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Evaluation of Effectiveness of AHRQ's Grant-Supported Research on Healthcare Costs, Productivity, Organization, and Market Forces

Final Report

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OVERVIEW OF PROJECT, KEY FINDINGS, AND IMPLICATIONS

KEY TAKE-AWAY POINTS

- This study represents the first time the Agency for Healthcare Research and Quality (AHRQ) has systematically identified and profiled the content and use of research on health care costs, productivity, organization, and market forces.
- AHRQ's work in this area addresses important policy questions and our study provides evidence that the research findings generated have had an impact on the policy debate.
- In recent years, AHRQ's spending on this has diminished, leading investigators to pursue support from the National Institute of Health (NIH). NIH staff say AHRQ is a natural home for this research on health care costs, productivity, organization and market forces but acknowledge that NIH's size means they have many more resources available to fund grants even if only a small share are in the area examined. The other major source of funding for this research is the Robert Wood Johnson Foundation (RWJF), particularly its Healthcare Financing and Organization (HCFO) program; HCFO spends less than AHRQ on research but invests more in dissemination.
- The effects of AHRQ funded health services research on policy and decision-making depend heavily on individual investigator initiative. Though AHRQ funds individual projects, it has limited ability to track, dissemination or highlight the relevance of this work. Expanding this ability could enhance impact and spotlight the relevant contributions from this body of research.
- AHRQ and the research community as a whole could take several steps to enhance the returns from current investments in this kind of research and make a better case to policymakers on why it is important. We identify these steps and discuss why they are important at the end of this overview.

PROJECT RATIONALE AND FOCUS

Health services research, as defined by the Institute of Medicine, is an interdisciplinary field that investigates the structure, organization, and processes of health services delivery and financing, as well as their effects on the population (Gray et al. 2003). The examination of health care costs, productivity, organization, and market forces is a core component of health services research because it speaks to the issue of how the organization and financing of care in a mixed public and private market influence health system performance. From its origins in the National Center for Health Services Research, AHRQ has always played a central role in funding research in this area (Gray et al. 2003; Coalition for Health Services Research 2005, 2006a). But little synthesized information exists on the body of work conducted, lessons learned, and possible applications.

To address this gap, AHRQ contracted with Mathematica Policy Research, Inc., (MPR) in 2006 to conduct a systematic review of its grant-funded research on health care costs, productivity, organization, and markets forces. The review answered four basic questions:

- Since the late 1990s, what grant research has AHRQ funded that relates to health care costs, productivity, organization, and market forces?
- How are the research findings disseminated to public and private decision makers, and what factors contribute to their use?
- What is AHRQ's role in supporting research in this area, and how does it compare with that of others, such as NIH and private funders?
- What actions, if any, could enhance AHRQ's efforts to track, disseminate, and encourage use of these research findings?

In addressing these questions, the project periodically drew on a Technical Expert Panel, comprised of a diverse set of leaders who are knowledgeable about dissemination of social sciences research (beyond a research audience) and use of findings in the policy process.[1]

APPROACH AND PROJECT COMPONENTS

Operational Definition of Relevant Research

Working with AHRQ staff, MPR used a two-step process to develop an operational definition of relevant research.

First, we used existing AHRQ tracking processes to identify relevant studies for consideration.[2] To focus on recent AHRQ decision making, we limited eligibility to grants first funded no earlier than federal fiscal year 1998. Given the timing of our analysis, this meant we included all grants originally funded between 1998 and 2006 that met criteria.[3] A total of 265 grants were identified—of which 180 were research grants, the focus for our analysis (the other 85 grants were for conferences, methods, or implementation work).

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[1] Panelists were Sharon Arnold, Ph.D., Vice President, AcademyHealth; John Christianson, Ph.D. and James A. Hamilton Chair in Health Policy and Management, University of Minnesota; Paul Ginsburg, Ph.D., President, Center for Studying Health Systems Change; Robert Helms, PhD, Resident Scholar, American Enterprise Institute; and Gail Wilensky, Ph.D., Senior Fellow, Project Hope.

[2] 265 grants met at least one of three criteria: (1) funded through the health care systems research study section; (2) overseen by one of eight project officers active in this area; or (3) assigned for oversight to the two AHRQ centers most relevant to this work (Center for Delivery, Organizations, and Markets, and Center for Financing, Access, and Cost Trends).

[3] Grants made in 2006 may have received continuation funding after that period.

Second, we reviewed each of the 180 grant project descriptions on the Query View Report System (part of the application process) to further assess its eligibility for inclusion. Eligible grants were defined as those that examined organizational or consumer decision making, with independent variables that focused on market forces, financial incentives, or resource constraints. For example, relevant studies examined topics like the effects of co-payments on consumers' use of particular health services or the effects of market competition on health plan or provider organizational approaches. The studies we examined had varying units of analysis—people, health care organizations, or markets. The outcomes they sought to identify varied but focused on dimensions of key performance in the system, such as use, cost, and quality.

The 149 studies identified were relevant to our assessment because they examined how outcomes were influenced by variables related to organizational features, financial incentives, or market characteristics. This meant, for example, that we did not consider a grant eligible if its main focus was to identify best clinical practices in an area or to describe the use or cost of the practice. However, if a grant focused on how payment or organization of care influenced the use of best practices, we did include it.

Of the 180 research grants, 149 were deemed eligible for the study—102 large grants ($100,000 or more) and 47 smaller grants ($100,000 or less). The expert panel reviewed the methods and results and agreed that we had selected a relevant set of grants.

Components of the Analysis

Because of the scope of the study questions, we designed six types of complementary analysis—including several that were added at the urging of the expert panel (see Table 1).[4]

- ***Descriptive Analysis of Grants.*** Using the database we developed to select the grants of interest to this assessment, we described the types and characteristics of studies AHRQ has funded on health care costs, productivity, organization, and market forces. We also worked with our project officer to obtain funding information. We then randomly selected nine grants of different types for a more detailed review, examining the full grant proposals and interviewing the principal investigators. Appendix A includes the full results of this analysis.[5]

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[4] The expert panel recommended adding of a grantee survey to capture more information on grant outcomes and talking with research translators to learn more about their use of this type of research. They also encouraged us to be realistic in expectations, expressing concern that research gets used in many ways and over time. They recommended we not measure success by counts of use but rather by how research gets used generally and examples of more effective use that could help inform the field and educate policymakers and researchers. We added the "framework" analysis at their urging to identify pathways through which research gets used. We also decided that, with limited resources, it made sense to focus the study on grants that illustrated effective use.

[5] Appendix A was adapted from the interim report for this study, which also described the grant awards, administration process, and interviews with AHRQ staff about how grantees are supported. We integrated critical points from the interim report on these other topics of the latter into the comparative funder analysis (Appendix D).

Table 1. Key Research Questions and the Analytical Components that Address Them

Key Research Questions	Descriptive Analysis (Appendix A)	Framework (Appendix B)	Case Studies of Use (Appendix C)	Comparative Funder Analysis (Appendix D)	Research Translator Interviews (Appendix E)	Principal Investigator Survey (Appendix F)
What has AHRQ funded in these areas and how is it used?	X		X			X
How are the findings disseminated and what contributes to their use?		X	X		X	X
What is AHRQ's role in this research area and how does its performance compare with other funders?				X		X
What actions, if any, could enhance AHRQ's efforts to track, disseminate, and encourage use of these research findings?	X	X	X	X	X	X

- ***Conceptual Framework on Pathways to Research Use.*** We reviewed relevant literature and drew on our experience to develop a conceptual framework highlighting the pathways through which health services research is translated for use in policy. The framework helped to identify questions for consideration, interpret what we learned, and make better recommendations. The original paper developed for this study is included in Appendix B and has since been adapted and accepted for publication in *Health Services Research*.

- ***Case Studies Illustrating Use of Research.*** Working with AHRQ staff, we selected seven grants that illustrated different ways in which health service research gets used (including two from those randomly selected for detailed review). We talked to principal investigators and relevant audiences to learn more about use and develop case studies of each grant. Appendix C describes the seven case studies.

- ***Comparative Funder Analysis.*** To understand both AHRQ's role and whether it could have better supported work and grantees (those conducting studies on health care costs, productivity, organizations, and markets), we compared AHRQ's infrastructure and funding in this area to those of two other major funding sources for this type of work in the public and private sectors—NIH and HCFO. The comparison drew from interviews with selected staff from each organization and a review of program documents. Appendix D provides a report on the analysis and findings.

- ***Insights from Research Translators and Users.*** To complement what was learned about the use of specific grant research, we spoke with several individuals from organizations that synthesize research for use in advising policymakers on public policy decisions. The goal was to understand (1) how these "research translators" use the findings, (2) their awareness of AHRQ-funded research, and (3) their insights on factors affecting the utility of research. Appendix E summarizes the key interview findings.

- ***Survey of Grantee Principal Investigators (PIs).*** To learn directly from the grantees about their work, its use, and their grant experience, we conducted a web-based survey from July-August 2008 of all 149 identified grantees. The main goal was to better understand the type of research AHRQ has funded and the primary findings, methods of dissemination, and researchers' interaction with policymakers. We wanted to collect information on what these grant-funded studies, as a whole, have contributed to the field and where their findings might be obtained. As a result, the survey also posed questions about what researchers viewed as the central findings of their studies, and obtained citations to central sources that summarized those findings. Another goal of the survey was to identify operational concerns to help AHRQ better understand its strengths and weaknesses—in terms of grants management and technical assistance, its role as a funding source, and how it compares with other funders of research in these areas. Appendix F provides an overview of the "topline" survey results.

We summarize below what the findings from all of our analysis say in response to each of the four main research questions addressed by the study, including what they imply about steps that AHRQ and others could take to improve the tracking, dissemination, and use of research on health care costs, productivity, organization, and market forces.

KEY FINDINGS

1. Since the Late 1990s, What Grant Research Has AHRQ Funded that Relate to Health Care Costs, Productivity, Organization, and Market Forces?

a. Administrative Data Profile

From 1998 through 2006, AHRQ made 149 first-year awards for research grants that met the operational definition we used to define relevant investigator led research on "health care costs, productivity, organization, or market forces." Most eligible studies (97) involved researching organizations, particularly hospitals (40), health plans (29), and physician practices (12). A small number focused on consumer behavior (37) or markets and purchasers (15). The most common study was national in scope (72 percent) and focused on some aspect of acute medical care (72 percent). The outcomes studied commonly related to one or more key dimensions of health system performance like quality (53 percent), use (44 percent), cost (38 percent), and access (19 percent).

The 149 awards totaled $81 million (see Table 2). Most activity occurred in the early 2000s. Seventy percent of the grants, for example, were awarded for the first (or only time) in fiscal years 2000, 2001, and 2002. After 2004, funding declined, with only $5 million in each year.

Table 2. Analysis of AHRQ Research Grant Funding on Costs, Productivity, Organization, and Market Forces 1998–2006

	Number of Studies Receiving Funding[a]	Number of Studies Receiving First or Only Year of Funding	Funding
Total	149	149	$81,389,642
Fiscal Year			
1998	1	1	$393,559
1999	3	2	$887,243
2000	33	31	$9,822,272
2001	51	41	$15,864,342
2002	58	34	$19,292,051
2003	41	17	$14,177,886
2004	23	5	$10,752,562
2005	17	8	$5,103,536
2006	21	10	$5,096,191

Source: MPR Analysis of information provided by AHRQ

Note: Includes three major five year P01 grants for a total of $12.6 million from FY 2000 to FY 2004. 47 of the grants were R03s (under $100,000) that accounted for only about $4 million of total spending.

