preparation cost 20-25% that of physicians. In 2009, the total tuition cost for NP preparation was less than one-year tuition for medical (MD or DO) preparation (AANP, 2010).

Comparable savings are associated with NP compensation. In 1981, the hourly cost of an NP was one-third to one-half that of a physician (OTA). The difference in compensation has remained unchanged for 30 years. In 2010, when the median total compensation for primary care physicians ranged from $208,658 (family) to $219,500 (internal medicine) (American Medical Group Association, 2010), the mean full-time NP's total salary was $97,345, across all types of practice (American Academy of Nurse Practitioners [AANP], 2010). A study of 26 capitated primary care practices with approximately two million visits by 206 providers determined that the practitioner labor costs and total labor costs per visit were both lower in practices where NPs and physician assistants (PAs) were used to a greater extent (Roblin, Howard, Becker, Adams, and Roberts, 2004). When productivity measures, salaries, and costs of education are considered, NPs are cost effective providers of health services.

Based on a systematic review of 37 studies, Newhouse et al (2011) found consistent evidence that cost-related outcomes such as length of stay, emergency visits, and hospitalizations for NP care are equivalent to those of physicians. In 2012, modeling techniques were used to predict the potential for increased NP cost-effectiveness into the future, based on prior research and data. Using Texas as the model State, Perryman (2012) analyzed the potential economic impact that would be associated with greater use of NPs and other advanced practice nurses, projecting over $16 billion in immediate savings which would increase over time.

NP cost-effectiveness is not dependent on actual practice setting and is demonstrated in primary care, acute care, and long term care settings. For instance, NPs practicing in Tennessee's state-managed managed care organization (MCO) delivered health care at 23% below the average cost associated with other primary care providers, achieving a 21% reduction in hospital inpatient rates and 24% lower lab utilization rates compared to physicians (Spitzer, 1997). A one-year study comparing a family practice physician-managed practice with an NP-managed practice within an MCO found that compared to the physician practice, the NP-managed practice had 43% of the total emergency department visits, 38% of the inpatient days, and 50% total annualized per member monthly cost (Jenkins and Torrisi, 1995). Nurse managed centers (NMCs) with NP-provided care have demonstrated significant savings, less costly interventions, and fewer emergency visits and hospitalizations (Hunter, Ventura, and Keams, 1999; Coddington and Sands, 2009). A study conducted in a large HMO setting established that adding an NP to the practice could virtually double the typical panel of patients seen by a physician with a projected increase in revenue of $1.28 per member per month, or approximately $1.65 million per 100,000 enrollees annually (Burl, Bonner, and Rao, 1994).

Chenowith, Martin, Pankowski, and Raymond (2005) analyzed the health care costs associated with an innovative on-site NP practice for over 4000 employees and their dependents, finding savings of $ .8 to 1.5 million, with a benefit-to-cost ratio of up to 15 to 1. Later, they tested two additional benefit-to-cost models using 2004-2006 data for patients receiving occupational health care from an NP demonstrating a benefit to cost ratio ranging from 2.0-8.7 to 1, depending on the method (Chenowith, Martin, Pankowski, and Raymond (2008). Time lost from work was lower for workers managed by NPs, compared to physicians, as another aspect of cost-savings (Sears, Wickizer, Franklin, Cheadie, and Berkowitz, 2007).

A number of studies have documented the cost-effectiveness of NPs in managing the health of older adults. Hummel and Prizada (1994) found that compared to the cost of physician-only teams, the cost of a physician-NP team long term care facility were 42% lower for the intermediate and skilled care residents and 26% lower for those with long-term stays. The physician-NP teams also had significantly lower rates of emergency department transfers, shorter hospital lengths of stay, and fewer specialty visits. A one-year retrospective study of 1077 HMO enrollees residing in 45 long term care settings demonstrated a $72 monthly gain per resident, compared with a $197 monthly loss for residents seen by physicians alone (Burl, Bonner, Rao, and Kan, 1998). Intrator (2004) found that residents in nursing homes with NPs were less likely to develop ambulatory care-sensitive diagnoses requiring hospitalizations. Bakerjian (2008) summarized a review of 17 studies comparing nursing home residents who are patients of NPs to others, finding lower rates of hospitalization and overall costs for the NP patients. The potential for NPs to control costs associated with the healthcare of older adults was recognized by United Health (2009), which recommended that providing NPs to manage nursing home patients could result in $166 billion healthcare savings.

NP-managed care within acute-care settings is also associated with lower costs. Chen, McNeese-Smith, Cowan, Upenieks, and Afifi (2009) found that NP-led care was associated with lower overall drug costs for inpatients. When Paez and Allen (2006) compared NP and physician management of hypercholesterolemia following revascularization, they found patients in the NP-managed group had lower drug costs, while being more likely to achieve their goals and comply with prescribed regimen.

Collaborative NP/physician management was associated with decreased length of stay and costs and higher hospital profit, with similar readmission and mortality rates (Cowan et al., 2006; Ettner et al., 2006). The introduction of an NP model in a health system's neuroscience area resulted in over $2.4 million savings the first year and a return on investment of 1600 percent; similar savings and outcomes were demonstrated as the NP model was expanded in the system (Larkin, 2003). Boling (2009) cites an intensive short-term transitional care NP program documented by Smigleski et al through which healthcare costs were decreased by 65% or more after enrollment, as well as the introduction of an NP model in a system's cardiovascular area associated with a decrease in mortality from 3.7% to 0.6% and over 9% decreased cost per case (from $27,037 to $24,511).

In addition to absolute cost, other factors are important to health care cost-effectiveness. These include illness prevention, health promotion, and outcomes. See Documentation of Quality of Nurse Practitioner Practice (AANP, 2013) for further discussion.

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Quality of Nurse Practitioner Practice

Nurse practitioners (NPs) are high quality health care providers who practice in primary care, ambulatory, acute care, specialty care, and long-term care. They are registered nurses prepared with specialized advanced education and clinical competency to provide health and medical care for diverse populations in a variety of settings. A graduate degree is required for entry-level practice. The NP role was created in 1965 and over 45 years of research consistently supports the excellent outcomes and high quality of care provided by NPs. The body of evidence supports that the quality of NP care is at least equivalent to that of physician care. This paper provides a summary of a number of important research reports supporting the NP.

Avorn, J., Everitt, D.E., & Baker, M.W. (1991). The neglected medical history and therapeutic choices for abdominal pain. A nationwide study of 799 physicians and nurses. Archives of Internal Medicine, 151(4), 694-698.
A sample of 501 physicians and 298 NPs participated in a study by responding to a hypothetical scenario regarding epigastric pain in a patient with endoscopic findings of diffuse gastritis. They were able to request additional information before recommending treatment. Adequate history-taking resulted in identifying use of aspirin, coffee, cigarettes, and alcohol, paired with psychosocial stress. Compared to NPs, physicians were more likely to prescribe without seeking relevant history. NPs, in contrast, asked more questions and were less likely to recommend prescription medication.

Bakerjian, D. (2008). Care of nursing home residents by advanced practice nurses: A review of the literature. Research in Gerontological Nursing, 1(3), 177-185.
Bakerjian conducted and extensive review of the literature, particularly of NP-led care. She found that long-term care patients managed by NPs were less likely to have geriatric syndromes such as falls, UTIs, pressure ulcers, etc. They also had improved functional status, as well as better managed chronic conditions.

Brown, S.A. & Grimes, D.E. (1995). A meta-analysis of nurse practitioners and nurse midwives in primary care. Nursing Research, 44(6), 332-9.
A meta-analysis of 38 studies comparing a total of 33 patient outcomes of NPs with those of physicians demonstrated that NP outcomes were equivalent to or greater than those of physicians. NP patients had higher levels of compliance with recommendations in studies where provider assignments were randomized and when other means to control patient risks were used. Patient satisfaction and resolution of pathological conditions were greatest for NPs. The NP and physician outcomes were equivalent on all other outcomes.

Congressional Budget Office. (1979). Physician extenders: Their current and future role in medical care delivery. Washington, D.C.: US Government Printing Office.
As early as 1979, the Congressional Budget Office reviewed findings of the numerous studies of NP performance in a variety of settings and concluded that NPs performed as well as physicians with respect to patient outcomes, proper diagnosis, management of specified medical conditions, and frequency of patient satisfaction.

Cooper, M.A., Lindsay, G.M., Kinn, S., Swann, I.J. (2002). Evaluating emergency nurse practitioner services: A randomized controlled trial. Journal of Advanced Nursing, 40(6), 771-730.
A study of 199 patients randomly assigned to emergency NP-led care or physician-led care in the U.K. demonstrated the highest level of satisfaction and clinical documentation for NP care. The outcomes of recovery time, symptom level, missed work, unplanned follow-up, and missed injuries were comparable between the two groups.

Ettner, S.L., Kotlerman, J., Abdelmonem, A., Vazirani, S., Hays, R.D., Shapiro, M., et al. (2006). An alternative approach to reducing the costs of patient care? A controlled trial of the multi-disciplinary doctor-nurse practitioner (MDNP) model. Medical Decision Making, 26, 9-17.
Significant cost savings were demonstrated when 1207 patients in an academic medical center were randomized to either standard treatment or to a physician-NP model.

Horrocks, S., Anderson, E., Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. British Medical Journal, 324, 819-823.
A systematic review of 11 randomized clinical trials and 23 observational studies identified data on outcomes of patient satisfaction, health status, cost, and/or process of care. Patient satisfaction was highest for patients seen by NPs. The health status data and quality of care indicators were too heterogeneous to allow for meta-analysis, although qualitative

comparisons of the results reported showed comparable outcomes between NPs and physicians. NPs offered more advice/information, had more complete documentation, and had better communication skills than physicians. NPs spent longer time with their patients and performed a greater number of investigations than did physicians. No differences were detected in health status, prescriptions, return visits, or referrals. Equivalency in appropriateness of studies and interpretations of x-rays were identified.

Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R., & Sibbald, B. (2006). Substitution of doctors by nurses in primary care. Cochrane Database of Systematic Reviews. 2006, Issue 1.
This meta-analysis included 25 articles relating to 16 studies comparing outcomes of primary care nurses (nurses, NPs, clinical nurse specialists, or advance practice nurses) and physicians. The quality of care provided by nurses was as high as that of the physicians. Overall, health outcomes and outcomes such as resource utilization and cost were equivalent for nurses and physicians. The satisfaction level was higher for nurses. Studies included a range of care delivery models, with nurses providing first contact, ongoing care, and urgent care for many of the patient cohorts.

Lenz, E.R., Mundinger, M.O., Kane, R.L., Hopkins, S.C., & Lin, S.X. (2004). Primary care outcomes in patients treated by nurse practitioners or physicians: Two-year follow-up. Medical Care Research and Review 61(3), 332-351.
The outcomes of care in the study described by Mundinger, et al. in 2000 (see below) are further described in this report including two years of follow-up data, confirming continued comparable outcomes for the two groups of patients. No differences were identified in health status, physiologic measures, satisfaction, or use of specialist, emergency room, or inpatient services. Patients assigned to physicians had more primary care visits than those assigned to NPs.