[a] Counts include continuing funding for grants awarded earlier.

b. PI Survey

The PIs indicated that, for the most part, the findings from their body of research illustrate how specific outcomes of care are influenced by economic factors (e.g., provider payment, insurance coverage), organizational characteristics (e.g., nurse leadership or volume), systems and markets (e.g., health maintenance organization (HMO) penetration, capacity), public policies (e.g., certificate of need or direct to consumer advertising), and patient characteristics or preferences (e.g., percentage of minorities or do not resuscitate orders).

In the area of quality, for example, the findings show that, within the context studied in the research (1) the effects of pay-for-performance on quality of care were modest, (2) enrollment in the State Children’s Health Insurance Plan (SCHIP) improved access and quality of care for children enrolled in the program, (3) nursing workgroup culture enhanced patient outcomes, (4) safety-net hospitals tended to perform more poorly (and administrators said at least in part, this was due to resource constraints), and (5) the racial composition at patients in primary care practices had little impact on the content of office visits.

In the area of cost or expenditures, the findings show, for example, that (1) variations in prescribing patterns affected health care costs but not outcomes; (2) outcomes were better for heart patients discharged earlier, indicating that physicians were identifying appropriate candidates for early discharge; (3) concurrent review resulted in high institutional costs; and (4) HMO market share was associated with differences in health care delivery, outcomes, and spending, among other findings.

Findings on health care access and use show, for example, that (1) those lacking health insurance are less likely to undergo breast cancer screening; (2) coverage of colorectal cancer screening did not increase screening rates adjusting for other factors; (3) the opening of a cardiac specialty hospital led to higher rates of revascularization system-wide for Medicare beneficiaries; and (4) children with mental health conditions used more non-mental health resources than those without.

Studies of disparities found that SCHIP coverage reduced pre-existing racial and ethnic disparities in health care among enrollees—although studies of other populations found racial and ethnic disparities among patients with similar insurance. Other studies found that certificate-of-need programs may lead hospitals to reduce services to minority patients and that disparities varied by clinical conditions and geography.

Health services research can serve a variety of purposes. AHRQ grants in this research area most often support investigators pursuing policy-related work. Most PIs responding to the survey (60 percent) said the main purpose of their study was to address policy-relevant questions. Most of the rest (34 percent) said it was to increase knowledge in specific research areas; a small proportion (5 percent) said it was methods development. Sixty-one percent of the studies reflected a continuation of prior research, and 39 percent reflected a new research focus. Upon grant completion, one-third of the awardees (32 percent) received additional funding from other organizations to continue research on the topic.

2. How Are the Research Findings Disseminated to Public and Private Decision Makers, and What Factors Contribute to Their Use?

a. Framework

The literature across diverse disciplines highlights a long-standing interest in encouraging the use of research in policy formulation and identifying the factors that contribute to or impede such use (see Appendix B). By use, we mean, at a minimum, that policymakers or managers are aware of ideas generated through research and that those ideas have some influence either on the debate over policy or management decisions or on the actual decisions themselves. Because of the way decisions are reached, research typically will contribute to but not drive decisions, and the importance of research will vary with the topic, user, environment, and others factors.

The review highlights the relevance of timing in the use of research. Policy and managerial decision-making occurs within a larger environment that determines when issues are relevant. While some research may have an immediate impact (which we termed “big bang”), most research accumulates and gets applied (or not) to relevant topics or issues as they arise. For such use to occur, findings must be readily available to potential users. Some forms of communication are stronger than others in reaching a target audience. Also, the deeper the reservoir of research and the clearer the applicability of its findings, the greater the likelihood the findings will be used. Often, it is not the findings from a single study (though one may be cited) but the accumulation of findings across multiple studies that gives weight to the research.

Diverse strategies exist for making the link between research and application and identifying how best to build a deep reservoir of findings. From the existing research, we identified 10 pathways through which research gets applied. These pathways employ different techniques to communicate findings (key messages); the role researchers, intermediaries, and users play in the process also varies across the pathways. Researchers can maximize the usefulness of their work by thinking carefully about the key findings generated by research and what they mean. While some pathways involve researchers making direct links to policy issues, others involve intermediaries to help synthesize and communicate research findings. Effective ways of reaching diverse audiences for the work is important to enhancing the use of well-targeted, high-quality research.

b. PI Survey

Dissemination. Research findings are used when they are publicly available or at least available to those in a position to use them; grantees appear interested in making this happen. The survey indicates that almost all grantees say publication of results, particularly in journal articles, is their major mode of dissemination. Of 97 responding PIs, 70 provided a citation to at least one peer-reviewed journal article. In total, 189 articles were cited, or an average of about three per grant (we limited grantees to listing no more than four). Most common was the publication in major health services research or medical journals, though placements were highly dispersed. The majority of PIs (57 percent) also said conference presentations were a major source of dissemination.

Researchers are less likely to focus on forms of dissemination that reach more diverse audiences. When they do, they appear to do so in ways that complement more traditional publication. About half said briefings for policymakers, managers, or interest groups were a major (27 percent) or minor (26 percent) focus of their work. Thirty-one percent had some focus on user-oriented research briefs or issue papers, and 28 percent said the same for mass media.

Time and funding probably limit more extensive use of such dissemination. On average, PIs said they spent about 10 percent of their time interacting with policymakers or users of research, though they would prefer to spend more time (15 percent). PIs indicated receiving relatively limited support from their host institutions for dissemination; only 7 percent reported receiving funds from their institutions to develop user-oriented materials, and only 17 percent reported receiving any information or training from them on how to understand and interact with potential users of research. Only 26 percent have any form of established research brief series.

Impact. Consistent with what one would expect or hope for, the PIs surveyed said their grants had at least some impact (86 percent) on increasing knowledge and that it had informed the work of other researchers (82 percent) (see Table 3). Sixty-four percent said their research had had some impact on the policy debate on a particular issue, typically moderate in scope, though large in some cases (23 percent).[6] PIs also noted contributions to making organizations more effective, though to a lesser extent. Many PIs said their grants had had impacts in multiple

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[6] Of those responding, 23 percent said their research had had a “large” impact on policy, 42 percent “some” impact, 17 percent “little” impact, and 15 percent “no” impact. (Three percent refused or did not know.)

Table 3. Share Who Reported AHRQ-Funded Research Had Large, Some, Little, or No Impact on Specific Outcomes (Percentages Unless Otherwise Noted)

	Large Impact	Some Impact	Little Impact	No Impact	MIssing/ Don't Know
Specific Outcomes					
Contributed in a significant way to general knowledge or wisdom (N = 85)	25.9	60.0	8.2	4.7	1.2
Informed the work of other researchers (N = 85)	25.9	56.5	11.8	4.7	1.2
Helped to better target how future research should be focused (N = 74)	17.6	48.7	21.6	9.5	2.7
Contributed in a substantial way to the policy debate on a particular issue (N = 78)	23.1	42.3	16.7	15.4	2.6
Contributed in a substantial way to making organizations more effective (N = 59)	8.5	30.5	28.8	28.8	3.4
Developed new methods for conducting research (N = 62)	8.1	40.3	30.7	16.1	4.8
Developed new models of care delivery or policy design (N =57)	5.3	29.8	38.6	21.1	5.3

Source: AHRQ Grantee PI Survey

Note: Analysis is limited to those respondents who said that the particular area of impact was one that was relevant to their grant (see Ns).

categories. While it is possible investigators were influenced by their hopes or interpretations, they provided supporting evidence when asked to concretely describe the "major" impacts (see Appendix F).

c. Case Studies

The seven case studies illustrate different types of research and the pathways through which the findings were used. The research from which the case studies were developed covered a range of issues:

- The effects of a limit on the amount of a prescription drug benefit on health and health care spending by elderly Medicare beneficiaries (Hsu)
- How payment methods in group practice arrangements (like withholds) influence the costs of health care (Kraslewski)
- The relationship between policies that promote cultural competence, continuity of care, and clinical feedback to physicians on outcomes of care for Medicaid-covered children with asthma (Lieu)

- Whether quality ratings influence the health plans offered by employers and whether market competition influences quality (McLaughlin and Chernow under Luft grant)
- The barriers to the availability of Medicare managed care in rural areas (Mueller)
- The effects of incentive-based formularies (varying co-payments for different tiers of covered drugs) on the use and costs of prescription drugs (Huskamp under Newhouse grant)
- The way various organizational features of managed care influence access to specialty care for children with special health care needs (Shenkman)

Each study generated useful, policy-relevant results that were published in peer-reviewed journals. Each project was also notable in the extent to which principal investigators went beyond journal publication and disseminated results to relevant audiences through oral presentations, participation in meetings, and other types of publications. Some results supplemented findings in the existing research literature, while others provided new information in a largely unexamined area. Depending on the topical focus and the particular results from each study, the target audiences varied widely (e.g., national or state policymakers, health care industry representatives, purchasers, or consumer representatives). Some target audiences were narrow (e.g., Medicaid officials within one state) and some were broad (e.g., a wide variety of stakeholders interested in the effects of competition on quality of care).

The case studies illustrate various pathways for facilitating the use of research by decision makers, with most demonstrating how multiple pathways can exist within a single project. As a group, the cases highlight the role intermediaries or end users can play in both shaping research design to answer important questions and facilitating the dissemination of results to end users. The studies also illustrate diverse strategies for having an impact.

Commonly identified factors affecting whether study findings were disseminated or used included the following:

- ***The Extent to Which Potential Users of the Research Are Aware (or Even Involved in Design) of the Research Before the Researcher Begins.*** This involvement increases the relevance of the findings, as well as the users' desire to use them.
- ***The Extent to Which Interested Users, Funders, or Intermediaries Are Able to Assist with Dissemination to Other Parties.*** In addition to participating in the research design or consultation, sometimes users or other stakeholders take an active role in dissemination, such as sponsoring conferences or publications or disseminating the findings to members of influential organizations.
- ***Prominence and Reputation of Both the Investigators and the Journals in Which Results Are Published.*** Publishing the findings in prominent journals can generate publicity, including media attention, and can provide a platform for further dissemination. At the same time, prominent investigators in their field can readily disseminate their findings by participating in related professional activities (e.g.,

presentations at policy conferences) or responding to the media or policymakers when asked about relevant policy topics.

Lessons from the case studies for improving the use and applicability of research on health care costs, productivity, organization, and market forces include (1) developing relationships with potential users, (2) understanding how results might be used for different policy decisions and the timing of those decisions, (3) fitting each research project within a broader "stream" of research conducted by the investigator and contributing to a broader body of research conducted by other investigators, and (4) developing the expertise—and a reputation for expertise—of the investigators, which enhances both the quality of ongoing research and its visibility among policymakers.

d. Feedback from Federal Research Intermediaries

Our discussions with policy-focused intermediaries—such as the Congressional Budget Office, General Accountability Office and Medicare Policy Advisory Commission—indicate that they make extensive use of research of the type covered in this study (see Appendix D). They are familiar with ongoing research and major researchers in particular areas and conduct literature reviews when time allows. In consulting research, they value timeliness but also place high value on the quality and objectivity of research.

Regulatory entities such as Federal Trade Commission and Department of Justice use research to support their anti-trust work, with a focus on economic studies of markets. General research in this area is used to provide a context for cases and complements case-specific research that targets particular details of pending cases (e.g., specific markets); this case-specific research consumes substantial resources but often is conducted on a proprietary basis to address facts of particular cases and competing positions.

Both types of intermediaries saw critical gaps in the existing body of research on health care costs, productivity, organization, and market forces.

3. What is AHRQ's Role in Supporting Research in This Area, and How Does It Compare to that of Others, Such as NIH and Private Funders?

The findings below indicate that researchers view AHRQ as a major source of funding on health care costs, productivity, organization, and market forces. However, researchers have become increasingly interested in other sources (like NIH), given that AHRQ funding has become less available. HCFO provides funding for similar research, but its funding is limited and focuses more on immediate policy relevance. AHRQ's support for grants (other than its funding limits) is viewed relatively positively. However, the agency's work on dissemination and communication is viewed less highly. Staff of the federal intermediaries we spoke with perceive AHRQ as a primary resource for databases and clinical research rather than for research on health care costs, productivity, organization, and market forces. This perspective contrasts dramatically with what the research community and NIH staff view as AHRQ's natural role in this area.

a. Survey Findings

Importance of Various Funding Sources. AHRQ grantees use multiple funding sources to support their research on health care costs, productivity, organization, and market forces—though three seem to dominate: AHRQ, NIH, and HCFO. About 40 percent of grantees say these institutions are major sources of funding for this research and another 30 percent say they provide moderate funding. No other sources were close (though other programs of RWJF were closest). Two-thirds of AHRQ PI grantees surveyed received funding from NIH, 38 percent from HCFO, and 51 percent from other RWJF sources. We do not know what types of studies these other funds are supporting.

Perceived AHRQ Performance. According to the grantees, a central function of AHRQ is the awarding of grants, along with the provision of pre-award guidance and grants management. Most PIs saw a role for the agency in disseminating and communicating the results of research and linking researchers with others (75 percent and 64 percent, respectively). Only a minority sought assistance from AHRQ on research methods. Ratings of the agency's performance on these functions (for those viewing them as relevant) ranged from very good to good, with higher scores for grant-related functions than for dissemination and linkage functions. When asked about AHRQ's strengths, PIs commented on how AHRQ pursued its activities, the performance of particular staff, and the important role AHRQ plays in supporting the research area we are studying. When asked about areas for improvement, by far the most common area cited—by half of the respondents—involved the low levels of current AHRQ funding and need for additional funds.

PIs rated their experiences with other funders from excellent to poor. AHRQ generally was viewed as performing similarly to that of other funders. However in comparison with AHRQ, HCFO was rated much higher and CMS was rated much lower.

b. Comparative Funder Case Study

Anticipating that NIH (on the public side) and HCFO (on the private side) would be the main, alternative funding sources for this research, we reviewed documents and conducted a limited number of interviews with NIH and HCFO staff to compare their approaches to funding to those of AHRQ. (We gathered information on AHRQ's approaches through interviewing staff and asking randomly sampled grantees about the agency during conversations about their projects. See Appendix D.)

AHRQ. Grant applications in this area can either be initiated by investigators or solicited by AHRQ through Requests for Application. Award recommendations are made through a peer review system, and AHRQ management makes the final decisions. About 25 agency staff oversee grants (i.e. 25 project officers), though one handled 40 percent of the grants and seven others handled more than five grants each. Project officer involvement varies with the individual's preference, but most officers have a limited role in supporting the dissemination of results. AHRQ does not have a formal system to track grant outcomes. Though each grantee is required to submit a final report, the grant often ends before the analysis and publications are complete, and some investigators fear that inclusion of detail in the final report will jeopardize later publication in the peer reviewed literature. AHRQ's Office of Communication and

Knowledge Transfer (OCKT) is responsible for dissemination and expects grantees to notify them of publication, but this often does not occur and OCKT has limited resources to spend follow up. During our discussions with randomly selected AHRQ grantees, most said the agency did not play a large role in helping them to disseminate their research—though they were pleased with their individual experiences with AHRQ as the funder of their grants.

NIH vs AHRQ. As federal funding agencies, AHRQ and NIH seem to use similar mechanisms and processes to fund investigator-initiated grants. Neither organization devotes many resources to disseminating results to policymakers, with NIH's recent interest focused more on disseminating work on empirically tested interventions in clinical settings. Because NIH is so large, researchers' interest in the NIH as a funding source is growing. NIH does not track research on costs, productivity, organization, and market forces; its own analysis of funding for health services research uses much broader criteria than those employed in this study for AHRQ. The NIH analysis shows combined spending across NIH institutes for health services research, as they define it, dwarfing AHRQ funding, including a number of studies on topics similar to those funded by AHRQ. NIH staff involved in such research view AHRQ as the natural home for these studies but note the agency's limited amount of funding relative to NIH. Within the NIH there is disagreement about its role in funding these research areas. (Our interviews were mainly with those actively involved in funding such research.)

HCFO vs AHRQ. HCFO's funding (around $3–4 million per year) of investigator-initiated research on topics also funded by AHRQ is lower than that of the agency. The organization's funding criteria limit them to supporting policy-relevant research. (While most AHRQ grants have this as a goal, the agency also supports knowledge and methods development.) In contrast to both AHRQ and NIH, HCFO uses a dedicated staff (funded by RWJF through AcademyHealth). These staff are encouraged to interact with researchers in the application process and monitor progress of work. RWJF also commits a significant share of program resources to working with grantees on dissemination. The HCFO name is not as well known as other organizations (like Kaiser Family Foundation or the Commonwealth Fund), but policymakers seem aware that HCFO funds research in this area.

c. Feedback from Federal Research Intermediaries

Federal intermediaries are only generally aware of AHRQ-funded research on costs, productivity, organization and market forces and say they are rarely aware of a particular study's funder (though some funders have a more visible brand). Some intermediaries described using particular AHRQ-funded studies but were not aware that the agency was the source. Further, they typically do not view AHRQ as a major funder of information on health care costs, productivity, organization, and market forces but rather a main source for databases (the Medical Expenditures Panel Survey (MEPS) and Healthcare Costs and Utilization Project (HCUP) especially) and clinically focused research.

4. What Actions, If Any, Could Enhance AHRQ's Efforts to Track, Disseminate, and Encourage Use of These Research Findings?

Our response to this question involves less a summary of study findings than our interpretation of what the findings already discussed say about current efforts and how they may be improved. Our interpretation of study findings is that AHRQ currently is not a highly visible funder of health services research on costs, productivity, organization and market forces despite spending $81 million on this research between FY1998 and FY2006. The limited visibility of this form of research is unfortunate in light of findings that show this research to involve studying critical aspects of health system performance that appear important to many decision makers.

While AHRQ awards and manages individual grants on the front end, it is relatively weak on the back end in supporting dissemination of the research it funds and making its findings more accessible to diverse user communities. AHRQ can improve the tracking of its work and further leverage its investment in research by taking the steps we identify below. It can also likely—both alone and in collaboration with others—substantially improve the case for federal investment and AHRQ leadership in this research.

Track Awards. AHRQ has no systematic way of tracking research grants and expenditures for studies on health care costs, productivity, organization, and market forces. We recommend that the agency build on the initial methods used for this study to update and continue to track awards and spending annually.

Monitor Grantee Progress and Results. Even though grants differ from contracts in terms of the level of accountability, AHRQ could monitor the progress and results of its grants more closely. HCFO, for example, also funds investigator-initiated research but requires investigators to propose more detailed milestones and products and tracks them more systematically than AHRQ does as the grant progresses. Having a monitoring system in place would allow AHRQ to signal to PIs that grant outcomes are important, identify earlier what grants are generating, and assess how PIs might be supported in framing their results and reaching relevant audiences. AHRQ could establish more consistent expectations on what it expects of its project officers overseeing grants and better reward good performance in this area as a signal that it is valued. Moreover, assigning a staff member who can oversee the monitoring process and champion the work at a central level will likely improve the tracking system even further.

Track Results and Use after Grants End. While getting reports on publications, dissemination activity, and use of research after the end of a grant is challenging for any organization, AHRQ can be clearer in its communication with grantees about what it would like, how information should be provided, and why. PIs are more likely to support this effort if they view it as important to enhancing the visibility and impact of their work and helping to enhance support among users and grow future funding streams. Therefore, efforts to improve monitoring should be considered simultaneously with efforts to change the way AHRQ communicates externally about its work.

Enhance the Visibility of AHRQ's Work on Costs, Productivity, Organization, and Market Forces. Section 902 of AHRQ's legislation lists this research as one of nine areas in its scope of work. However, the agency does not list the research area on its website's home page, and the relevant grant information on its website is either absent or outdated. The findings of this study should help inform the development of Web content, including descriptions of the research and how the findings are relevant to pressing policy concerns about health system performance. Studies could be listed, with links to researchers and key publications. These relatively basic steps could leverage AHRQ's current investment in this research area and begin to improve the visibility of the agency's work.

Facilitate User Access to Findings. PIs are always likely to be responsible for the initial documentation, explanation, and public release of findings. As a funder, however, AHRQ could help move findings along pathways that would increase their eventual use. In addition to posting on the Web a list of funded projects, along with researcher and publication links, the agency could—alone or in collaboration with other funders, AcademyHealth, or others—

- Take advantage of our survey and case studies to develop an annotated bibliography with the abstracts of publications produced under AHRQ grants in this area, along with links where feasible.
- Sponsor a webinar for AHRQ grantees on how to think about, develop, and communicate the "message" from a particular paper or study.
- Identify 2–4 areas where the agency's investment in this research has had the most impact from a topical or research question perspective, and collaborate with others as needed to synthesize key findings from each body of work, including what it adds to current knowledge. Referring to the survey and case studies and involving potential users of the research could help with this task. For example, Chartered Value Exchanges sponsored by AHRQ and the FTC/DOJ are potential audiences for these syntheses.
- Facilitate user access to the researchers who generated findings through AHRQ grant-funded studies. For example, the agency could develop an on-line contact list of PIs, with the ability to search the list based on the grant's focus, relevant study section, AHRQ project officer, and other characteristics. Alternatively, AHRQ could proactively and periodically send out profiles of researchers and their grants through email listserves.
- Assign a particular person in OCKT as a liaison for grantees in order to track their dissemination efforts and their insights on how findings are being used. (This person probably should team with a substantive lead for this work to link technical and communications work.)

Engage Users in Ways Likely to Enhance Both Research Relevance or Support. Either alone or in collaboration with AcademyHealth and others, AHRQ could elicit feedback from savvy users and translators on the future needs for research on health care costs, productivity, organization, and market forces. The focus would be on identifying research questions that are sufficiently stable over time and have a long enough time horizon that they might warrant the kind of in-depth, high-quality work that AHRQ seeks to support. Our findings show, for example, that the agency's support for research on organization and market forces diminished substantially in recent years—possibly in response to the managed care backlash and demise of interest in broad-based health reform. Yet, policymakers remain interested in enhancing the value and performance of the health care system, and anti-trust regulators continue to debate consolidation and the role of competition. AHRQ might find it useful to periodically convene a group of researchers, translators, and users to discuss relevant questions and identify priority areas for research.

Collaborate with Grantees, AcademyHealth, and Others to Better Articulate the Relevance of this Body of Research. As our findings indicate, research on health care costs, productivity, organization, and market forces aims to (1) identify the factors affecting performance of the health system and (2) inform the policy debate. Many of the factors being studied—like payment change, the role of competition, ways of using organizational processes, financial incentives and culture to change medical practice—are very much part of the policy debate. The challenge for AHRQ and the health services research community is to make these links and use more visible. Though research in the area of healthcare costs, productivity, organization, and markets area is often more challenging than clinical studies of effectiveness,[7] both the survey and our case studies provide numerous examples of the value of this type of research. Establishing more effective ways to describe the research and how it has been and can be relevant in the future could enhance its support. Doing so also could help researchers make a better case for the relevance of their work.

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[7] There are fewer organizations and markets than people, data on their characteristics or performance are limited, and studies are challenging because the drivers of outcome that are of interest may only apply to a few settings that have unique characteristics. Also, there is more ambiguity on what the findings mean because values are involved more than is typically the case in clinical research.