Lin, S.X., Hooker, R.S., Lens, E.R., Hopkins, S.C. (2002). Nurse practitioners and physician assistants in hospital outpatient departments, 1997-1999. Nursing Economics, 20(4), 174-179.
Data from the National Hospital Ambulatory Medical Care Survey (NHAMCS) were used to identify patterns of NP and PA practice styles. NPs were more likely to see patients alone and to be involved in routine examinations, as well as care directed towards wellness, health promotion, disease prevention, and health education than PAs, regardless of the setting type. In contrast , PAs were more likely to provide acute problem management and to involve another person, such as a support staff person or a physician.

Mundinger, M.O., Kane, R.L., Lenz, E.R., Totten, A.M., Tsai, W.Y., Cleary, P.D., et al. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: A randomized trial. Journal of the American Medical Association, 283(1), 59-68.
The outcomes of care were measured in a study where patients were randomly assigned either to a physician or to an NP for primary care between 1995 and 1997, using patient interviews and health services utilization data. Comparable outcomes were identified, with a total of 1316 patients. After six months of care, health status was equivalent for both patient groups, although patients treated for hypertension by NPs had lower diastolic values. Health service utilization was equivalent at both 6 and 12 months and patient satisfaction was equivalent following the initial visit. The only exception was that at six months, physicians rated higher on one component (provider attributes) of the satisfaction scale.

Newhouse, R. et al (2011). Advanced practice nurse outcomes 1999-2008: A systematic review. Nursing Economic$, 29 (5), 1-22.
The outcomes of NP care were examined through a systematic review of 37 published studies, most of which compared NP outcomes with those of physicians. Outcomes included measures such as patient satisfaction, patient perceived health status, functional status, hospitalizations, ED visits, and bio-markers such as blood glucose, serum lipids, blood pressure. The authors conclude that NP patient outcomes are comparable to those of physicians.

Office of Technology Assessment. (1986). Nurse practitioners, physician assistants, and certified nurse midwives: A policy analysis. Washington D.C.: US Government Printing Office.
The Office of Technology Assessment reviewed studies comparing NP and physician practice, concluding that, "NPs appear to have better communication, counseling, and interviewing skills than physicians have." (p. 19) and that malpractice premiums and rates supported patient satisfaction with NP care, pointing out that successful malpractice rates against NPs remained extremely rare.

Ohman-Strickland, P.A., Orzano, A.J., Hudson, S.V., Solberg, L.I., DiCiccio-Bloom, B., O'Malley, D., et al. (2008). Quality of diabetes care in family medicine practices: Influence of nurse-practitioners and physician's assistants. Annals of Family Medicine, 6(1), 14-22.
The authors conducted a cross-sectional study of 46 practices, measuring adherence to ADA guidelines. They reported that practices with NPs were more likely to perform better on quality measures including appropriate measurement of glycosylated hemoglobin, lips, and microalbumin levels and were more likely to be at target for lipid levels.

Prescott, P.A. & Driscoll, L. (1980). Evaluating nurse practitioner performance. Nurse Practitioner, 1(1), 28-32.
The authors reviewed 26 studies comparing NP and physician care, concluding that NPs scored higher in many areas. These included: amount/depth of discussion regarding child health care, preventative health, and wellness; amount of advice, therapeutic listening, and support offered to patients; completeness of history and follow-up on history findings; completeness of physical examination and interviewing skills; and patient knowledge of the management plan given to them by the provider.

Roblin, D.W., Becker, R., Adams, E.K., Howard, D. H., & Roberts, M.H. (2004). Patient satisfaction with primary care: Does type of practitioner matter? Medical Care, 42(6), 606-623.
A retrospective observational study of 41,209 patient satisfaction surveys randomly sampled between 1997 and 2000 for visits by pediatric and medicine departments identified higher satisfaction with NP and/or PA interactions than those with physicians, for the overall sample and by specific conditions. The only exception was for diabetes visits to the medicine practices, where the satisfaction was higher for physicians.

Sacket, D.L., Spitzer, W. O., Gent, M., & Roberts, M. (1974). The Burlington randomized trial of the nurse practitioner: Health outcomes of patients. Annals of Internal Medicine, 80(2), 137-142.
A sample of 1598 families were randomly allocated, so that two-thirds continued to receive primary care from a family physician and one-third received care from a NP. The outcomes included: mortality, physical function, emotional function, and social function. Results demonstrated comparable outcomes for patients, whether assigned to physician or to NP care. Details from the Burlington trial were also described by Spitzer, et al (see below).

Safriet, B. J. (1992). Health care dollars and regulatory sense: The role of advanced practice nursing. Yale Journal on Regulation, 9(2).
The full Summer 1992 issue of this journal was devoted to the topic of advanced practice nursing, including documenting the cost-effective and high quality care provided, and to call for eliminating regulatory restrictions on their care. Safriet summarized the OTA study concluding that NP care was equivalent to that of physicians and pointed out that 12 of the 14 studies reviewed in this report which showed differences in quality reported higher quality for NP care. Reviewing a range of data on NP productivity, patient satisfaction, and prescribing, and data on nurse midwife practice, Safriet concludes "APNs are proven providers, and removing the many barriers to their practice will only increase their ability to respond to the pressing need for basic health care in our country" (p. 487).

Spitzer, W.O., Sackett, D.L., Sibley, J.C., Roberts, M., Gent, M., Kergin, D.J., Hacket, B.D., & Olynich, A. (1974). The Burlington randomized trial of the nurse practitioner. New England Journal of Medicine, 290 (3), 252-256.
This report provides further details of the Burlington trial, also described by Sackett, et al. (see above). This study involved 2796 patients being randomly assigned to either one of two physicians or to an NP, so that one-third were assigned to NP care, from July 1971 to July 1972. At the end of the period, physical status and satisfaction were comparable between the two groups. The NP group experienced a 5% drop in revenue, associated with absence of billing for NP care. It was hypothesized that the ability to bill for all NP services would have resulted in an actual increased revenue of 9%. NPs functioned alone in 67% of their encounters. Clinical activities were evaluated and it was determined that 69% of NP management was adequate compared to 66% for the physicians. Prescriptions were rated adequate for 71% of NPs compared to 75% for physicians. The conclusion was that "a nurse practitioner can provide first-contact primary clinical care as safely and effectively as a family physician" (p. 255).

SECTION V

IOM Roundtable (VSRT)

Roundtable on Value & Science-Driven Health Care

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES
Advising the nation • Improving health

The Roundtable

The Institute of Medicine's **Roundtable on Value & Science-Driven Health Care** provides a trusted venue for national leaders in health and health care to work cooperatively toward their common commitment to effective, innovative care that consistently adds value to patients and society. Members share the concern that, despite the world's best care, in certain circumstances, health in America falls far short on important measures of outcomes, value and equity. Care that is important is often not delivered, and care that is delivered is often not important. Roundtable Members are leaders from core stakeholder communities (clinicians, patients, health care institutions, employers, manufacturers, insurers, health information technology, researchers, and policy makers) brought together by their common commitment to steward the advances in science, value and culture necessary for a health system that continuously learns and improves in fostering healthier people.

What are the Roundtable's vision and goals?

- A ***continuously learning health system*** in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation—with best practices seamlessly embedded in the care process, patients and families active participants in all elements, and new knowledge captured as an integral by-product of the care experience.
- Promote collective action and progress so that "By the year 2020, ninety percent of clinical decision will . . . reflect the best available evidence." *(Roundtable Charter, 2006)*

How does the Roundtable work?

- Through stakeholder workshops and meetings: to accelerate understanding and progress toward the vision of a continuously improving and learning health system.
- Through joint projects through the work of six affinity group Innovation Collaboratives focused on:
    - ***Best clinical practices*** (health professional societies and organizations)
    - ***Clinical effectiveness research*** (innovative research scientists and institutions)
    - ***Communication of medical evidence*** (marketing experts and decision scientists)
    - ***Digital technology for health*** (health IT and care delivery experts)
    - ***Incentives for value in health care*** (health care purchasers and payers)
    - ***Systems engineering for health improvement*** (medical, engineering, and IT leaders)

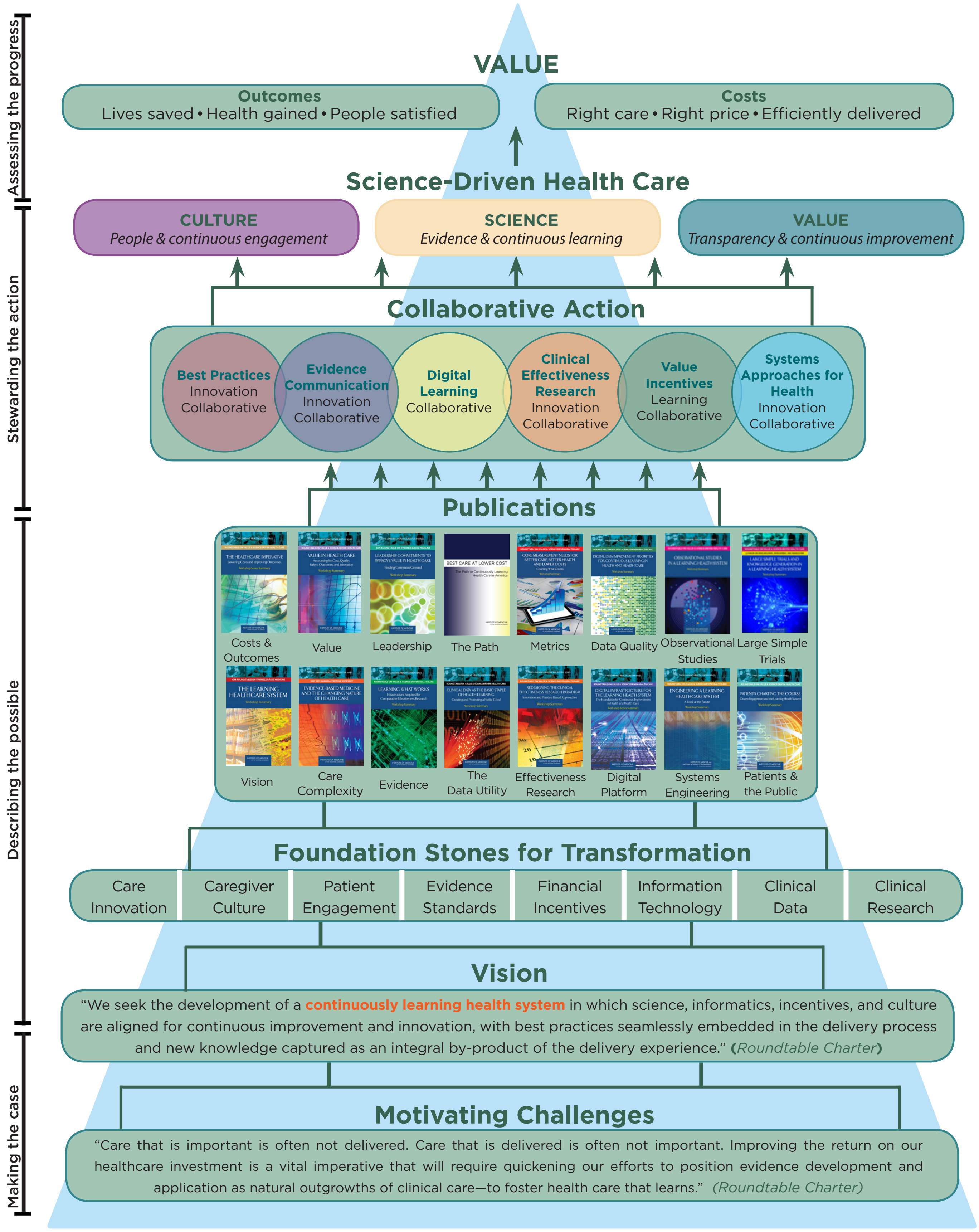
How is the Roundtable making a difference?