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APPENDIX A

KEY FINDINGS FROM PHASE I OF THE EVALUATION OF THE EFFECTIVENESS OF AHRQ's GRANT-SUPPORTED RESEARCH ON HEALTHCARE COSTS, PRODUCTIVITY, ORGANIZATION, AND MARKET FORCES

DESCRIPTION OF AHRQ'S GRANT SUPPORTED RESEARCH ON HEALTHCARE COSTS, PRODUCTIVITY, ORGANIZATION AND MARKET FORCES

by Tara Krissik

Health services research, to paraphrase the definition provided by the Institute of Medicine (IOM), is an interdisciplinary field that investigates the structure, organization, and processes of health services delivery and financing, as well as its effects on people and populations. AHRQ and its predecessors have always played a central role in financing research in this field (Gray et al. 2003; Coalition for Health Services Research 2005, 2006a). In recent years, the agency has viewed its mission as not just supporting research, but also encouraging its translation into policy and practice (Clancy 2004).

The study that is the focus of this report addresses health services research on "healthcare costs, productivity, and market forces," an important subject from its beginnings when economists, sociologists, and others sought to understand the organization and culture of medicine, economics of practice, and the way market forces affect the costs and efficiency of medical care (see, for example, Feldstein 1979; Freeman et al. 1972; Pauly 1980; and Davis et al. 1990). AHRQ's predecessor, the National Center for Health Services Research, made major contributions to the development of the field. With its expanded mission to incorporate research on the clinical aspects of care that influence quality and effectiveness and to translate those results to use in the field, AHRQ's market forces research outside the clinical sphere has been less visible. Yet AHRQ remains one of the major funders of research in this area. Section 902 of AHRQ's authorization legislation lists research on health care costs, productivity, organization and market forces as one of nine areas specified in the agency's scope of work (see Encinosa and Hagan, 2006).

To achieve a better understanding of this research, AHRQ contracted with Mathematica Policy Research, Inc. (MPR) for a two-year evaluation that began in October 2006. The study seeks to provide insight into AHRQ's mandated research and what it might do to facilitate the use of research by policymakers seeking to improve health care in the United States. The study examined the following questions:

1. Since the late 1990s, what grant research has AHRQ funded that relates to health care costs, productivity, organization, and market forces?
2. How are the research findings disseminated to public and private decision makers, and what are the factors that contribute to their use?
3. What is AHRQ's role in supporting research in this area, and how does it compare to that of others, such as the National Institutes of Health (NIH) and private funders?
4. What actions, if any, could enhance AHRQ's efforts to track, disseminate, and encourage use of these research findings?

This paper addresses research question #1 regarding what grant research AHRQ has funded since the late 1990s that relates to health care costs, productivity, organization, and market forces. We review the process for our selection of market forces grants and present a statistical analysis. We then describe (1) our process for selecting a sample of grants for further review and (2) grantees' perspectives on dissemination to begin to answer research question #2 regarding how research findings are disseminated to public and private decision makers, and what factors contribute to their use. The chapter concludes with summaries of the sample of grants.

A. KEY CHARACTERISTICS OF THE GRANTS

1. Defining the Research Projects Under Study

AHRQ does not have an existing list or centralized database of projects addressing health care costs, productivity, organization, and market forces. Therefore, we worked with the AHRQ project officer to generate a list of grants funded by the agency since 1998 (the first year that information is available from the various databases that provide tracking information) that met one (or more) of the following criteria:

- Reviewed and funded by the AHRQ Healthcare Systems Research (HSR) study section;
- Overseen by AHRQ project officers working in this area (Hagan, Taylor, Rhoades, Encinosa, Mutter, Hellinger, Friedman, and Wong); and
- Assigned to AHRQ's Center for Delivery, Organization, and Markets (CDOM) or Center for Financing, Access, and Cost Trends (CFACT).

These criteria were designed to cast a wide net for capturing grant projects that would be likely to have a cost, productivity and market forces emphasis. This pool included not only grants for research, conferences and methods work but also other purposes, such as selected program grants including the Partnerships for Quality (PFQ). In total, 265 unduplicated grants were identified, including 180 research grants, 62 conference grants, 16 methods grants, and 7 intervention or implementation grants.

Our project officer then accessed the Query View Report System (QVR) database to pull one-paragraph summaries of each of these grants that were prepared by the principal investigators (PIs) as part of the application process. From the abstracts, we sought to determine whether a primary focus of a grant was cost, productivity, organization, or market forces. (For conference grants, we often had just the title, so we verified classification with the project officer who was familiar with the subject matter). While the classification process is partly subjective, we aspired to apply a relatively consistent set of decision rules that would yield grants with the intended project focus.

In particular, we sought to include projects that examined organizational or consumer decision making as shaped by market forces, financial incentives, or resource constraints, which were specified as key independent or explanatory variables for at least a component of the study. Our criteria aimed to exclude projects that were mainly focused on clinical effectiveness (for example, whether drug A is more effective than drug B), health information technology, quality, or patient safety, except when they were linked to a study of the effects of market forces or payment on such variables. Applying these rules led us to a final inclusion of 149 of 180 initially identified research grants, excluding 31 that did not meet criteria based on review of abstracts. Table 1 summarizes the decisions on inclusion or exclusion by the grant types that had been identified.

We reviewed the criteria and the list of grants with our advisory panel. They agreed that the criteria used were reasonable and recommended that we focus mainly on projects involving original research. We therefore focused our analysis on the subset of 149 research grants.

2. Statistical Analysis of the Research Grants

To provide a broad overview of the research, we worked with AHRQ to create a project database—using information from the one-paragraph grant abstracts—with a record for each project funded over the time period. The database has the following variables (with the last five based on MPR coding of qualitative information in the summaries):

- Grant number and title
- Principal investigator and institution receiving grant
- Project officer
- Year grant began
- Study focus (market effects, organizational effects, financial effects on consumer behavior)
- Outcome variable type (use, quality, access, satisfaction/quality of life, cost, other)
- Service type (general medical, specific medical, long-term care, behavioral health, other)
- Type of payers (all/unknown, Medicare, Medicaid, private, uninsured)
- Geographic scope (national, multi-site, single site)
- Funding (total and by fiscal year)[1]

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[1] The grant abstracts did not include funding information, but our project officer provided us with SNAP (short for “grant snapshot” from AHRQ’s QVR system) reports that include the total funding by fiscal year and funding AHRQ has committed to the grant for future fiscal years.

TABLE 1

SUMMARY OF AHRQ GRANTS ON COST, PRODUCTIVITY, ORGANIZATION, AND MARKET FORCES

	Research Grants	Methods Grants	Conference Grants	PFQ/Implementation Grants
Total Identified (n = 265)	180	16	62	7
Included (n = 189)	149	2	35	3
Excluded (n = 76)	31	14	27	4

Type of Grant. The 149 grants were of three types: R01, R03, or U01. The main substantive distinction between these grant types is duration and size, with R01s and U01s funding larger and potentially longer-term grants than R03s. AHRQ defines the purpose of the R01 as supporting “a discrete, specified, circumscribed project to be performed by the named investigator in an area representing his specific interest and competencies.” Eighty-eight of the grants were R01s. Forty-seven of the grants were R03s, the purpose of which is “to provide research support specifically limited in time and amount for studies in categorical program areas…small grants provide flexibility for initiating studies which are generally for preliminary short-term projects and are non-renewable.” Finally, a U01 is a cooperative agreement with the same defined function as an R01. Fourteen of the grants were U01s. Thus, 102 of the grants were large (more than $100,000) and 47 of the grants were smaller ($100,000 or less).

Study Focus. We categorized the grant studies according to the level of analysis or “study focus”, defined as who is the primary actor or decision maker whose behavior may affect outcomes of interest, such as utilization, cost, quality or access to care. In particular, the studies of interest focused on how factors such as costs, productivity, organization, or market forces shaped decisions or behavior by these actors, leading to multiple health care outcomes. Table 2 summarizes the results of our analysis. We categorized the 149 grants as belonging to one of the following three areas of focus:

1. ***Market- or Purchaser-Level Studies* (n = 15)**. These studies typically included the effect of purchaser behavior, managed care penetration or competition or other market features on outcomes in those markets. The effects of market characteristics (e.g., penetration of managed care, consolidation, integration, competition, existence of purchaser coalition, etc.) could be mediated by effects of health plan, consumer, or provider behavior in those markets; but in these studies, the mediating factors were not studied directly or at least were not the main focus as the main independent variables.

   Example: A study examining the relationship between value-based purchasing strategies reported by large firms surveyed in different geographic markets and the quality management practices of health plans in those markets.

2. ***Organization-Level Studies*** **(n = 97).** These studies include topics such as how hospital organizational characteristics affect patient safety or hospital costs, or how physician practices paid under capitation versus fee-for-service vary in terms of productivity. These studies focused on four major subsets of actors:

    a. ***Health Plans*** **(n = 29):** How are health plans designed (in terms of provider networks, payment, etc.) and how do different types of plans vary in terms of different outcomes? Example: A study examining the differences in outcomes in HMO and non-HMO plans.

    b. ***Hospitals*** **(n = 40):** How do organizational characteristics and external market forces affect hospital behavior and associated outcomes? Example: An examination of how hospital staffing approaches or investment in IT affects quality improvement activities or patient safety outcomes.

    c. ***Physician Practices*** **(n = 12):** How do physician practice characteristics and external market forces (especially payment and financial incentives) affect physician behavior and associated outcomes? These studies focus on practices of different sizes including some very small individual practices as well as larger medical groups. Example: An examination of how financial and managerial characteristics of medical groups, including physician compensation arrangements, affect quality and cost of care.

    d. ***Other Organizations*** **(n = 16):** Most commonly, these studies focus on how nursing home internal work force or staffing patterns affect the quality of nursing home care.

3. ***Consumer-Focused Studies*** **(n = 37):** These factors include: (1) insurance or price-based incentives on care delivery, care seeking, or access to care, and (2) financial resource or supply-side constraints (e.g., low-income or live in underserved areas) on care delivery, care seeking, or access to care.

    Example: How does the care for asthma among asthmatic children experiencing gaps in TennCare coverage differ from those not experiencing gaps?

As Table 2 demonstrates, the research grants were most likely to address costs, utilization and quality, and somewhat less likely to address outcomes such as access to care and satisfaction. The market- or purchaser-level studies were highly focused on quality. The studies also tended to focus on acute medical care services, although some did address behavioral health or long-term care. Studies that focused on specific acute care services most often were related to congestive heart failure, diabetes, and asthma.

An examination of the research grants also indicated considerable dispersion of grants among a broad set of investigators and institutions throughout the country. Our review showed that there were few instances of a PI receiving more than one AHRQ grant. Multiple grants to the same institution (e.g., university or research center) with different PIs were also rare.

TABLE 2

ANALYSIS OF AHRQ RESEARCH GRANT ABSTRACTS ON MARKET FORCES, COSTS, AND PRODUCTIVITY, 1998-2006

	Study Focus						
			Effects of Organizational Characteristics or Financial Incentives on Plan and Provider Behavior				
	Total	Effects of Market Characteristics or Purchaser Behavior	Health Plans	Hospitals	Physician Practices/Groups	Other	Effects of Financial Incentives on Consumer Behavior
Number of studies (n)	149	15	29	40	12	16	37
Outcomes (percent)[a]							
Utilization	44	13	55	38	17	31	68
Quality	53	80	59	65	25	63	30
Access	19	27	24	10	8	13	27
Satisfaction	13	0	24	5	17	13	14
Costs	38	47	34	35	50	13	50
Other	17	20	10	13	42	19	16
Type of service (percent)							
Acute medical care (general)	36	20	45	50	42	6	30
Acute medical care (specific services)	36	27	49	40	33	13	35
Long-term care	10	7	0	0	0	75	3
Behavioral health	1	0	3	0	0	0	3
Other	17	46	3	10	25	6	29
Payer type (percent)							
All/Unknown	67	73	52	78[b]	92	62	57
Medicare	14	13	21	18	0	25	8
Medicaid	12	0	24	8	8	13	15
Private	6	13	3	0	0	0	18
Uninsured	1	0	0	5	0	0	2
Geographic scope of study (percent)							
National	72	80	41	63	50	62	62
Multi sites	13	7	14	15	25	19	6
Single site	28	13	45	22	25	19	32

[a] Percentages do not add to 100 because abstracts often included more than one outcome for the study.