- Describing the possible through the 13 publications in the Learning Health System series providing the foundation for the landmark IOM report *Best Care at Lower Cost*.
- Stewarding action projects of the Roundtable's Innovation Collaborative stakeholders, working cooperatively to advance science and value in health and health care. Examples include:

Value & performance transformation	Public & patient involvement	Science & evidence improvement
• Documentation of cost and waste	• Core metrics for better health at lower cost	• Making the case for outcomes research
• Improving the science of transparency	• Cost and evidence as patient priorities	• Patient role in knowledge generation
• Essential principles of team-based care	• Essential principles for evidence communication	• Cooperative clinical research (PEDSNet)
• CEO checklist for high-value care		• Common Rule update
• Point-of-care evidence access	• Building patient and family leadership for system improvement	• Digital infrastructure for a learning system
• Systems engineering for high-value care		• Strengthening the science of data-driven medicine

IOM Roundtable on Value & Science-Driven Health Care

Strategy Map



Assessing the progress

Stewarding the action

Describing the possible

Making the case

VALUE

Outcomes
Lives saved • Health gained • People satisfied

Costs
Right care • Right price • Efficiently delivered

Science-Driven Health Care

CULTURE
People & continuous engagement

SCIENCE
Evidence & continuous learning

VALUE
Transparency & continuous improvement

Collaborative Action

Best Practices Innovation Collaborative

Evidence Communication Innovation Collaborative

Digital Learning Collaborative

Clinical Effectiveness Research Innovation Collaborative

Value Incentives Learning Collaborative

Systems Approaches for Health Innovation Collaborative

Publications

Costs & Outcomes
Value
Leadership
The Path
Metrics
Data Quality
Observational Studies
Large Simple Trials
Vision
Care Complexity
Evidence
The Data Utility
Effectiveness Research
Digital Platform
Systems Engineering
Patients & the Public

Foundation Stones for Transformation

Care Innovation
Caregiver Culture
Patient Engagement
Evidence Standards
Financial Incentives
Information Technology
Clinical Data
Clinical Research

Vision

"We seek the development of a **continuously learning health system** in which science, informatics, incentives, and culture are aligned for continuous improvement and innovation, with best practices seamlessly embedded in the delivery process and new knowledge captured as an integral by-product of the delivery experience." (*Roundtable Charter*)

Motivating Challenges

"Care that is important is often not delivered. Care that is delivered is often not important. Improving the return on our healthcare investment is a vital imperative that will require quickening our efforts to position evidence development and application as natural outgrowths of clinical care—to foster health care that learns." *(Roundtable Charter)*

IOM Innovation Collaborative Projects

Value Incentives

Systems Approaches for Health

VALUE

Continuous improvement through transparency on outcomes and cost

2014 in progress

- Pilot analytic project identifying and assessing cost & price transparency
- Strategy framework for health care administrative simplification
- An expert vision paper on core expectations for accountable care organizations
- Additional NGA-IOM Governors' retreats for value innovation
- Organization of network for systems engineering field-building
- Strategy paper on embedding systems engineering in health professions education

2013 completed

- Meeting: *NGA-IOM Governor's retreat in Wisconsin* (Oct 2013)
- IOM paper: *CEO checklist for high value care* (Jan 2013 dissemination)
- New Collaborative: IOM-NAE Systems Approaches for Health (Jan 2013)
- IOM paper: *Bringing a systems approach to health* (Jul 2013)
- IOM paper: *Evaluation of health care pilots for scale-up* (Apr 2013)

Clinical Effectiveness Research

Digital Learning

SCIENCE

Continuous learning through real-time evidence development

2014 in progress

- An expert vision paper on the future of clinical research
- CEO & executive leaders on convening continuous learning
- A case study of a test-bed for real-time digitally-facilitated research
- An expert vision paper on academic health center leadership for continuous learning

2013 completed

- Workshop: *Large simple trials for clinical research* (Sep 2013)
- Workshop: *Observational studies in CER* (Sep 2013)
- IOM paper: *The Common Rule and continuous learning* (Aug 2013)
- Workshop: *Data harmonization across networks* (Oct 2013)
- IOM paper: *Return on information systems investments* (Jan 2014)
- Workshop: *Improving data quality* (Feb 2013)
- IOM paper: *Making the case for clinical data use* (Apr 2013)

Best Practices

Evidence Communication

CULTURE

Continuous pursuit of services most meaningful to people and their families

2014 in progress

- Formalize national network of patient-family advisory leadership
- Vision and strategy piece on practice models for clinician-patient partnership
- Build the inventory of case studies on clinical data & care improvement
- An expert vision paper and meeting on decision-making tool validation

2013 completed

- Workshop/Video: *Partnering with Patients* (Aug 2013)
- IOM paper: *Team-based care principles and values* (Jan 2013)
- Patient Interviews: *Patients' roles as team members* (Nov 2013)
- Survey: *Patients views on clinical data sharing* (Jan 2014)
- Meeting*: Patient and family leader partnership* (Nov 2013)

CROSS-CUTTING: Tools advancing science, value and culture

2014 In Progress

- Completion and release: *Core Metrics for Better Health*
- Update Report: *2014 Learning Health System Progress*

2013

- IOM study dissemination: *Best Care at Lower Cost*
- IOM study initated: *Core Metrics for Better Health*

Roundtable Members

Chair

Mark B. McClellan, MD, PhD
Senior Fellow
The Brookings Institution

Members

Raymond J. Baxter, PhD
Senior Vice President
Kaiser Permanente

Paul Bleicher, MD, PhD
Chief Executive Officer
Optum Labs

David Blumenthal
President
The Commonwealth Fund

Bruce G. Bodaken, MPhil
Former Chairman & CEO
Blue Shield of California

Paul Chew, MD
Chief Science Officer & CMO
Sanofi US

Helen Darling, MA
President
National Business Group on Health

Susan DeVore
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Premier, Inc.

Judith Faulkner, MS
Founder & CEO
Epic Systems

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Denver Health

Atul Gawande, MD, MPH
General & Endocrine Surgeon
Brigham and Women's Hospital

Gary L. Gottlieb, MD, MBA
President & CEO
Partners HealthCare System

James A. Guest, JD
President & CEO
Consumers Union

James Heywood
Chairman
PatientsLikeMe

Ralph I. Horwitz, MD, MACP
Senior Vice President
GlaxoSmithKline

Paul Hudson
President
AstraZeneca, U.S.

Brent C. James, MD, Mstat
Chief Quality Officer
Intermountain Healthcare

Craig A. Jones, MD
Director
Vermont Blueprint for Health

Gary Kaplan, MD
Chairman & CEO
Virginia Mason Health System

Darrell G. Kirch, MD
President & CEO
AAMC

Richard C. Larson, PhD
Professor
Massachusetts Institute of Technology

Peter Long, PhD
President and CEO
Blue Shield of California Foundation

James L. Madara, MD

Chief Executive Officer
American Medical Association

Mary D. Naylor, PhD, RN
Director, NewCourtland Center
University of Pennsylvania

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Former CEO AARP
Professor, Georgetown University

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WellPoint, Inc.

Jonathan B. Perlin, MD, PhD
President, Clinical & Physician Services
HCA, Inc.

Richard Platt, MD, MS
Chair, Population Medicine
Harvard Medical School

Michael Rosenblatt, MD
Executive Vice President & CMO
Merck & Company

John W. Rowe, MD
Former Chairman & CEO, Aetna
Professor, Columbia University

Leonard D. Schaeffer
Judge Robert Maclay Widney Chair and Professor
USC Sol Price School of Public Policy

Joe Selby, MD, MPH
Executive Director
PCORI

Mark D. Smith, MD, MBA
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California HealthCare Foundation

Glenn D. Steele, MD, PhD
President & CEO
Geisinger Health System

Reed V. Tuckson, MD, FACP
Former EVP, UnitedHealth Group
Managing Director, Tuckson Health

Richard J. Umbdenstock
President and CEO
American Hospital Association

Debra B. Whitman, PhD, MA
Executive Vice President
AARP

Ex-Officio

Agency for Healthcare Research and Quality
Richard Kronick, PhD, Director

Centers for Disease Control and Prevention
Thomas Frieden, MD, MPH, Director
Chesley Richards, MD, MPH, Director

Centers for Medicare & Medicaid Services
Marilyn Tavenner, MHA, RN, Administrator
Patrick Conway, MD, MS, Chief Medical Officer

Department of Defense
Jonathan Woodson, MD, Assistant Secretary

Department of Veterans Affairs
Robert A. Petzel, MD, Under Secretary

Food and Drug Administration
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Peter Lurie, MD, MPH, Associate Commissioner

Health Resources and Services Administration
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National Institutes of Health
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Kathy Hudson, PhD, MS, Deputy Director

Office of the National Coordinator for Health IT
Karen B. DeSalvo, MD, MPH, MSc, National Coordinator

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Best Practices Innovation Collaborative

Health professionals working together for value and science-driven health care

Issue. The presumption of both patients and caregivers in the United States is that the care delivered is the care most appropriate to the need. Yet it is clear that care of proven effectiveness is too often not delivered, and care delivered has too often not been proven effective. In part, the challenge is one of insufficient evidence on the relative effectiveness of diagnostic and treatment options under different circumstances. But it is also the result of the many challenges related to marshaling the available evidence and applying it fully and seamlessly in the context of busy practices, poorly aligned organizational and economic incentives, limited coordination among a patient's various clinicians, and patient requests driven by forces other than the evidence base. Increased awareness of national shortcomings in both quality and value in the nation's health care has fueled discussions on approaches to reform. As long as the gap persists between the prevailing patterns of care and best practices readily established for a given condition, health care cannot deliver the value we want and expect.

Collaborative. An *ad hoc* convening activity under the auspices of the IOM Roundtable, the Best Practices Innovation Collaborative (BPIC) catalyzes joint activities among the health professions for improvement and innovation in health and health care, focusing on fostering evidence-based best practices, including team care and shared decision making.

Participants. Professional organizations representing clinicians on the front lines of healthcare delivery; government agencies actively involved in patient care or programs and policies centrally concerned with the identification and application of best clinical services; and others as indicated by issue. The aim is for an inclusive Collaborative—without walls—and participation in individual projects is structured according to interest, need, and practicality.

CHAIR

Mary D. Naylor, Ph.D., RN
Director, NewCourtland Center
University of Pennsylvania

"With a heightened focus on team-based care, bringing health professionals together for collaborative action is a foundational step toward a learning system."

STAFF CONTACT
Diedtra Henderson
Program Officer / 202-334-1665
dhenderson@nas.edu

Activities. Projects completed, under way, or under consideration by BPIC include:

- *Common principles for the role of patients in primary care teams.* When patients are more fully involved in their care, health outcomes improve, patient satisfaction increases, and the cost of care can drop. The aim of this IOM Discussion Paper is to engage stakeholders in developing a conceptual framework, options, and research priorities for advancing the incorporation of patients as members of the care team.