[b] Percentages do not add up to 100 because one study involved both Medicare and Medicaid.

TABLE 3

ANALYSIS OF AHRQ RESEARCH GRANT FUNDING ON MARKET FORCES, COSTS, AND PRODUCTIVITY, 1998-2006

	Number of Studies Receiving Funding	Number of Studies Receiving First or Only Year of Funding	Funding
Total	149		$81,389,642
Fiscal Year			
1998	1	1	$393,559
1999	3	2	$887,243
2000	33	31	$9,822,272
2001	51	41	$15,864,342
2002	58	34	$19,292,051
2003	41	17	$14,177,886
2004	23	5	$10,752,562
2005	17	8	$5,103,536
2006	21	10	$5,096,191

Funding. A review of the grants allowed us to determine any funding trends for awarding grants in the area of cost, productivity, organization, and market forces. As Table 3 shows, AHRQ awarded a total of approximately $81 million for the 149 research grants from fiscal year 1998 to 2006. Only one grant in our database received funding in 1998 so that year had the smallest amount of funding at $393,559. Grants received the most amount of funding in 2002 with more than $19 million awarded. The early 2000s saw the most activity for these grants, with most of the grants in the database (more than 70 percent) receiving their first or only year of funding in fiscal year 2000, 2001, or 2002. After 2004, the funding amount for these grants dropped significantly and in fiscal year 2006, only $5 million was awarded toward these grants.

B. EXAMPLES OF FUNDED GRANTS

To provide additional insight into the nature of funded work beyond the one-page summaries for each grant used to construct the database, we selected a random sample of nine grants. For each one, we reviewed the grant application and final report and interviewed the PI. We review here the methods used and findings from that work.

1. Methods

We used a subset of grants to better understand (1) the rationale for the research, including the relevance of the questions addressed and how the research fits into the broad context of work in this area; (2) key approaches and findings; and (3) the ways in which such research tends to get disseminated and used. We were mainly interested in what could be learned from grant applications and final reports, complemented by brief discussions with PIs. While it would be valuable to examine all 149 research projects, the available resources were not sufficient to locate and process the volume of information that we sought for all of the grants.[2] Therefore, we reviewed applications and final reports from a randomly selected subset of nine grants (listed in Table 4 by their area of focus). Not all documents were easily accessible and our project officer took various steps to obtain them, including contacting individual project officers and the grants' management office.

After document review, we developed brief summaries of the grants that included information such as research goals, key approaches and findings, and dissemination/use. (The summaries are included at the end of this chapter). To confirm and supplement what we learned from the document review, we then conducted 30-minute telephone interviews with the PI of each grant.

2. Findings from Grant Document Review and PI Interviews

a. Cross-cutting findings

The sample of nine grants demonstrates the breadth of research that AHRQ has conducted in the area of market forces. Table 5 presents a few characteristics of these grants. The PIs had diverse backgrounds and were at different stages of their careers. As described below, in addition to their varied topics, the randomly selected grants also differed in terms of their research aims, size, duration, methods, and dissemination activities.

Principal Investigators' Experience and Relationship to Ongoing Research. The PIs differed in the extent of their research experience, but in five of the nine cases, they received AHRQ funding for the first time. Four of these grantees were awarded an R03 grant, but one received an R01. For most of the PIs, the research for this grant fit in with work they had been doing for years. Two PIs were able to develop their body of work because of this specific AHRQ grant and emphasized that their research would not have been developed without this funding opportunity from AHRQ.One of these researchers was relatively junior and was just starting to construct her research agenda on nursing practice models and the other said that his work on Medicare+Choice penetration in rural health began with this grant. For two other PIs, the grant did not fit in with their subsequent research. One PI said his project did not align with his specific interests, but did for other team members and it was a matter of opportunity because the state had just instituted a managed care program and the timing was right for a natural experiment. The other researcher had shifted her focus away from the topic of her AHRQ grant.

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[2] The PI survey, for which we received funding in Phase II of our study, did allow us examine all research projects. In addition, the case studies, also conducted in Phase II, allowed us to gather additional information on certain grants.

TABLE 4

AREA OF FOCUS, TITLES AND PRINCIPAL INVESTIGATORS OF RANDOMLY SELECTED GRANTS

Area of Focus	Grant Title	Principal Investigator
Effects of Market Characteristics or Purchaser Behavior	Global Trade and US Health Policies	Howard Waitzkin
	Rural Response to Medicare+Choice: Change and Its Impact	Keith Mueller
Effects of Organizational Characteristics or Financial Incentives on Plan or Provider Behavior		
Health plans	Impact of MCO Policy on Quality of Pediatric Asthma Care	Bruce Stuart
Hospitals	Managed Care Impact on Critical Care Service Utilization	Diane Dewar
	Regionalization, Market Forces, and Neonatal Mortality	Ciaran Phibbs
Physicians/groups	The Effects of Clinic Payment and Structure on Costs	John Kralewski
“Other”	Nursing Practice Models in Long-Term Care Facilities	Christine Mueller
Effects of Financial Incentives on Consumer Behavior	Impact of Drug Benefit Design on Utilization and Cost	Geoffrey Joyce
	Health Care Use and Expenditures for Gynecologic Care	Kristen Kjerulff

TABLE 5

ANALYSIS OF RANDOMLY SELECTED AHRQ RESEARCH GRANTS ON MARKET FORCES, COSTS, AND PRODUCTIVITY, 1998-2005

	Total
Number of studies (n)	9
Outcomes[a]	
Utilization	4
Quality	5
Access	0
Satisfaction	0
Costs	4
Other	2
Type of service	
Acute medical care (general)	2
Acute medical care (specific services)	4
Long-term care	1
Behavioral health	0
Other	2
Payer type	
All/unknown	6
Medicare	1
Medicaid	1
Private	1
Uninsured	0
Geographic scope of study	
National	5
Multi sites	1
Single site	3

[a] The total does not add to nine because there was often more than one outcome for the study.

Goals of the Grant-Funded Research. Consistent with the titles shown in Table 4, our document review and interviews with PIs for this sample of nine grants revealed wide-ranging research aims and activities. Some PIs wanted to examine the impact of recent policy changes (e.g., the implementation of a new statewide hospital reimbursement system, a state's transition to Medicaid managed care).Other researchers were looking to add to the robustness of their current research and fill in gaps in the literature (e.g., in the areas of drug benefit design, neonatal mortality, and women's health). A final set of PIs aimed to have a direct impact on policy by informing policymakers (e.g., the viability of Medicare+Choice in rural areas; the link between globalization and health; cost-effective practice styles for group practices; the effective organization of care for nursing homes).

Size, Duration and Type of Grants. As Table 6 illustrates, the nine grants also varied in size, duration, and type. The smallest grant was around $70,000 and the largest was more than $1 million. Five of the grants were R03s and were funded for one fiscal year for less than $100,000. The R01s were larger and longer in duration.The one U01 was the largest of the nine grants with $1.2 million in funding.

TABLE 6

DISTRIBUTION OF RANDOMLY SELECTED GRANTS BASED ON GRANT MECHANISM[3]

	All Grants (n = 9)	R03 (n = 5)	R01 (n = 3)	U01 (n = 1)
Average Size	$241,253	$93,241	$284,127	$1.2M
Average Duration (years)	2	1	3	3

For one grant, AHRQ was a secondary funder and NIH was the primary funder. The PI on this grant said he applied to the National Institute of Child Health and Human Development at NIH for primary funding because AHRQ did not have the funding at the time. AHRQ did fund approximately one-half of the first year of this four-year project.[4] The earliest grant began in 1998 and the most recent one in 2003. All grants were completed by 2005.

Research Methods. The studies funded under these grants employed a range of research methods. Two studies were strictly quantitative and one mainly qualitative, but the others were primarily quantitative with some contribution from qualitative analysis. The studies used a mix of primary and secondary data sources. Data that were analyzed included MEPS; claims, encounter, and administrative data from managed care plans; medical records; vital records; and

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[3] One of the R01s was funded by both AHRQ and NIH for $952,262, but NIH provided most of the funding with AHRQ paying $88,465. As such, we used the $88,465 number in calculating the amounts for this table.

[4] We learned that six of the grants in our database of 149 were not solely funded by AHRQ. NIH provided some funding for these grants, but they screened into our database because they went through the HSR study section at AHRQ. The project officers for these grants were at NIH and not at AHRQ.

hospital discharge abstracts. Qualitative methods included literature reviews, document reviews, surveys, interviews, focus groups, site visits, and case studies.

Implementation Issues. Although most of the grants ran smoothly, a few had implementation difficulties. One grant in particular experienced numerous roadblocks to progress. The researchers were not able to obtain data from one-third of the MCOs that they planned to analyze and had serious gaps in the data that they did receive from the other plans. Issues with the state Institutional Review Board also impeded the research. Another grantee has faced the challenge of confronting a changing culture in nursing homes. As some nursing homes change their model of care to become less "medically focused" and more "socially focused," the PI said that the tool she developed regarding nursing practice models might become irrelevant in some settings.

Dissemination Activities and Use of Findings. The target audience for dissemination varied across the nine grants and included: policymakers (five grants); health care administrators (of hospitals, managed care plans or LTC facilities) (four grants); practitioners (group practices and clinicians) (two grants); and health services researchers (two grants). As the grant summaries illustrate however, grantees' intentions do not necessarily line up to how grants were used. That is, research from some grants with an intended policy audience does not appear to be used by policymakers whereas some research that was useful to policymakers resulted from grants that did not view policymakers as their primary audience. For example, a grant related to neonatal mortality was intended to inform policymakers, but its production of a linked dataset has actually been most useful to researchers and not policymakers.

The grantees typically used journal articles to reach their target audience, though not exclusively. All but one of the nine grantees has published at least one article in a peer-reviewed journal. The one who has not has developed a tool for nursing homes and presented her work at professional meetings. She is also working on a paper for publication. Grantees have also presented their research findings at national meetings including those of AcademyHealth, American Association of Health Plans, American Public Health Association, Gerontological Society of America, International Health Economics Association and Medical Group Management Associates.

To translate their findings to audiences beyond researchers, grantees relied heavily on organizations with which they worked closely. One of the PIs worked with the Rural Health Policy Research Institute to publish issue briefs that were used to inform members of Congress about his findings. Another PI relied on the Medical Group Management Association to disseminate his findings to its 6,000 members through annual meetings and conference calls.

When asked if they were aware of any use of their findings, a few grantees said that they had been contacted as a result of their publications. One PI said that she has gotten feedback from hospital administrators because her grant was mentioned in the AHRQ newsletter, another was contacted by the Congressional Budget Office (CBO) when his findings were published in *JAMA*, and a final PI had been contacted by a group at NIH to discuss her research. In addition, three of the PIs could cite specific examples of their findings in use, albeit at a fairly high level. One of these grants produced a data tool that helps address selection bias, another influenced a provision in the Medicare Advantage legislation, and the third has influenced global health policies in the U.S. and Latin America.

b. Individual Grant Summaries

The following summaries of nine randomly selected grants are based on a review of grant applications, final and SNAP reports, publications, and telephone interviews. The summaries are presented in alphabetical order, by PI.

1. **Grant Title:** Managed Care Impact on Critical Care Service Utilization
Principal Investigator: Diane Dewar, SUNY Albany
Funding Period: 6/1/00 – 5/31/02
Total Award: $70,514

RESEARCH GOALS: This research adds to the study of prolonged mechanical ventilation (PMV) service utilization. The researchers investigated the impact of managed care on outcomes for seriously ill patients under the new competitive hospital reimbursement system in New York State. The goals were to: (1) determine whether the improved survival rates among managed care organization (MCO) patients are due to self-selection or the elimination of ineffective care in the inpatient setting, and (2) establish a benchmark to determine which hospital practices are associated with the best outcomes for these patients.