- *"Core Principles & Values of Effective Team-Based Health Care,"* an IOM Discussion Paper in which authors identified key characteristics of effective teams from the literature and used interviews with 11 teams located in various urban and rural settings to clarify how these factors shape effective team-based care. The review is intended to help guide clinicians, patients, administrators, and other stakeholders in the delivery of high-value team-based care focused on the goals and priorities of patients and their families. (IOM, October 2012)

- *"Patient-Clinician Communication: Basic Principles and Expectations,"* an IOM Discussion Paper authored by marketing experts, decision scientists, patient advocates, and clinicians presents a set of guiding principles and basic expectations underpinning patient-clinician communication. These foundational principles and expectations are intended to serve as common touchstone reference points for both patients and clinicians throughout the care process. (IOM, June 2011)

- *Cross-society harmonization in managing co-occurring morbidities.* Cooperative development of common, cross-society understandings and expectations with respect to the coordinated and team-based care necessary, when treating patient with multiple chronic conditions, to offset the tendency for fragmented care decisions to compromise the effectiveness and efficiency of care, or even to cause harm.

REPRESENTATIVE PARTICIPANTS

ORGANIZATIONS

AARP
American Academy of Dermatology
American Academy of Family Physicians
American Academy of Neurology
American Academy of Nurse Practitioners
American Academy of Nursing
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Academy of Phys. Med. and Rehab.
American Academy of Physician Assistants
American Association of Colleges of Nursing
American Association of Coll. of Osteo. Med.
American Association of Nurse Anesthetists
American Association of Nurse Practitioners
American Board of Internal Medicine
American College of Cardiology
American College of Clinical Pharmacy
American College of Nurse-Midwives
American College of Obstetricians and Gyn.
American College of Occup. and Environ. Med.
American College of Physicians
American College of Preventive Medicine
American College of Surgeons
American Dental Association
American Diabetes Association
American Geriatrics Society
American Hospital Association
American Medical Association
American Nurses Association
American Osteopathic Association
American Psychiatric Association
American Society of Clinical Oncology
American Thoracic Society
American Urological Association
Association of Academic Health Centers
Association of American Medical Colleges
Association of periOperative Registered Nurses
Josiah Macy, Jr. Foundation
Kaiser Permanente
National Association of Ped. Nurse Practitioners
National Physicians Alliance
National Quality Forum
Oncology Nursing Society
PatientsLikeMe
Society of General Internal Medicine
Society of Thoracic Surgeons
Vermont Blueprint for Health

FEDERAL AGENCIES

U.S. Department of Health & Human Services
– Agency for Healthcare Research and Quality
– Centers for Disease Control and Prevention
– Centers for Medicare & Medicaid Services
– Food and Drug Administration
– Health Resources and Services Administration
– National Institutes of Health
– Veterans Health Administration
U.S. Department of Defense (Health Affairs)
U.S. Department of Veterans Affairs

SECTION VI

Logistics and Participant Biographies

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

Best Practices Innovation Collaborative
Meeting Logistics

The National Academy of Sciences
2101 Constitution Avenue, NW | Washington, DC
Lecture Room
March 27, 2014

We are looking forward to your participation in the Best Practices Innovation Collaborative meeting on March 27, 2014. If you have any questions regarding meeting logistics, please contact our office at syang@nas.edu or 202-334-1462.

MEETING LOCATION

The meeting will take place from 9am to 3:30pm on Thursday, March 27, 2014 in the Lecture Room of the National Academy of Sciences Building, 2101 Constitution Avenue, NW, in Washington, DC. Breakfast will be available beginning at 8:30am.

HOTEL ACCOMODATIONS

While we are unable to reimburse guests for travel, we are happy to make hotel recommendations. Previous guests have enjoyed their stays at these hotels near the meeting site in Washington, DC (we do not have room blocks). If you would like assistance booking at the government per diem rate ($224), or close to it, please contact Sophie Yang by March 13 at syang@nas.edu. The *State Plaza Hotel* is generally happy to book at the government per diem rate if you call and say that you are a guest of the National Academies.

State Plaza Hotel / 2117 E Street, NW / 202-861-8200 (7 minute walk)
Hotel Lombardy / 2019 Pennsylvania Avenue, NW / 202-828-2600 (12 minute walk)
One Washington Circle Hotel / 1 Washington Circle, NW / 800-424-9671 (16 minute walk)
The River Inn / 924 25th Street, NW / 202-337-7600 (16 minute walk)

DIRECTIONS AND TRANSPORTATION

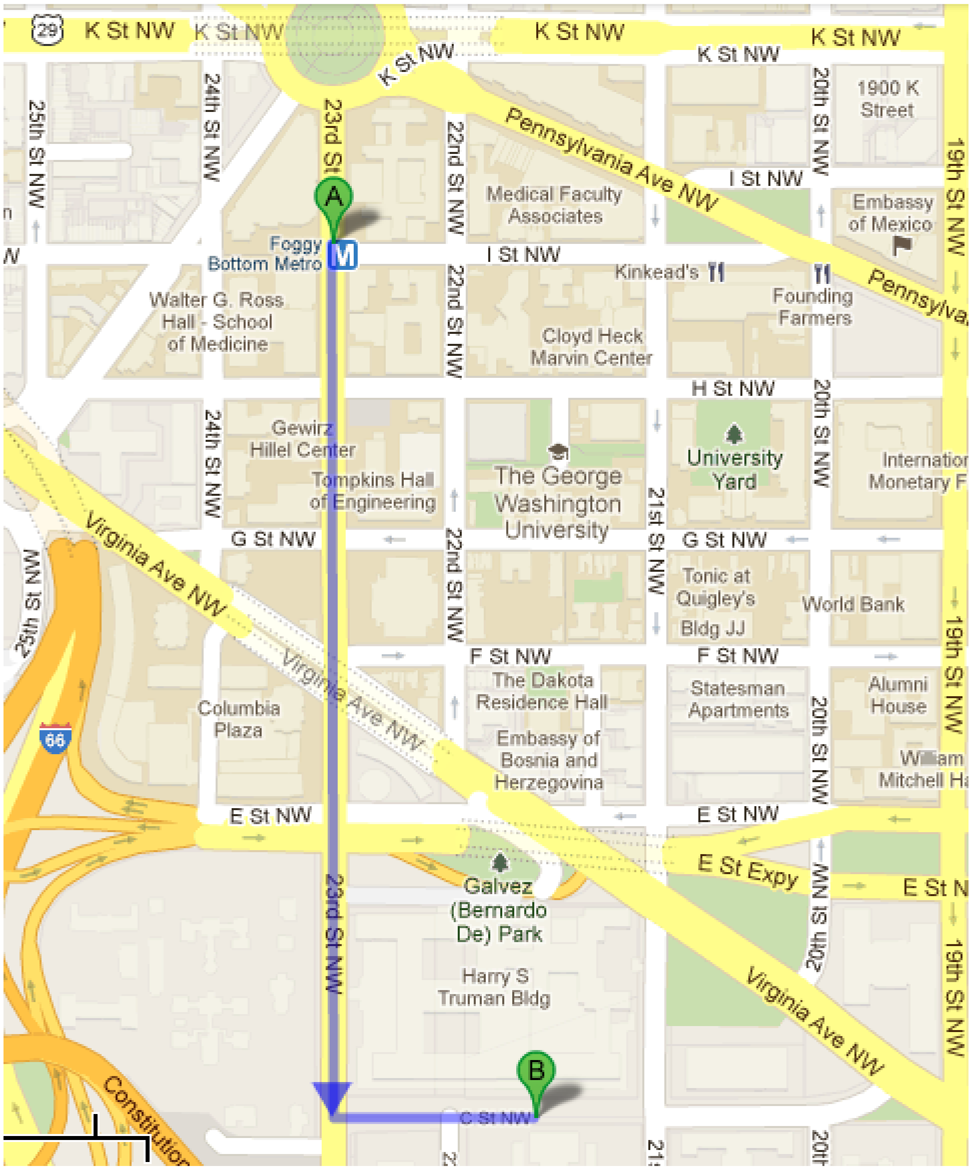
Airports: The meeting site is approximately 5 miles from Washington National Airport (a 20-minute cab ride depending on the time of day) and approximately 25 miles from Dulles International Airport (a 45-minute cab ride).

Metro: The Foggy Bottom metro stop (Orange/Blue Line) is located at 23rd and I Streets NW. Walking from the metro to the NAS building takes approximately 12 minutes. The *C Street Entrance* to the NAS building is the closest entrance to Metro. A map is on page 2 of this memo.

Parking: The parking lot for the National Academy of Sciences is located on 21st Street NW, between Constitution Avenue and C Street. However, space is very limited, so you may want to use an alternate mode of transportation. If the lot is full, there is a Colonial Parking garage near G and 18th Streets, NW (cash only). It is about 15 minutes walking distance from the NAS building.

Detailed driving and Metro directions to the National Academy of Sciences may be found at:
http://www.nationalacademies.org/about/contact/nas.html

Map of Foggy Bottom Metro to NAS Building



Best Practices Innovation Collaborative

March 27, 2014

Participant Biographies

Mary D. Naylor, PhD, RN, FAAN is the Marian S. Ware Professor in Gerontology and Director of the NewCourtland Center for Transitions and Health at the University of Pennsylvania School of Nursing. Since 1989, Dr. Naylor has led an interdisciplinary program of research designed to improve the quality of care, decrease unnecessary hospitalizations, and reduce health care costs for vulnerable community-based elders. Dr. Naylor is also the National Program Director for the Robert Wood Johnson Foundation program, Interdisciplinary Nursing Quality Research Initiative, aimed at generating, disseminating, and translating research to understand how nurses contribute to quality patient care. She was elected to the National Academy of Sciences, Institute of Medicine in 2005. She also is a member of the RAND Health Board, the National Quality Forum Board of Directors and the immediate past-chair of the Board of the Long-Term Quality Alliance. She was appointed to the Medicare Payment Advisory Commission in 2010.

Terry Adirim, MD, MPH is Special Consultant, Maternal and Child Health at the Health Resources and Services Administration (HRSA) in the U.S. Department of Health and Human Services. Previously she was Director of HRSA's Office of Special Health Affairs where she led cross agency policy initiatives in areas such as health equity, healthcare quality and health IT. Prior to coming to HRSA, she worked on emergency preparedness issues in the Office of Health Affairs in the Department of Homeland Security. She began her government service as an American Association for the Advancement of Science (AAAS) Policy Fellow from 2006 to 2007. From 2004 to 2006, Dr. Adirim was associate professor of Emergency Medicine and Pediatrics at the Drexel University College of Medicine and director of Emergency Medicine at St. Christopher's Hospital for Children in Philadelphia Pennsylvania. From 1997 to 2004, she was associate professor of Pediatrics and Emergency Medicine at the George Washington University School of Medicine and attending physician at Children's National Medical Center in Washington, DC. Dr. Adirim received her B.A. degree from Brandeis University, her medical degree with research distinction from the University of Miami School of Medicine, and her master's degree in public health from the Harvard School of Public Health. She completed pediatric residency training at the Children's Hospital of Philadelphia, fellowship training in pediatric emergency medicine at Children's National Medical Center in Washington, DC and primary care sports medicine at the Uniformed Services University of the Health Sciences in Bethesda, Maryland.