RELATIONSHIP TO OTHER RESEARCH: This project was a continuation of the empirical studies conducted by the researchers based on data in the NY State Statewide Planning and Research Cooperative System (SPARCS) and was an extension of the body of work with the incorporation of detailed medical records and hospital characteristics data to validate the SPARCS data. The PI now focuses her work on end-of-life and palliative care.

TARGET AUDIENCE: Managers of hospitals, practitioners, and economists

DATA/ACTIVITIES: The project had two components: a statewide analysis and a pilot study. The statewide component included an analysis of discharge data to determine associations between patient, system, and hospital characteristics with MCO impacts on outcomes of care for PMV patients. Four regression equations were estimated. The pilot study provided detailed patient, practice pattern, and discharge information from 1995-1997 that specifically identified areas where MCOs have affected practices and outcomes and where efficiencies might be gained. Based on medical record review in a high-volume medical center, the pilot program determined which care protocols had the potential for cost saving and improved health outcomes. The study also allowed for a better understanding of the post-acute care patterns and long-term health outcomes of the surviving patients.

KEY FINDINGS: Results showed that managed care and the enactment of the competitive reimbursement system were associated with decreased hospital resource utilization, and with poorer longer-term health outcomes and greater numbers of discharges to skilled nursing facilities. Managed care had no unique impact on health outcomes, controlling for clinical risk factors. The increase in social worker and case management interventions under the competitive regime yielded a greater likelihood of hospital survival.

USE OF FINDINGS/DISSEMINATION: The PI published an article in *Critical Care Medicine* and presented before the American Public Health Association.

2. Grant Title: Impact of Drug Benefit Design on Utilization and Cost
Principal Investigator: Geoffrey Joyce, RAND Corporation
Funding Period: 9/30/02 – 9/29/04
Total Award: $99,983

RESEARCH GOALS: The researchers received a grant from the California HealthCare Foundation and looked to AHRQ for additional funding to continue the analysis and purchase additional years of data. The goal of this research was to determine how changes in pharmacy benefits affect use of the most commonly used drug classes and how cost-sharing arrangements affect non-pharmaceutical spending. Some evidence suggests that benefit design measures reduce total drug spending, but their impact on drug use patterns, medication compliance, and utilization of other medical services was largely unknown.

RELATIONSHIP TO OTHER RESEARCH: The grant was used as seed money for additional data and research related to the effect of pharmacy benefits on utilization and cost. The research team had recently completed two studies examining the impact of novel drug benefits on pharmaceutical spending for the nonelderly. One study assessed the impact of multi-tier formularies and mandatory generic substitution on spending for drugs and on patients' out-of-pocket payments. The second study investigated the impact of benefit design on drug expenditures and total days supply of medications for selected chronic conditions.

TARGET AUDIENCE: Health services researchers

DATA/ACTIVITIES: Retrospective study from 1997 to 2000 examining linked pharmacy claims data with health plan benefit designs from 30 employers and 52 different health plans. Study sample consisted of 528,969 privately insured beneficiaries aged 18 to 64 and enrolled from one to four years. Data sources included administrative data and a telephone survey of health plans and pharmacy benefit managers. Analyses included descriptive analyses, multivariate regressions and simulations.

KEY FINDINGS: The researchers estimated the predicted effects of doubling co-payments in each therapeutic class for the entire sample and a subset of patients receiving ongoing treatment for a chronic illness. They observed substantial reductions in spending for all classes of drugs for the entire study sample and found the use of medications such as antihistamines were extremely sensitive to co-payment changes. They concluded that large increases in copayments do raise concerns about adverse health consequences because of the large price effects, especially among diabetics.

The survey of benefit managers suggested that employers will continue to adopt multi-tier plans over the next three to five years to encourage the use of low-cost drugs. Moreover, the financial incentives that such plans use to steer beneficiaries to low-cost drugs will become more pronounced over time. The researchers found that the effects of increased financial incentives on beneficiaries' health outcomes depended on the characteristics of the drugs, such as whether the high- and low-cost drugs are pharmacologically similar.

USE OF FINDINGS/DISSEMINATION: The PI was contacted by CBO to discuss the price elasticity of demand for prescription drugs, utilization, and cost—all work that was partly funded through this grant. He also published his findings in *JAMA* and *Health Affairs*.

3. **Grant Title:** Health Care Use and Expenditures for Gynecologic Care
Principal Investigator: Kristen Kjerulff, Johns Hopkins Medical Institution
Funding Period: 9/30/02 – 9/29/04
Total Award: $95,873

RESEARCH GOALS: The original intent of the research was to look at the cost and utilization of gynecological disorders, but to fill a gap in the scientific literature, the researcher decided to more intensely examine female-specific disorders and their impact on costs. The study also examined the effect of a lack of health insurance on health care utilization for such female-specific conditions.

RELATIONSHIP TO OTHER RESEARCH: The research flowed out of the gynecological disorders/female-specific disease work that the PI worked on for years. She conducted earlier studies related to hysterectomies performed in Maryland; racial factors related to hysterectomy; the relationship between incidence of prior hysterectomy and socioeconomic factors; and the prevalence of gynecological conditions that commonly lead to hysterectomy.

TARGET AUDIENCE: Policymakers or HMOs who want an understanding of females’ health care utilization.

DATA/ACTIVITIES: The researchers analyzed the 2000-2002 MEPS for 25,361 females aged 14 and older. They identified women with female-specific conditions through clinical classification codes developed by AHRQ and measured the extent of health care coverage by counting the number of months in each year that the participant reported having coverage. Because expenditures in MEPS are not linked to specific conditions, the researchers used separate regression equations to estimate the contribution of female-specific conditions to total health expenditures.

KEY FINDINGS: Female-specific conditions were common and substantially increased costs of health care. More than one-fifth of women reported having a female-specific condition during one year. More than 40 percent of the annual total health care expenditures for women was attributable to female-specific conditions. Pregnancy-related conditions generated the highest incremental expenditures among female-specific conditions. Women with female cancers incurred the highest expenses for out-of-pocket expenditures, total medical expenditures, and incremental expenditures of the female-specific conditions. The female-specific conditions varied greatly in the extent to which they were associated with ambulatory visits. Health care utilization for these conditions was primarily outpatient.

More than 20 percent of the women were uninsured for some or all of the year. Women with female-specific conditions and no insurance were less likely to have visited a doctor, filled a prescription, or been hospitalized for these conditions, but more likely to have visited the ER for treatment for these conditions.

USE OF FINDINGS/DISSEMINATION: The findings are policy relevant in terms of how much money an HMO should set aside for female patients, but there is no indication that the research has yet been used in this way. An article on this work was published in *Women’s Health Issues* and that article has been used by a group at NIH who are interested in planning for women’s health care.

4. Grant Title: The Effects of Clinic Payment and Structure on Costs
Principal Investigator: John Kralewski, University of Minnesota
Funding Period: 4/1/99 – 3/31/01
Total Award: $230,643

RESEARCH GOALS: The PI's research agenda focused on cost and quality of care in medical group practices. Medical group practices provide a potentially effective means to create cost-effective physician practice styles but their potential is not being realized. The idea behind this grant was to achieve better information about what group practices can do to enact more cost-effective practice styles among physicians. Specifically, this grant assessed the effects that withholding a portion of a clinic's payment by an MCO has on the subsequent use of resources to care for patients in that clinic. The influence of clinic organizational and cultural factors on costs and on the effects of withholds was also included in this analysis. Two associated studies were conducted: the effects of clinic structure and payment on prescription drug use and disease prevention practices for women.

RELATIONSHIP TO OTHER RESEARCH: The PI has been studying medical group practices for more than 10 years. He has received a number of grants from AHRQ in this area as well as funding from Blue Cross of Minnesota and the Medical Group Management Association (MGMA). For other research on group practices, the PI has developed an instrument to measure culture in group practices, conducted an efficiency study to determine the impact of culture on costs, and conducted a patient safety study. This grant was a part of the PI's larger research agenda and built on previous work that focused on the attributes of medical group practices that influence physician-directed use of resources for enrollees in a Blue Cross MCO.

TARGET AUDIENCE: Medical group practices

DATA/ACTIVITIES: The data source was 86 clinics providing services for a Blue Cross MCO in 1997. The clinics were analyzed to determine the relationship between payment methods and cost of care. Cost and patient data were obtained from Blue Cross records and medical group practice clinic data were obtained by a survey of those organizations. Site visits interviews with administrators, medical directors and clinicians in 10 group practices were also conducted.

KEY FINDINGS: Withholding a portion of the payment to high cost group practices has a significant negative effect on lab and x-ray use but those savings are not large enough to influence overall costs of care. While it appeared that payment withholds from one health plan had little effect on costs, the cumulative effect from multiple health plans does lower costs. While several clinic-level cost management programs have a negative effect on the use of prescription drugs, clinic payment method has no such effect. Nor does clinic payment have an influence on the provision of prevention services for women.

USE OF FINDINGS/DISSEMINATION: Hospitals occasionally contact the PI about his group practice work. A task force at AHRQ is looking at the costliness of collecting quality performance data. This work resulted from the PI's research on the costliness of collecting such data in group practices. The PI also has presented his results at MGMA meetings and the organization makes its members and its Washington, D.C. consultant office aware of his research. His findings have been published extensively in journals including *Health Services Research*, *Health Care Management Review*, *Medical Care*, and *Medical Care Research and Review*.

5. **Grant Title:** Nursing Practice Models in Long-Term Care Facilities
Principal Investigator: Christine Mueller, University of Minnesota
Funding Period: 5/1/03 – 10/31/04
Total Award: $99,828

RESEARCH GOALS: The purpose of this study was to develop an instrument that identifies and validates the distinctive components of Nursing Practice Models (NPMs) in long-term care (LTC) facilities. Prior research on NPMs had been done primarily in acute care hospitals and although several reports have suggested NPMs have a positive impact on resident outcomes, only a few empirical studies have examined it in LTC facilities. Understanding the essential components of NPMs and their impact on resident, staff and organizational outcomes will enable nurse administrators in LTC facilities to make critical decisions on how to effectively organize the delivery of nursing care for residents.

RELATIONSHIP TO OTHER RESEARCH: The grant was the first step in a larger research agenda for which the PI would attempt to measure nursing practice models, describe them at the national level, and ultimately conduct an intervention experiment using NPMs to look at patient outcomes.

TARGET AUDIENCE: LTC facility administrators who could use the tool to help characterize and modify their NPMs to improve resident, staff, and organizational outcomes; policymakers under pressure from consumers and LTC nurses to create nurse staffing ratio requirements.

DATA/ACTIVITIES: The PI developed a conceptual model that specified four components of NPMs for LTC facilities: accountability, continuity of care, autonomy, and collaboration. Three processes were then employed to put the model into operation: (1) validation of the NPM components through a literature review and a series of focus groups with nursing staff from a number of LTC facilities in the Twin Cities areas; (2) development and modification of the Nursing Practice Models Questionnaire (NPMQ) through content validity with experts; burden, feasibility and clarity assessment with a panel of nurse administrators; and administration of the NPMQ to nursing staff in LTC facilities; (3) examination of validity and reliability of the NPMQ by pilot testing the NPMQ in 15 LTC facilities with 506 members of the nursing staff.

KEY FINDINGS: The focus groups provided strong support for the NPM components and led to a fifth component when "continuity of care" was broken down into two sub-components (information continuity and provider care continuity). A content validity index indicated strong support for the NPM measurement items. The final version of the NPMQ had 46 items with five subscales for the five model components. The PI recommended further studies to determine if interventions to strengthen components of the NPM improve outcomes.