Chiledum Ahaghotu, MD, MBA, FACS received his medical degree at the University of Nigeria, graduating with honors. After completing his civil-service responsibilities, he returned to the United States and joined the urology residency program at the University of Iowa Hospital and Clinics. He also completed an American Cancer Society fellowship in Urologic Oncology while in Iowa. After completing his urologic training, he joined the faculty at Howard University in 1998. He has authored and co authored over 30 peer-reviewed publications and secured over three million dollars in research funding during his academic tenure. He holds the rank of Professor of Urology at Howard University and serves as the Associate Dean for Clinical Affairs. Dr. Ahaghotu also holds adjunct academic appointments in the Departments of Family and Community Medicine as well as Obstetrics and Gynecology. He has provided urologic instruction to countless medical students as the urology clerkship director at Howard University College of medicine and has nurtured the budding research interests of rising junior medical students in his role as Director of the Matory-Kiernan summer surgical research fellowship. Despite a very busy clinical practice load, Dr. Ahaghotu has held numerous key leadership positions within the institution as well as regionally and nationally. He served as President of the Howard University Hospital Medical and Dental Staff, Chairman of the Faculty Practice Plan Physicians Advisory Council, President of the Washington Urologic Society, Chair of the urology section of the National Medical Association and President of the R. Frank Jones Urologic Society. Dr. Ahaghotu also served as one of the nine physician members of CMS's Practicing Physicians Advisory Council (PPAC) and currently sits on the American Urologic Association's Health Policy Council. Dr. Ahaghotu remains committed to professional development as reflected by his graduate educational pursuits, receiving a Masters in Business Administration in 2013. He is scheduled to graduate with the inaugural class of Brown University's Executive Masters in Health Care Leadership Program later this year.

Amanda Bennett is a Pulitzer Prize-winning author, investigative journalist and editor. Through 2013, she was Executive Editor, Bloomberg News, where she created and ran a global team of investigative reporters and editors. She was also a founder of Bloomberg News' Women's project. She was editor of The Philadelphia Inquirer from June, 2003, to November, 2006, and prior to that was editor of the Herald-Leader in Lexington, Kentucky. She also served for three years as managing editor/projects for The Oregonian in Portland. Bennett served as a Wall Street Journal reporter for more than 20 years. A graduate of Harvard College, she held numerous posts at the Journal, including auto industry reporter in Detroit in the late 70s and early 80s, Pentagon and State Department reporter, Beijing correspondent, management editor/reporter, national economics correspondent and, finally, chief of the Atlanta bureau until 1998, when she moved to The Oregonian. She served as co-Chair of the Pulitzer Prize Board in 2010. Bennett shared the Prize for national reporting with her Journal colleagues, and in 2001 led a team from The Oregonian to a Pulitzer for public service. She is on the board of the Loeb Awards and of the Fund for Investigative Journalism. Projects by the Bloomberg Projects and Investigations team won numerous awards, including Loeb, Polk, Barlett & Steele, Headliners, Society of American Business Editors and Writers and Overseas Press Club Awards. She is the author of six books including "In Memoriam" (1998), co-authored with Terence B. Foley; "The Man Who Stayed Behind," co-authored with Sidney Rittenberg (1993), "Death of the Organization Man" (1991) and "The Quiet Room," co-authored with Lori Schiller. "The Cost of Hope," her memoir of the battle she and Foley, her late husband, fought against his kidney cancer, was published in June, 2012 by Random House. She is a member of The Pennsylvania Women's Forum. She is on the board of the American Society of News Editors, and is on the board of advisers of the Temple University Press; and on the board of directors of Axis Philly, a nonprofit local news site; and of the Rosenbach Museum, a Philadelphia museum of rare books.

Celia Trigo Besore, MBA, CAE has close to 20 years of experience in not-for-profit organizations. In August 2010, she became the Executive Director & CEO of the National Association of Hispanic Nurses (NAHN), a professional association representing the interests of Hispanic nurses and those of the Hispanic community when it comes to health issues. Since her tenure at NAHN, Ms. Besore has established partnership and collaborations with other nursing, ethnic and healthcare groups to fulfill NAHN's mission and to improve the health of the Latino community. Besides managing NAHN, she has been involved in the management of a HRSA grant, as well as several privately funded grant activities. She is a member of the Council Operations Committee of the American Heart Association. In addition to her work experience, she has a Master in Business Administration from George Mason University with emphasis in Strategic Management and Marketing. She received her American Society for Association Executives (ASAE) Certified Association Executive (CAE) certification in May 2008 and is a 2010-2012 ASAE Diversity Executive Leadership Program (DELP) scholar.

R. Scott Braithwaite, MD, MSc, FACP is a Professor and Chief of the Division of Comparative Effectiveness and Decision Science at New York University School of Medicine and Past-President of the Society of Medical Decision Making. Dr. Braithwaite earned his MD from the State University of New York at Stony Brook and his MSc in Clinical Research from the University of Pittsburgh. Dr. Braithwaite also completed a fellowship in Clinical Decision Making at Tufts University and is a recipient of a prestigious Robert Wood Johnson Foundation Faculty Scholar award. He is an accomplished investigator in the field of decision science, quality and cost-effectiveness with an outstanding record of funding from the NIH and other extramural sources. As Division Chief, he is dedicated to advancing a program of rigorous, policy-relevant research to optimize quality and value in healthcare, incorporating methods of decision science, comparative effectiveness and cost effectiveness. In addition to his focus on improving care for chronic illness domestically, he also continues his important international work on HIV treatment strategies in developing countries.

John L. Burch is an individual, private investor. He advises and selectively invests in both early-stage and late-stage companies. He has broad interests, and his educational background includes bachelors degrees in Chemistry and History. After working for several years as a computer programmer, in the 1980s he formed a company that published algorithm-based, multi-disciplinary bibliographic compilations of key literature in scientific fields at the intersection of computer hardware and software design, human factors, and macroergonomics; he personally edited compilations on computer ergonomics and artificial intelligence. He was invited to serve as Chairman of the Ericsson World Conference on Ergonomics in Computer Systems held in New York, City, Dusseldorf, Helsinki, and Stockholm. He has served on the Board of the Biodiversity Institute and Natural History Museum at the Univ. of Kansas. Under his leadership, the Burch family has created an endowment to support the Arctic Studies Center of the American Museum of Natural History at the Smithsonian Institution. Mr. Burch leads the In-Depth Bible Study Group at Plymouth Congregational Church (Lawrence, Kansas), a unique group with a growing following which helps believers look objectively at religious scriptures. Mr. Burch lives on the front lines of this nation's "culture wars." In 2005, when the teaching of intelligent design was proposed in Kansas (and in Dover, PA), he organized a half-day conference to support good science education (Science 29 April 2005: Vol. 308 no. 5722 p. 627). Mr. Burch is currently assessing fundamental needs and opportunities for innovation in health care.

Preeta Chidambaran, MD, MPH is a Medical Officer in the quality branch in office of quality and data in the US Department of Health and Human Services at the Bureau of Primary Health Care/Health Resources and Service Administration (HRSA), in Rockville, MD since 2010. Her areas of expertise include quality improvement, team based care, patient engagement, and health policy. At HRSA, she received the Administrator's citation for outstanding group performance in quality improvement in January 2013. She was selected as a HRSA Senior Leader Fellow for the year 2014. Dr. Chidambaran is an Instructor in Medicine at Harvard Medical School and affiliated to Brigham and Women's hospital since 2007. She is a board certified internal medicine physician with fifteen years of experience in integrated healthcare delivery and community health. Previously, she worked at Harvard University Health Services in Boston, MA and Kaiser Permanente Medical Group in San Francisco Bay Area. She is the co-founder and Board Member of iHealthEngines - a cloud based Education Technology Company focused on Patient and Clinician Education. Dr. Chidambaran received her medical degree from Mahatma Gandhi Institute of Medical Sciences in India. She completed her internal medicine training at Albert Einstein Medical School, NY and Kaiser Permanente in CA. She was a California Endowment Scholar in Health Policy at Harvard University and has an MPH in Healthcare Management and Policy from the Harvard School of Public Health.

Veronica Chollette, RN, MS is a Program Director in the Process of Care Research Branch (PCRB) at the National Cancer Institute(NCI) and works on a number of initiatives to direct the agenda on improving the process of cancer care delivery through research on health care teams. She provides oversight of funded behavioral research studies in the areas of cervical, lung and prostate cancer and provides scientific guidance and policy direction to investigators seeking research fund.ing. while mentoring scientific staff and trainees. Prior to joining the National Cancer Institute in 1989, Ms. Chollette worked at the American Lung Association on programs to prevent and reduce smoking among youth in the District of Columbia Ms. Chollette began her career in health care by working as a Certified Nursing Assistant and Licensed Practical Nurse. She received her Bachelor of Science in Nursing and Master of Science degree in Health Systems Management from George Mason University.

Allison Walp Dimsdale, DNP, APRN, NP-C, AACC is the Director of Advanced Practice for the Private Diagnostic Clinic at Duke University Health System. Her clinical practice is as a Board Certified Nurse Practitioner in the Department of Medicine Division of Cardiology, where she specializes in the treatment of heart failure, acute coronary syndromes and primary and secondary prevention of coronary heart disease. Her third appointment is as a Clinical Associate in the Duke University School of Nursing where she lectures to graduate students in the areas of professional practice and cardiology, and serves as content expert on student doctoral committees. She is an Investigator on several clinical trials through the Duke Clinical Research Institute, and is an active participant in nursing research initiatives through the Duke Translational Nursing Institute focusing on implementation science. She has an interest in creative nursing education and mentorship, as well as the leadership interface between systems of care, provider utilization, access to care and excellent patient outcomes. In her role as Director of Advanced Practice at Duke, she is responsible for leading the effort to facilitate Nurse Practitioners and Physician Assistants to work to their full scope of practice by implementing ambulatory practice redesign with the aim to increase patient access to high quality, safe and effective care. Dr. Dimsdale sustains active memberships in the American Association of Nurse Practitioners, American Heart Association, American College of Cardiology, American Nurses Association, and the North Carolina Nurses Association. She is a peer reviewer for Elsevier Publishing, and has been published in several nursing and medical publications including Circulation. She serves on a variety of community task forces and boards, and was a Fellow in the 2013 NC Nurses Association Leadership Academy. She holds the Associate of the American College of Cardiology recognition. She earned her Doctor of Nursing Practice (DNP) and Master of Science (MSN) degrees at Duke University, and her undergraduate degree from the University of Texas.

Michael P. Dinneen, MD, PhD currently serves as Director, Office of Strategy Management for the Military Health System, a position he assumed after retiring from the USN in January 2005. He is responsible for developing and monitoring the implementation of the strategic plan for the Military Health System. As a participant in health policy development Dr. Dinneen serves on committees for the Institute of Medicine, the International Consortium for Health Outcomes Measurement, the High Value Healthcare Collaborative, and MIT Collaborative Initiatives. During his career as a Navy psychiatrist he was a residency training director, Department Chairman and finally Director of Medical Services at the National Naval Medical Center in Bethesda before transferring to the Navy Bureau of Medicine where he served as Deputy to the Chief of Health Care Operations in the Office of the Surgeon General. A diplomat of the American Board of Psychiatry and Neurology, Dr. Dinneen graduated from Harvard University (cum laude) and then received both an MD and PhD (Neurochemistry) from the Medical College of Virginia.