USE OF FINDINGS/DISSEMINATION: The PI faces a challenge because the instrument was developed before the nursing home "culture change" movement, which encourages a less medically focused and more socially focused model of care. Items included in the instrument may no longer be relevant for transformed nursing homes. The PI received funding from the University of Minnesota to explore whether the instrument is valid in such homes. She is currently working on a publication and has presented her model at several conferences.

6. Grant Title: Rural Response to Medicare+Choice: Change and its Impact
Principal Investigator: Keith Mueller, University of Nebraska Medical Center
Funding Period: 8/1/99 – 4/30/03
Total Award: $533,273

RESEARCH GOALS: The Balanced Budget Act (BBA) of 1997 included a provision that created a floor payment for Medicare+Choice (M+C) plans operating in rural counties. For some plans, the floor represented a significant increase in payment relative to prior reimbursement rates and there was an expectation that plans would market themselves in rural counties. At this time, the PI was president of the National Rural Health Association and was particularly interested in M+C issues in conjunction with his leadership role. In applying for this grant from AHRQ, the PI's objective was to ascertain (1) whether M+C plans were indeed offering plans in rural markets, and (2) what factors drive rural managed care penetration.

RELATIONSHIP TO OTHER RESEARCH: The researchers had been studying rural managed care penetration since 1995 through the Rural Policy Research Institute (RUPRI). However, the PI's ongoing work on geographic variation in M+C enrollment began largely through this AHRQ grant. Prior to this grant, the researchers had looked at the volatility and variation in payment rates in rural areas and had significant input to congressional committees on the impact of health policy on rural America.

TARGET AUDIENCE: The project aimed to inform policymakers about the viability of M+C in rural areas. The audience included the U.S. Senate Rural Health Caucus; U.S. House of Representatives Rural Health Coalition; Centers for Medicare and Medicaid Services (CMS) officials; advocacy groups and researchers.

DATA/ACTIVITIES: The project involved quantitative and qualitative research and had three components: (1) empirical modeling to explain patterns of enrollment in M+C plans, (2) interviews of key informants in each state to obtain a qualitative measure of provider activities as related to the development of managed care plans in rural areas, and (3) case study research to detect the consequences of changes made to develop and participate in managed care plans.

Data were taken from a set of unique county-based files compiled and maintained by RUPRI that contained more than 1,400 variables with data merged from various sources, including: Area Resource File, Department of Agriculture, CMS, and U.S. Census Bureau. The researchers completed interviews with key informants in 43 states and conducted case studies of health plans in four states. M+C enrollment data were entered into the RUPRI database and were used to produce annual updates tracking enrollment of rural beneficiaries into managed care plans. In addition to data tables and graphs, analysis included maps showing enrollment and changes in enrollment over time.

KEY FINDINGS: The researchers concluded that M+C had failed to serve rural America. Although enrollment increased in the early years following the BBA of 1997, it later declined and in 2002, fewer rural beneficiaries were enrolled in Medicare HMOs than prior to the BBA. Empirical modeling to determine why the M+C program has failed in the rural U.S. showed that market conditions are more important than the amount of Medicare payment in determining firm decisions to enter and exit rural areas. Those conditions include market share obtained by the plan, for-profit status, and plan enrollment.

USE OF FINDINGS/DISSEMINATION: The PI's work on M+C geographic variation influenced a provision in the Medicare Advantage legislation. Specifically, the provision required that Medicare Preferred Provider Organizations (PPO) certified in 2006/2007 had to offer services on a regional basis and not county-by-county. RUPRI has disseminated the PI's findings through its issue briefs and informed Congress of the reasons for success or failure of M+C. Numerous publications and presentations have resulted from this grant including articles in *Health Services Research* and *Journal of Rural Health* and presentations at International Health Economics Association, National Rural Health Association, and Gerontological Society of America.

7.	**Grant Title:**	Regionalization, Market Forces, and Neonatal Mortality
	Principal Investigator:	Ciaran Phibbs, Palo Alto Institute for Research and Education, Inc.
	Funding Period:	4/1/00 – 3/31/04
	Total Award:	$952,262 (of which, AHRQ paid $88,465 and NIH the remainder)

RESEARCH GOALS: The 1980s and 1990s saw a rapid diffusion of neonatal intensive care units (NICUs) from regional hospitals to community hospitals. Previous studies found lower mortality for births that occur at hospitals with regional (level III) NICUs that can provide the full range of intensive care services for infants, but much remained to be learned about these differences. Specifically, none of these studies had examined how the relative performance of different levels of NICUs is changing over time and most of the previous studies did not control for clinical risks. The PI had done previous work on this issue and knew he needed to do a longitudinal study to increase the power of his analysis. This grant specifically tried to estimate the impact of a community hospital opening a mid-level NICU on infant mortality.

RELATIONSHIP TO OTHER RESEARCH: The PI has been involved in studies on many aspects of neonatal and prenatal care, including the costs of neonatal intensive care, the costs of fetal drug exposure, clinical trials of surfactant, severity of illness, and prenatal care. The project built on earlier work that reported on the differences in mortality by the level of care at the hospital of birth using data from 1990.

TARGET AUDIENCE: Clinicians and policymakers

DATA/ACTIVITIES: The researchers used a perinatal data set they had created for earlier studies by linking birth and death certificates from the California Department of Health, Division of Vital Statistics with the hospital discharge abstracts for mothers and infants from the California Office of Statewide Health Planning and Development (OSHPD) for 1991-2000. Maternal prenatal hospitalizations after 1990 and neonatal transfers for all years were also linked. The information was used to develop models of the risk of neonatal mortality and to conduct analyses of the delivery of perinatal/neonatal care.

KEY FINDINGS: Results showed that outcomes were significantly worse when very low birth weight infants were delivered in hospitals with lower levels of NICU care and lower NICU volumes. Despite new technologies that could narrow the mortality gap, the difference in mortality risk between larger tertiary hospitals and others hospitals did not diminish over the time period studied.

There were some secondary research findings as well. The researchers analyzed the differences by level of care for infants with very low birth weights and found a small subgroup of larger NICUs that were not classified as regional or tertiary. Births at these NICUs had risk-adjusted mortality almost as low as deliveries at the large, tertiary centers. Co-PI Laurence Baker had an unrelated research study looking at the effects of managed care on the diffusion of medical technology. Applying the same methodology to their NICU data, the researchers found that managed care market penetration slowed the diffusion of NICUs into community hospitals.

USE OF FINDINGS/DISSEMINATION: In response to his subsequent *NEJM* article**,** the PI has heard from several clinicians who are interested in this work as it relates to regionalization. He also was contacted by clinicians trying to facilitate consolidation of secondary regional centers.

A very significant product of this study was the production of linked data. This tool to help address selection bias has been used by many other projects (including some funded by AHRQ). The data are now available to any researchers who obtain the necessary data approvals from the state and OSHPD, which agreed to fund the continued linkage of these data, starting with the 2001, so that the data are available for research use on an ongoing basis. The PI has also published his findings in *NEJM, Pediatrics, Early Human Development, Journal of Perinatology*, and the *RAND Journal of Economics*.

8. Grant Title: Impact of MCO Policy on Quality of Pediatric Asthma Care
Principal Investigator: Bruce C. Stuart, University of Maryland, Baltimore School of Pharmacy
Funding Period: 9/30/98 – 9/29/03
Total Award: $1,226,127

RESEARCH GOALS: At the time the PI applied for this grant to look at the impact of managed care on chronic diseases, Maryland Medicaid had recently instituted a managed care program. Enrollees were able to choose an MCO but could not choose when they would enroll so determining how the move from a fee-for-service (FFS) system to managed care impacts a specific population provided a natural experiment. The study addressed the impact of that transition on the quality of treatment, quality of life, and health outcomes for indigent children with asthma.

RELATIONSHIP TO OTHER RESEARCH: The PI directs the Center on Drug Therapy and Aging at the University of Maryland and pediatric asthma care was not his area of specialty. Other members of the research team, however, had done earlier work that indicated sub-optimal medication therapy for childhood asthma among Maryland Medicaid members. These team members continue to research childhood asthma, although the PI does not.

TARGET AUDIENCE: Managers in MCOs and Medicaid policymakers

DATA/ACTIVITIES: The study employed a quasi-experimental, open cohort design using data from 5,800 asthmatic children enrolled in the Maryland Medicaid HealthChoice program in 1997. Subjects' utilization of medical care and drugs was tracked prior to MCO enrollment using claims data and post-enrollment using encounter data. Utilization data were also used to measure patient outcomes including asthma-related emergency department visits and hospitalizations. An in-home survey was used to assess subjects' satisfaction with their asthma treatment and quality-of-life post-MCO enrollment.

The researchers faced several roadblocks in accomplishing the goals of this grant. Specifically, they were not able to obtain any data from three of the nine Medicaid MCOs in Maryland, and significant portions of data were missing from the remaining six. They planned to increase sample size by contacting non-respondents to obtain data on behavioral characteristics and attitudes towards treatment; however, the state's Institutional Review Board significantly held up this process. Although the analysis has produced some valuable work, the problem of missing data has made publication difficult, and some papers are still going through the review process in 2007, even though the grant concluded in 2003.

KEY FINDINGS: Compared to FFS, all MCOs had lower quality improvement values at the beginning of the transition, although the changes were not significant. After a year, the MCO values were higher than FFS levels, but not statistically significant. Thus, quality of care did not decline with the transition to managed care.

USE OF FINDINGS/DISSEMINATION: There is no documented use of the findings, possibly because the missing data problems frustrated many of the initial objectives of the study and delayed publication. The PI did publish papers in *Health Services Research, American Journal of Managed Care, Journal of Social and Administrative Pharmacy,* and *Current Therapeutic Research.* He has also presented this research at conferences including AcademyHealth and the American Association of Health Plans.

9. **Grant Title:** Global Trade and U.S. Health Policies
Principal Investigator: Howard Waitzkin, University of New Mexico
Funding Period: 4/1/03 – 4/30/05
Total Award: $100,000

RESEARCH GOALS: The relationship between globalization and United States health policy remains poorly understood but the importance of this issue will increase over time. Globalization will affect key components of U.S. health care, including public hospitals, environmental health standards, movement of multinational insurance companies and MCOs from U.S. markets, etc. Although several studies have documented the impact of global trade on health policies, detailed analyses of how trade and trade agreements affect key U.S. health policies were lacking before this study. Two main questions guided the research: (1) What are the perceptions, opinions, and actions of U.S. government agencies, multinational banking and trade organizations, international health organizations, multinational corporations, and organized groups of consumers regarding global trade and health policies in the U.S.? (2) What are the impacts of specific international trade agreements (e.g., NAFTA) on U.S. health policies?

RELATIONSHIP TO OTHER RESEARCH: The study grew from the researchers' previous studies funded by the World Health Organization (WHO) on the exportation of managed care to Latin America and other Third World regions and a multi-method assessment of Medicaid managed care in the U.S. (funded by AHRQ). As a result of that work, the researchers published an article in *NEJM* and achieved an awareness of the link between health policy issues and global trade agreements. The PI then applied to AHRQ for this grant and has continued with his work on global trade and public health with a Guggenheim fellowship and as a Fulbright New Century Scholar.

TARGET AUDIENCE: Policymakers in the U.S. and Latin America

DATA/ACTIVITIES: The researchers used a multi-method design that involved both quantitative and qualitative techniques. Data came from three sources: (1) research and archival literature on globalization and health policy, policies and assessment of web sites of stakeholder organizations; (2) interviews with representatives of government agencies, multinational banking and trade organizations, international and national health organizations, multinational corporations, and advocacy groups; and (3) assessment of these organizations' annual or other periodic reports available in the public sphere.