Hala Durrah is chairperson of the Women and Children's Patient Family Advisory Council at Anne Arundel Medical Center in Annapolis, MD and is an advisor on the Patient Family Advisory Council. Hala has served in leadership and advisory roles at Anne Arundel Medical Center for the past two years. She is a full time mother to four wonderful children and her eleven year old daughter is a two-time liver transplant and a bone marrow transplant recipient. Hala has shared her journey as a parent of a chronically ill child at a number of speaking engagements. Her past professional background includes event planning, non-profit work, development, and writing. She earned her Bachelors and Masters degrees at the George Washington University in Washington, D.C.

Christine Engstrom, PhD, CRNP is the Acting Chief Nursing Office for the Veterans Health Administration (VHA) in Washington, DC. She has served in the VA Central Office in many roles; Deputy Chief Nursing Officer, Director of Clinical Practice, Clinical Practice Program Manager and Oncology Clinical Nurse Advisor. As Acting CNO she: serves as Consultant and principal advisor to the Under Secretary for Health and key Veterans Health Administration (VHA) and Department officials on all matters relating to Nursing and the delivery of patient care service, she serves as consultant to other Program Offices and twenty-one Veterans Integrated Service Network (VISN) and 151 Healthcare System leadership in planning policy and legislative affairs, she represents VHA Nursing, 89,000 nurses including 4,500 nurse practitioners, in all matters pertaining to professional practice and academic affairs. She also serves as Chair of the Federal Nursing Chiefs, Army, Navy, Air Force, US Public Health Service, VHA. She has been a leader to invoke federal supremacy to support full practice authority for all APRN's while embracing the APRN Consensus Model. She has always devoted time to practice in the oncology clinic at the Baltimore VAMC at least one day per week during her entire career. She has taught at the University of Maryland and Uniformed Services in undergraduate/graduate programs. Her research in interest has been in prostate cancer with many peer reviewed publications in this arena as well as on the team to write the prostate cancer guidelines for AUA. She earned her bachelor's and master's degree and post masters NP certificate from the University of Maryland and her doctoral degree from the Uniformed Services of the Health Sciences.

Ted A. Eytan, MD, MS, MPH currently works as a Director at Kaiser Permanente, within The Permanente Federation, LLC. He is based at The Kaiser Permanente Center for Total Health as physician partner to the Executive Director. His experience is in working with large medical groups and technologists to leverage health information technology to ensure that patients and their families have an active role in their own health care. Ted attended medical school at the University of Arizona, his master's of public health degree from the University of California, Berkeley, and his master's of science, health services degree from the University of Washington. He completed his residency training at Group Health Cooperative and his fellowship training in the Robert Wood Johnson Clinical Scholars Program at the University of Washington in 2000. Dr. Eytan is board certified in family practice. His clinical interests are preventive care and reducing disparities in health status among vulnerable populations. He is a regular user of social media tools to promote open leadership.

Clara Filice, MD, MPH, MHS is a Medical Officer in the Office of Health Policy of the HHS Assistant Secretary for Planning and Evaluation, where her portfolio includes population health, public reporting of quality measures, and comparative effectiveness research. She was previously a fellow in the American Academy of Pediatrics federal policy office focusing on social and environmental determinants of child health. Dr. Filice was a Robert Wood Johnson Foundation Clinical Scholar and completed a Master of Health Science degree focused on health services research and public health policy at the Yale School of Medicine, where she studied pediatric emergency care and the health impacts of a local transportation redevelopment proposal. She was a legislative aide for health and social policy for U.S. Senator Byron Dorgan in Washington, DC, before attending medical school at Northwestern's Feinberg School of Medicine in Chicago where she concurrently earned her MD and a Master of Public Health degree. She completed her pediatric internship and residency at Children's Memorial Hospital in Chicago and is a practicing pediatric hospitalist at Children's National Medical Center.

Susan M. Friedman is Deputy Director of Government Relations for the American Osteopathic Association. Susan oversees the Division of Private Sector Advocacy and the Division of Federal Affairs. Her portfolio includes comparative effectiveness research, pharmaceutical issues, health system reform implementation, pandemic influenza, NIH, AHRQ, and NCHS funding, the U.S. Preventives Services Task Force (USPSTF), as well as women's and men's health issues. Susan staffs the AOA Workgroup on Comparative Effectiveness Research and represents the AOA on numerous committees and coalitions in Washington, DC.

Karen S. Kesten, DNP, APRN, CCRN, PCCN, CCNS, CNE received her bachelors of science degree in nursing from Emory University, her masters of science degree in nursing from the Catholic University of America, and her doctor of nursing practice degree from the University of Maryland. Dr. Kesten is a licensed advanced practice registered nurse, a certified Clinical Nurse Specialist, and Certified Nurse Educator. Dr. Kesten serves on the Board of Directors for the Certification Corporation for the American Association of Critical Care Nurses. Dr. Kesten is an Associate Professor and was the Program Director for the Adult Gerontology Acute Care Nurse Practitioner and Clinical Nurse Specialist program at Georgetown University for the past decade. She played a critical role in the planning, development and launch of the graduate distance learning program there. Dr. Kesten currently is the Director of Educational Innovations at the American Association of Colleges of Nursing and serves as a staff liaison for the work of the APRN Clinical Training Task Force and the Implementation of the DNP Task Force.

Sara J. Knight, PhD received her PhD in clinical psychology from Southern Illinois University. She completed a VHA HSR&D Career Development Award in 2005. Her research interests include decision making in cancer care, palliative medicine, genomics and personalized medicine, and she has received research funding from the VA, Department of Defense, and National Cancer Institute. She has authored or co-authored more than 50 articles in peer-reviewed journals, and has been selected Outstanding Reviewer for Medical Care, Quality of Life Research, and Medical Decision Making, for which she currently serves as a member of their editorial board. Dr. Knight serves on the Board of Directors of the Society of Behavioral Medicine. She has previously served as Acting Chief Psychologist, Department of Psychiatry, University of Chicago; Chair of Health Psychology Specialization in the Clinical Psychology Doctoral Program, Department of Psychiatry and Behavioral Sciences, Northwestern University; Research Scientist, VA Chicago Healthcare System; and Associate Adjunct Professor, Department of Psychiatry, University of California, San Francisco. In addition, she has supervised or mentored twenty post-doctoral fellows and faculty. Dr. Knight adds significant strength to HSR&D's program. She has extensive knowledge of the VA's health care system, is an accomplished independent investigator, has been a leader in HSR&D's Career Development Award program, and brings a "field investigator viewpoint" to VACO.

Denise Koo, MD, MPH is Senior Advisor for Health Systems, Office of Public Health Scientific Services, CDC. Dr. Koo was graduated from Harvard University with a BA in Biochemical Sciences. After combining medical school at the University of California, San Francisco, with an MPH in epidemiology at University of California, Berkeley, she completed a primary care internal medicine residency at the Brigham and Women's Hospital in Boston. Dr. Koo is a graduate of CDC's Epidemic Intelligence Service and Preventive Medicine Residency. Other prior CDC positions have included running the National Notifiable Disease Surveillance System, serving as Director of the Division of Public Health Surveillance and Informatics, and most recently, serving as Director of CDC's Division of Scientific Education and Professional Development. Dr. Koo holds appointments as Adjunct Professor of Global Health and of Epidemiology, Rollins School of Public Health, Emory University, and Consulting Professor, Department of Community and Family Medicine, Duke University Medical Center.

As the Schwartz Center for Compassionate Healthcare's medical director, **Beth Lown, MD** develops programs to strengthen relationships between patients and their family caregivers and clinicians, teams and staff. She speaks nationally and internationally about compassion and the importance of interpersonal skills, effective communication and relationships in healthcare. She leads the Center's National Consensus Project to Advance Compassionate Healthcare. Prior to being appointed medical director in 2010, Beth was chair of the Center's program committee and an active board member. Beth is a graduate of Tufts University School of Medicine and did her internal medicine residency training at Boston's Beth Israel Deaconess Medical Center. In addition to her work at the Schwartz Center, she is associate professor of medicine at Harvard Medical School and a general internist at Mount Auburn Hospital in Cambridge, Massachusetts. Beth teaches learners across the spectrum of medical education and has co-directed several faculty fellowships in medical education for the Harvard Medical School community. She is a Fellow of the American Academy on Communication in Healthcare and served as its president and on its board. She has also served on communication skills task forces and test material development and standard setting committees for the U.S. Medical Licensing Examination and National Board of Medical Examiners.

Gail A. Mallory, PhD, RN, NEA-BC has been the Director of Research at the Oncology Nursing Society (ONS), an organization of more than 35,000 professional oncology nurses since 1999. As Director, Dr. Mallory has facilitated and coordinated the development of key research based ONS initiatives such as the ONS Research Agenda, an Evidence-Based Practice (EBP) Program, a Nursing-Sensitive Patient Outcomes Program, and a Multi-Site Research Plan. Over the past few years, all of these programs have come together within an Oncology Nursing Quality Initiative, which has included the development and testing of patient-centered quality measures for breast cancer and others and, recently planning for the launch of a campaign, "Get Up, Get Moving" to ONS members and other oncology nurses focusing on the importance of teaching people with cancer about physical activity. The ONS Research Department manages the ONS Foundation research grant program. Dr. Mallory has extensive experience in working with ONS members and others to create and implement innovative programs to improve the quality of care delivered to people with cancer and improving nursing practice. The ONS PEP (Putting Evidence into Practice) resources include a synthesis of the research evidence for a wide range of interventions for specific patient outcomes such as fatigue, nausea and vomiting, and depression. The ONS Website (http://www.ons.org) includes a variety of resources, educational programs, and practice change resources for nurses to implement and evaluate evidence-based practice changes to improve patient outcomes. The ONS Foundation Breast Cancer Quality Initiative was funded with more than $1 million by the Breast Cancer Fund of National Philanthropic Trust to develop and test patient-centered breast cancer quality measures from 2009 - 2012. In January 2013, ONS was funded by the US Agency for Healthcare Research and Quality (AHRQ) to disseminate cancer caregiver-centered outcomes research to members of ONS. Dr. Mallory is the principal investigator for the AHRQ grant, which is a three year grant through December 2015. Dr. Mallory received a BS degree in biology from Allegheny College, a BS in nursing from Case Western Reserve University, a MS in psychiatric-mental health nursing from Adelphi University and a PhD in nursing research from the University of Illinois in Chicago.

Susan F. Marden, PhD is a Health Scientist Administrator in the Office of Extramural Science Programs at the National Institute of Nursing Research (NINR), National Institutes of Health (NIH). She serves as Program Director overseeing a portfolio of research focused on symptom management, quality of life, pain, sleep, and cancer. She participates also on multiple trans-NIH committees to include the NIH Pain Consortium, NIH Promis, NIH Bioethics, and NIH Data, Safety and Monitoring. Dr. Marden has worked at the NIH for over 25 years in both the intramural and extramural programs. Within the intramural program, she held advanced practice and research positions to include Clinical Nurse Specialist for Cardiac, Pulmonary, Hematology and Diagnostic Labs and Clinical Nurse Scientist. As a Clinical Nurse Scientist, she acted as Principal Investigator working with clinicians and senior physician investigators across NIH Institutes to develop a portfolio of research focused on health-related quality of life and symptom experiences of patients undergoing novel treatment modalities for a variety of acute and chronic illnesses. In addition, she pursued her keen interest in theoretical model development by testing her framework, The Technology Dependence and Health-Related Quality of Life Model, in patients with implantable defibrillators. Throughout her research career, Dr. Marden has focused on mentorship for transitioning novice nurse researchers to expert investigators. She received the "NIH Clinical Center Director's Award" (2001) in recognition of her outstanding contributions and dedication in mentoring nurses in the Clinical Center. Dr. Marden has received research awards from the Sigma Theta Tau International Nursing Honor Society (2000) and from the American Association of Critical Care Nurses (1998). She has also received awards from the United States Public Health Service in recognition of her publications in nursing research (2006;2008), clinical practice (2006) and health policy (2005). Most recently, Dr. Marden received a "NIH Director Award" (2013) in recognition of her outstanding work in developing and implementing NIH Centers of Excellence in Pain Education (COEPEs). Prior to her appointment at NINR, Dr. Marden was a Scientific Review Officer for the Center for Scientific Review and a Consultant in the Office of Clinical Research Training and Medical Education at the NIH Clinical Center. She received a Bachelor of Science from Georgetown University, a Master of Science from Boston University, and a Doctorate of Philosophy from the University of Maryland.

Brian J. Masterson, MD, MPH, FAPM, Col, USAF, MC, CFS currently serves at the Medical Chair for Global Health at the National Defense University, Ft. Lesley J. McNair, Washington, DC. He is the Chief, Interagency Collaboration and Chairman for Health Futures Group for the Assistant Secretary of Defense for Health Affairs. His research is related to development of US Health Strategy with special interest in health diplomacy. His research has focused on clinical informatics and predictive analytics through modeling and simulation creating the DoD Integrated Clinical Data Base, the Healthcare Management Model and Healthcare Complex Model. His clinic work has focused on integrated medicine in organ transplantation, HIV, traumatic brain injury and PTSD. He is a distinguished graduate from the United States Air Force Academy, an Aesculapian graduate from Harvard Medical School. He has completed a combined residency in Internal Medicine and Psychiatry from the University of Iowa and an Aerospace Medicine residency from the USAF School of Aerospace Medicine. He is a 2010 Graduate Research Fellow from the National Defense University. He has had multiple command positions, most notably the Hospital Commander and Director of Base Medical Support for the Joint Air Base Balad/Logistical Support Area Anaconda, Balad Iraq from 2006 to 2007.

Susan R. Mende, BSN, MPH is a senior program officer at the Robert Wood Johnson Foundation (RWJF) where she helps to manage the Aligning Forces for Quality (AF4Q) initiative, RWJF's signature effort to lift the overall quality of health care in targeted communities, reduce racial and ethnic disparities and provide models for national reform. AF4Q communities work through multi stakeholder alliances to improve the quality and efficiency of their health care systems through performance management, public reporting, quality improvement, consumer engagement and payment reform. Susan's special focus areas include: consumer and community engagement; ambulatory and hospital quality improvement; primary care and complex populations. Susan was formerly the Chief Operating Officer for Tsao Foundation, Singapore where she focused on community based care of older people, professional and caregiver training and regional and international aging issues for WHO and the UN . While living in Australia, she consulted with national and international organizations on successful aging and inclusion of older people. Trained as a nurse, she received her MPH from Hunter College of The City University of New York.

Sally Okun, RN, MMHS is the Vice President for Advocacy, Policy and Patient Safety at PatientsLikeMe in Cambridge, MA. She is responsible for the company's patient advocacy initiatives; she participates and contributes to health policy discussions at the national and global level; and she is the company's liaison with government and regulatory agencies. Sally joined the company in 2008 as the manager of Health Data Integrity and Patient Safety overseeing the site's medical ontology including the curation of patient reported health data and an ever-evolving patient vocabulary. Okun also developed and manages the PatientsLikeMe Drug Safety and Pharmacovigilance Platform. Prior to joining PatientsLikeMe Sally, a registered nurse, practiced as a palliative and end-of-life care specialist. In addition as an independent consultant she contributed to multiple clinical, research, and educational projects focused on palliative and end-of-life care for numerous clients including Brown University, Harvard Medical School, MA Department of Mental Health, Hospice Education Network and the Robert Wood Johnson Foundation. Sally participates on the Institute of Medicine's Roundtable on Value and Science Driven Healthcare as a member of the Clinical Effectiveness Research Innovation Collaborative, the Evidence Communication Innovation Collaborative, and the Best Practices Innovation Collaborative. She is a contributing author to the Institute's discussion papers Principles and Values for Team-based Healthcare and Communicating with Patients on Health Care Evidence. Ms. Okun serves on the Program Advisory Board of the Schwartz Center for Compassionate Care in Boston and has been a facilitator for Schwartz Center

Rounds® at numerous locations around the country. Sally received her nursing diploma from the Hospital of St. Raphael School of Nursing; Baccalaureate degree in Nursing from Southern Connecticut State University; and Master's degree from The Heller School for Social Policy & Management at Brandeis University. She completed study of Palliative Care and Ethics at Memorial Sloan-Kettering Cancer Center and was a fellow at the National Library of Medicine Program in Biomedical Informatics.

Alexander Ommaya, DSc, MA is Senior Director of Clinical Effectiveness and Implementation Research at the Association of American Medical Colleges. In this role he is responsible for enhancing AAMC member impact and capacity in effectiveness and implementation research. Previously as Director of Translational Research at the Department of Veterans Affairs, he was responsible for managing development of new research activities focusing on health systems improvements, genomic medicine, comparative effectiveness research, and traumatic brain injury. Previously he was Director of the Institute of Medicine's Drug Forum and Clinical Research Roundtable. These multi stakeholder groups addressed science policy issues concerning the research enterprise and established public / private collaborative research activities. At Blue Cross and Blue Shield of Florida he directed Business Knowledge Management where his department evaluated and developed improvements for pharmacy, disease, and utilization management programs. Dr. Ommaya has worked for the Agency for Healthcare Research and Quality as a Senior Advisor for the Office of the Administrator; Walter Reed Army Medical Center as a Senior Researcher for the Defense and Veteran's Brain Injury Program; the U.S. Senate as a Health Policy Fellow; and the National Institutes of Mental Health. His previous research focused on neuroplasticity and cortical reorganization; treatment of malignant Glioma; rehabilitation after traumatic brain injury; and health system structures that improve research translation and implementation. Dr. Ommaya received his Doctoral degree in Health Policy and Management from Johns Hopkins University; a Master's degree in Biopsychology from Mount Holyoke College; and his undergraduate degree in Philosophy from Vassar College.

Deborah Parham Hopson, PhD, RN, FAAN is the Senior Advisor for HIV/AIDS Policy at the Health Resources and Services Administration (HRSA). As Senior Advisor, Dr. Parham Hopson provides expert guidance on initiatives involving national and international HIV/AIDS policies and issues. Prior to assuming this position in February 2013, Dr. Parham Hopson served as the Associate Administrator of the HIV/AIDS Bureau (HAB) for 11 years. As HAB's Associate Administrator, Dr. Parham Hopson was responsible for managing over $2.4 billion for programs authorized under the Ryan White HIV/AIDS Program. The Ryan White HIV/AIDS program funds training for health care professionals and medical care, treatment, referrals and support services, for over 559,000 uninsured, underinsured, and underserved people living with HIV disease in the United States and the U.S. Territories. In addition, as part of the President's Emergency Plan for AIDS Relief, she directed a multi-million dollar global HIV/AIDS program with training, care and treatment activities in Africa, Asia, and the Caribbean. Dr. Parham Hopson has authored numerous articles and is the recipient of many awards and recognitions. She earned her undergraduate degree in nursing and health from the University of Cincinnati and her masters and doctoral degrees in health policy and management from the University of North Carolina at Chapel Hill Gillings School of Global Public Health.

Irene Prabhu Das, PhD, MPH is a Health Scientist in the Outcomes Research Branch of the Applied Research Program (ARP) within the Division of Cancer Control & Population Sciences at the National Cancer Institute (NCI). She currently leads a research study that characterizes the landscape of multidisciplinary care teams among Commission on Cancer-accredited cancer programs. Her work on teams also will expand to the NCI Community Cancer Centers Program (NCCCP), which promotes the development and implementation of multidisciplinary care as a quality of care priority. Dr. Prabhu Das also coordinated the evaluation of the NCCCP from 2009 to the present. She served as Public Health Advisor at the Office of Dissemination and Implementation within the Division, managing and coordinating the web-based portal, Cancer Control P.L.A.N.E.T., which facilitated the dissemination, adoption and implementation of evidence-based interventions. Her qualitative research experience includes designing and conducting content analyses of state cancer policy documents, community cancer hospital projects, and interview studies. Prior to the NCI, Dr. Prabhu served as Director for the Division of Cancer Prevention and Control at the South Carolina Department of Health and Environmental Control and as Director of the Breast & Cervical Cancer Early Detection Program and the Comprehensive Cancer Control Program for South Carolina. Dr. Prabhu Das earned her Ph.D. in Health Promotion, Education, and Behavior from the University of South Carolina and her MPH in Epidemiology from UCLA.

Wendy Prins, MPH, MPT is currently a senior director at the National Quality Forum (NQF) and was responsible for overseeing the work of the National Priorities Partnership (NPP) in providing input to HHS on the development of the National Quality Strategy to improve the nation's health and healthcare. She currently oversees an effort to identify gaps in performance measures across high-impact topic areas, including care coordination, Alzheimer's Disease and related dementias, and person- and family-centered care and outcomes. Wendy has been at NQF for 6 years and has over 16 years of healthcare experience. Prior to joining NQF, she was manager of quality programs at the American Health Care Association, a leading trade association for long-term care, and she has worked as a project manager under CMS' home health quality initiative as part of the QIO program. Wendy has master's degrees in public health and physical therapy from the University of North Carolina at Chapel Hill and a bachelor's degree from the Pennsylvania State University. Early in her career, she worked as a physical therapist across healthcare settings in North Carolina and her main interests include palliative and end-of-life care, care coordination, and person-centered care.

Richard Ricciardi, PhD, NP, FAANP is a Health Scientist in the Center for Primary Care, Prevention, and Clinical Partnerships at the Agency for Healthcare Research and Quality (AHRQ). Dr. Ricciardi is Pediatric and Family Nurse Practitioner who received a Bachelor's of Science in Nursing from Downstate Medical Center, a Master's in Science from The University of Maryland, and a Ph.D. from the Uniformed Services University of the Health Sciences. Before joining AHRQ in 2010, Dr. Ricciardi served on active duty for thirty years and had numerous positions with the Department of Defense, working as a Nurse Practitioner, Senior Leader and Clinical Scientist. In his last two positions on Active Duty, Dr. Ricciardi served as the Chief of Nursing Research at Walter Reed Army Medical Center and the Director of Research for the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury. At AHRQ, Dr. Ricciardi's research is focused on improving the organization and delivery of primary care; with specific interests in teams and team-based care, patient and family engagement, measurement of process and clinical outcomes to improve the delivery of health services, and care of patients with multiple chronic conditions.

Lygeia Ricciardi, EdM is the Director of the Office of Consumer eHealth at the Office of the National Coordinator for Health IT (ONC). She is responsible for leading the development and implementation of ONC's national strategy to engage consumers in their health and healthcare via information technology. Prior to joining ONC in 2011, Lygeia ran a consulting practice called Clear Voice Consulting specializing in consumer eHealth. Previously, she was a Director in the Health program at the Markle Foundation, a Policy Advisor and Speechwriter for the Chairman of the Federal Communications Commission, a Content Manager at a dot com, and a Research Associate at Harvard Business School. She earned a Masters in Technology & Education from Harvard, and has also studied at the MIT Media Lab and Wellesley College. Lygeia has lived in Europe, Africa, and the sometimes equally exotic culture of Washington, DC, where she currently resides with her family.

Osula Evadne Rushing is Grantmakers In Health's vice president for program and strategy, managing program development and strategic positioning of the organization, as well as supervising program staff and cultivating external relations and new ventures. Ms Rushing first came to GIH in 2004 as a senior program associate and in 2007 was promoted to program director. She previously worked on issues related to access and coverage, health reform, maternal and child health, and the social determinants of health. Prior to joining GIH, Ms. Rushing was a policy analyst for The Henry J. Kaiser Family Foundation, where her work focused on race, ethnicity, and health care. She has also held positions with The Boston Foundation, where she helped to develop the Boston Indicators Project; and Education Development Center, where she coordinated a national hate crime prevention and response project. Ms. Rushing holds a bachelor's degree in sociology from Spelman College and a master's degree in health and social behavior from the Harvard School of Public Health.

Marcel E. Salive, MD, MPH is a program officer of the extramural Division of Geriatrics and Gerontology of the National Institute on Aging (NIA), where he oversees the research portfolios on multi-morbidity treatment and prevention, polypharmacy, urinary incontinence and comparative effectiveness, and previously worked in the NIA intramural epidemiology program. He has developed and led research initiatives in several areas including multi-morbidity, outcomes research, Alzheimer disease etiology, vaccine safety, and translation of clinical research into primary care practice. CAPT Salive completed 25 years in the US Public Health Service Commissioned Corps and held leadership positions in the Centers for Medicare & Medicaid Services (CMS), National Heart, Lung and Blood Institute, and Food and Drug Administration. From 2003-2010, he served as Director of the Division of Medical and Surgical Services within the Coverage and Analysis Group of CMS and was responsible for developing and maintaining national coverage decisions for Medicare beneficiaries using a rigorous and open evidence-based process. His work in developing Medicare coverage of new and innovative services was recognized with the PHS Meritorious Service Medal. Dr. Salive is completing 5 years as Vice Chair of the American Board of Preventive Medicine, where he is responsible for oversight of physician certification in general preventive medicine and public health. He is a Fellow of the American College of Preventive Medicine. He earned chemistry and medical degrees from the University of Michigan and completed his preventive medicine residency and a master's in public health at Johns Hopkins University.

Stephen C. Schoenbaum, MD, MPH is Special Advisor to the President of the Josiah Macy Jr. Foundation. He has extensive experience as a clinician, epidemiologist, and manager. From 2000-2010, he was Executive Vice President for Programs at The Commonwealth Fund and Executive Director of its Commission on a High Performance Health System. Prior to that, he was the medical director and then president of Harvard Pilgrim Health Care of New England, a mixed model HMO delivery system in Providence, RI. He is a lecturer in the Department of Population Medicine at Harvard Medical School, a department he helped to found, adjunct professor of healthcare leadership at Brown University, and author of over 170 publications. He has been president of the board of the American College of Physician Executives, was vice-chair of the board of the Picker Institute, and is an honorary fellow of the Royal College of Physicians.

Suzanne Schrandt, JD is the Deputy Director of Patient Engagement at the Patient-Centered Outcomes Research Institute (PCORI). She is responsible for supporting the Director of Patient Engagement in creating networks and engaging patients across the nation to provide broad-based input on the development and execution of PCORI's research. Schrandt has been involved in patient education and advocacy since being diagnosed with a form of rheumatoid arthritis as a teenager. For more than twenty years, she has advocated on behalf of children and adults with arthritis and has been engaged in numerous patient and provider education initiatives aimed at increasing early diagnosis and appropriate, patient-centered management of chronic disease. Schrandt most recently served as the Health Reform Strategy Team Leader for the Kansas Health Institute, where she educated Kansas policy makers, providers, and consumers on the implications of the Affordable Care Act. While there, Schrandt also led the Kansas Legislative Health Academy, an intensive educational experience for select Kansas legislators. Schrandt also previously served as the Coordinator of Public Health and Public Policy for the Arthritis Foundation in Kansas City and as a Research Associate for a Human Genome Research Institute Ethical, Legal, and Social Issues project. Schrandt is a member of the Kansas Bar and the American Health Lawyers Association.

Dale C. Strasser, MD is an Associate Professor in the Department of Rehabilitation Medicine at Emory University in Atlanta, GA. Through a long-term collaboration with Judith Falconer PhD at Northwestern University, he developed a conceptual model of rehabilitation team effectiveness and tested the model in a series of studies funded by the Veteran Administration Research and Development Merit Review Program. In a multisite, cluster randomized trial, his research team demonstrated that rehabilitation teams are responsive to team training and the team training improved patient outcomes. More recent work has focused on measurement of team functioning and quality improvement. Dr. Strasser served as Department Chair of Rehabilitation Medicine from 1999 to 2005 and was an investigator with the Birmingham – Atlanta VA GRECC from 2002 to 2007. He completed medical school (1984), PM&R residency (1988), and post-graduate fellowships in Arthritis Rehabilitation (1989) and Geriatric Medicine (1990) at Northwestern University. He joined the faculty at Emory University in 1990 and maintains an affiliation with the Atlanta VA Medical Center. Clinical activities include the management of medically complex patients in acute inpatient settings and the rehabilitation of individuals with muscular dystrophies and post –polio.

Steven H. Taplin, MD, MPH is Chief of the Process of Care Branch of the Behavioral Research Program within the National Cancer Institute's Division of Cancer Control and Population Sciences. He is an expert in the field of cancer screening and built his research career around the problems that arose from his clinical experience as a primary care physician and Associate Director of Prevention responsible for delivery and evaluation of a breast cancer-screening program serving 100,000 women in an integrated health plan. He joined the National Cancer Institute as a Senior Scientist in 2003 after being a Professor in the Department of Family Medicine at the University of Washington and an Investigator in the Center for Health Studies at Group Health in Seattle. As the Chief of the Process of Care he has led the development of that Branch's focus on promoting research into how individuals, groups and organizations act and interact to affect cancer care delivery. He publishes regularly in peer-reviewed journals including work on mammography and interpretation, and the conceptualization of problems and interventions in cancer care delivery. His current work is focused on how to consider cancer care interventions addressing individual, provider, and organizational factors affecting care.

Manasi Tirodkar, PhD, MS is a Research Scientist at the National Committee for Quality Assurance in the Research and Analysis department. With a background in medical anthropology and health services research Dr. Tirodkar has extensive experience with survey and case study methodology as well as health systems and practice transformation. She has worked on measure development projects spanning different disease conditions and populations (cardiovascular, cancer, geriatrics) and directs projects related to evaluations of the patient-centered medical home (primary care and oncology) and patient engagement (shared decision-making). Dr. Tirodkar earned her doctoral degree from The University of Chicago and master's degree from Northwestern University.

C. Edwin Webb, PharmD, MPH is the Associate Executive Director of the American College of Clinical Pharmacy, the national professional and scientific society of pharmacists providing leadership in clinical pharmacy practice and research. In that capacity he is responsible for directing ACCP's Washington, DC office, including federal legislative and regulatory advocacy and communication, professional and inter-organizational affairs , policy analysis and development, and member support services in these areas. Dr. Webb holds Bachelor of Science (1972) and Doctor of Pharmacy (1973) degrees from the University of Tennessee and a Master of Public Health degree with a major in health policy and administration from the University of North Carolina at Chapel Hill (1985). He completed a Primary Health Care Policy Fellowship with the Health Resources and Services Administration of the U.S. Public Health Service (1993) and was inducted into the pharmacy academy of the National Academies of Practice, the nation's leading interprofessional health care policy and advocacy organization, in 2010. He currently represents ACCP on the executive committee of the Patient-Centered Primary Care Collaborative and the Institute of Medicine's Roundtable on Value and Science-Driven Health Care. Dr. Webb has more than 25 years of national pharmacy association executive experience in the areas of policy analysis, advocacy, and professional affairs, having also served on the staffs of the American Association of Colleges of Pharmacy (1992-2000) and the American Pharmacists Association (1987-1992). Prior to moving to Washington, he served for ten years as Director of Pharmacy Education of the Mountain Area Health Education Center in Asheville, North Carolina, holding faculty appointments in Pharmacy and Family Medicine at the University of North Carolina at Chapel Hill Schools of Pharmacy and Medicine. His clinical practice and teaching activities were in the area of critical care adult and pediatric pharmacotherapy.

Modena Hoover Wilson, MD, MPH joined the American Medical Association as a Senior Vice President in 2004. She currently serves as AMA's Chief Health & Science Officer with a wide range of related responsibilities. Dr Wilson came to the AMA from the American Academy of Pediatrics. She joined the executive staff of the Academy in January 2000 as Director of the Department of Committees and Sections. Dr Wilson was a full time faculty member of the Johns Hopkins University School of Medicine for more than twenty years where she attained the academic rank of Professor of Pediatrics. At Johns Hopkins, Dr. Wilson directed the Division of General Pediatrics and Adolescent Medicine and the General Academic Pediatrics Fellowship Program, co-directed the Robert Wood Johnson Clinical Scholars Program, and held a joint appointment in the School of Public Health's Department of Health Policy and Management. In her research activities, Dr Wilson was affiliated both with the Center for Injury Research and Policy and with the Center for Immunization Research at Johns Hopkins. She is the first author of a book on childhood injury control. Dr Wilson graduated summa cum laude from McPherson College. She holds a Master's

Degree in Biology from Wichita State University. She studied medicine at the University of Kansas. Her pediatric residency training took place at the University of Wisconsin Hospitals in Madison. She received both a Masters of Public Health degree and a certificate in the Business of Medicine from Johns Hopkins University. She was a member of the inaugural class of the US Public Health Service's Primary Care Policy Fellowship. Dr Wilson's national activities have included service on the Council on Graduate Medical Education, the US Preventive Services Task Force, the Advisory Council of the National Injury Prevention Center, and the Board of Directors of the American Board of Pediatrics. Before joining the Academy staff, she served an Associate Editor of the Archives of Pediatrics and Adolescent Medicine. With colleagues from general internal medicine and family medicine, Dr Wilson Co-directed the Interdisciplinary Generalist Clerkship Project and the Genetics in Primary Care Project. She was also one of the directors of the Ambulatory Pediatric Association's national Faculty Development Scholars Program. Dr Wilson is a Past-President of the Academic (formerly Ambulatory) Pediatric Association.