KEY FINDINGS: U.S. government agencies have viewed promotion of global health as a means to serve U.S. economic interests. International financial institutions (IFIs) have emphasized reforms that include reduction and privatization of public sector services. International health organizations have tended to adopt the policy perspectives of IFIs, trade organizations, and multinational corporations. Advocacy groups have emphasized the deleterious effects of international trade agreements on public health and health services. Global trade and trade agreements have transformed the capacity of governments to monitor and protect public health. The linkages among global trade, international trade agreements, and health policies deserve more attention than they have received so far. This study increased the visibility of these crucial issues so they can receive suitable attention and debate.

USE OF FINDINGS/DISSEMINATION: The research appears to have sensitized some members of the U.S. Congress to the issue of global trade and health. Congress has paid more attention to the Central American Free Trade Agreement, which applies NAFTA-like rules to the U.S. and Central American countries, and which the PI says will interfere with the ability of the Central American generic drug industry to produce and sell affordable prescription drugs. Congress also didn't renew the "Fast Track" privilege or Trade Promotion Authority that had delegated authority for negotiation of trade agreements to the U.S. president. The PI has published in *American Journal of Public Health, Journal of Health and Social Behavior, Social Science & Medicine,* and *Lancet;* produced book chapters; and, made international presentations. These articles influenced the work of the American Public Health Association, the WHO, and the United Nations.

APPENDIX B

DRAFT MANUSCRIPT/CONCEPTUAL FRAMEWORK: PATHWAYS TO THE USE OF HEALTH SERVICES RESEARCH IN POLICY

PATHWAYS TO USE OF RESEARCH:

WHAT ARE THEY AND HOW DO THEY APPLY TO HEALTH SERVICES RESEARCH?

by

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October 30, 2007

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The Effectiveness of AHRQ's Grant-Supported Research on
Health Care Costs, Productivity, and Market Forces

ABSTRACT

OBJECTIVE. This paper reviews literature relevant to understanding and identifying pathways defining how research gets used in policymaking and management, with a focus on health services research examining health care costs, organization, productivity, and market forces. This form of health services research often examines the effects of organizations or markets as key contributors to outcomes. Relevant outcomes often include cost, access, and overall value, as well as quality and patient satisfaction.

METHODS. Through a literature review, we identified relevant prior work applying social science concepts to understand how research is used in policy and management. The paper uses these sources to organize our review of the literature and then builds upon them to present and discuss ten different pathways through which health services research is used.

FINDINGS. The literature reveals longstanding concerns about the extent to which research can truly address "real world" policy or management questions. The literature reinforces the importance of viewing the translation of research into policy and management use as a complex time consuming process that involves the convergence of a number of facts.

Drawing on the literature and our own experience, we identify, discuss, and compare 10 possible pathways through which research may become known and applied in the policy process (see Box on next page). The pathways differ in whether they use one or many studies, their historical relevance, what they assume about the time lag between research and use, and what process mediates development and use of research. The first five pathways tend to be more traditional than later ones. Each pathway has its own risks and trade-offs and can be done "better" or "worse", at least from the perspective of using research to objectively inform policy and managerial decision-making.

CONCLUSIONS. The nature of health services research, particularly on health care costs, organization, productivity, and market forces, means that its relevant users are typically policymakers or health systems managers rather than individual clinicians. The ten pathways identified are valuable because they identify different ways health services research gets used to support policy and management, the factors that influence the process, and who, if anyone, can influence each of them.

Ten Potential Pathways Leading to Use of Health Service Research

- ***Big Bang.*** Blockbuster findings from any given study immediately inform or change the policy debate.
- ***Personal Emissary.*** Researchers serve as expert consultants, helping users understand the relevance of research to immediate policy questions. Both researcher and user may be more or less active parties in this process
- ***Gradual Accumulation and Diffusion.*** Researchers answer fundamentally relevant questions, gradually adding to the knowledge base and, in time, becoming established as conventional wisdom.
- ***Gradual Accumulation and Guided Dissemination.*** A formal mechanism is used to synthesize and communicate accumulated research findings.
- ***Problem-Targeted Synthesis.*** Like the former pathway, this one synthesizes research, but it gives users a more major role in defining the policy or management questions that need to be answered in synthesis, the format for presenting information, and the terms in which it is expressed.
- ***Problem-Specific Commissioned Studies.*** The ultimate user of the study commissions it to address a particular need or question.
- ***Formal Intermediary-Brokered Translation.*** To address the perceived gap in perspective between knowledge generators and users, an entity, often government or foundation funded, is set up to support the translation of research findings to policy or management needs.
- ***Researcher as User.*** In this model, an experienced researcher is appointed to a key policy or management position and uses his or her knowledge of both research and policy/management needs to foster and make use of research that is relevant to these needs.
- ***Collaborative Processes.*** These emerging efforts represent a modification of traditional assumptions about how research is carried out by creating a more formal role for users at each stage in the process.
- ***Media-Driven Translation.*** Recognized media outlets (e.g., the three major television networks working alone, national newspapers like the New York Times, Wall Street Journal or USA Day) sponsor surveys or other research analyses that address questions they view as important to their readers (especially opinion leaders) and then publicly report the findings.

Source: Author’s analysis

This paper examines (1) what is known about the models and concepts relevant to translating public policy and management research into use by public and private decision makers, and (2) how these concepts apply (or not) to health services research, particularly that focused on health care costs, organization, productivity, and market forces. The paper was prepared to help guide work that examines the research funded by AHRQ since the late 1990s on this topic (see Krissik, Lake, and Gold 2007). A key focus of that project is to learn more about how findings from AHRQ-funded investigator-initiated research grants are disseminated to public and private decision makers, what factors contribute to the use of findings, and what actions, if any, AHRQ could take to better track, disseminate, and encourage the use of findings. To address these topics effectively, it is vital that analysis be grounded in a solid understanding of research gets used "on the ground." The models, concepts, and pathways discussed in this paper have relevance to understanding the way health services research of any type becomes known and used by decision makers though we focus, for examples, especially on that area of research that gave rise to this paper.

A. MODELS AND CONCEPTS RELEVANT TO THE USE OF RESEARCH

While the literature relevant to use of health services research is vast, it already has been mined to generate understanding of how research gets used. Our analysis of the literature identified three particularly relevant prior efforts that applied basic disciplinary concepts and research findings to address the questions of interest to use of health services research. This paper employs their syntheses to discuss relevant models and concepts and expand upon them to identify different pathways through which research is used.

1. Assumptions Implicit in Models of How Research Is Used

The interest in whether research is used in policy or managerial decision-making—and in how to promote such use—is by no means new, though it is a prominent topic among today's funders of research. Indeed, this issue has been a concern in social policy research for almost as long as such research has been funded. For example, one branch of applied research—evaluation—has debated how evaluation research's structure and method influences its use since at least the early 1970s when many social programs (and thus evaluations) were just beginning (Davis and Slasin 1975). More generally and by 1979, Weiss (1979) had already identified and discussed the complex relationship between social science research and policy in ways that are still relevant today.

In her analysis, Weiss (1979) suggested that there are at least seven models that define the relationship between research and its use (Table 1). Neither the models nor Weiss's framework, however, are "clean" in using a consistent set of variables to differentiate alternative models. For example, some models focus mainly on alternative uses of the research (for example, as political ammunition, bureaucratic tactics for delay, and so on). Other models define distinctions in the processes through which research is used (knowledge-driven, problem solving, interactive, enlightenment). One model even looks at the evolution of research itself as commingled with the intellectual enterprise of society in an interactive fashion. Despite these limitations however, the models remain are valuable as a more or less concrete representation of the assumptions that differentiate between the possible pathways through which research is used or applied.

Assumptions on the Process of Uptake. Alternative models of research uptake are based on very different assumptions about both the factors that make research useful and the ways in which findings are adopted. Weiss (1979) states, and we tend to concur, that knowledge-driven and problem-solving models are two of the most common ways to explain the uptake process. The former are based on the assumptions that findings will be compelling in addressing obvious problems and providing replicable solutions. The assumption also is that there is consensus on the appropriate kinds of solutions to the problems addressed by the research. Problem-solving

Table 1. Diverse Meanings of Research Utilization (C.H. Weiss)

Model of Use and Definition	Discussion of Relevance
Knowledge Driven. Basic research discloses policy relevant opportunities. Applied research defines and tests basic findings for practical action. Technologies are developed to implement those actions. Application occurs	From natural sciences and most venerable. Assumes sheer fact that knowledge exists presses toward its use. Rarely applies in social sciences. Knowledge is not apt to be so compelling or able to be converted to replicable technologies. Foremost, action requires debate and consensus on the social problem and solution.
Problem Solving. Direct application of results of a specific study to a pending decision.	Most common concept of research use. Assumes policymakers agree on the problem and goals and search for a solution. Research enters the process in two ways. First, existing research is found by policymakers or staff; the issue is making existing research relevant and the typical solution is improved communication. Second, research may be commissioned to fill a specific gap. The assumption is that such research will be more relevant but circumstances when needs and studies match are limited.
Interactive. Policymakers seek information from a variety of sources (including research) in a disordered set of interconnections and back and forth form.	Research is only one part of a complicated process that describes the familiar process by which policymakers gain information for decisions.
Political. Policymakers or interests have predetermined positions and use research as ammunition for the side that find its conclusions congenial and supportive.	While researchers may view such use pejoratively as self serving, it is not unimportant or improper unless the research is distorted or misinterpreted. An appropriate condition is that all parties have access to the evidence.
Tactical. The sheer fact that research is being done, versus its content, is what is used.	Research is used to maintain the status quo, delay action or to deflect criticism. It is a tactic in bureaucratic politics.
Enlightenment. The concepts and theoretical concepts of research permeate imagery and affect use rather than the findings of a single study or body of work.	Rarely can a specific study be cited but research sensitive decision makers to new issues and helps turn non problems into policy problems or vice versa. Allows research non-compatible with values to change values. Comforting because it implies “truth will triumph.” However invalid as well as valid generalizations may gain currency, transmission is inefficient, and results are more often to suggest complexity than to simplify answers.
Intellectual Enterprise. Research serves as part of the intellectual pursuit of society, generated by interests on topics and leading to reconceptualizing issues.	Research is one part of the interconnected intellectual enterprise.

Source: Authors summary of Carol H. Weiss. “The Many Meanings of Research Utilization.” *Public Administration Review* September/October 1979 (copyright 2001).

models also assume that there is consensus on goals. But they differ from knowledge-driven models in that they are also assume that research focuses on certain problems that are user identified. In both models, the role of research is clear.

Such a direct link between research and application is less the case in other models. For example, in interactive models, knowledge is acknowledged as merely one of several inputs to decision making. Enlightenment models take this position even further and suggest that it is not so much the research findings per se that drive use as it is the way in which the ideas spawned by such research permeate our policymakers' vision of the world and how they think about social issues that lead research to be influential.

In any case, the message is clear: the form of model assumed will influence both how one examines the translation of research into policy and the measures used to judge the success of this effort.[1]

For years, the seeming randomness or ambiguities with which some problems and their potential solutions get introduced in decision-making has been a focus in both political science and organizational theory (see, for example, Kingdon, (1984) and Cohen March and Olsen (1972)). For example, interests with preferred policy or management solutions may attach them to particular events or problems of current relevance ("windows of opportunity"), even when they may not be particularly applicable or designed for that purpose. Such processes are critical to interpreting the use of research because relevant research findings may be used to define problems (that then can be solved by particular solutions) or support preferred solutions (regardless of their relevance to policy). Research whose insights may not be relevant to the

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[1] For an interesting discussion of this see John N. Lavis et al (2002). Issues include: where to look for use (some issues are more amenable to being influenced by research findings than others), what to look for (to look only for explicit statements of use of citable research is oversimplified), and the conditions under which research is used or not (sustained interaction between policymaker and researcher may be invaluable.

issues of the day, or whose findings conflict with preferred solutions, may be ignored. On the other hand, the ignored findings remain available for use (in the "garbage can" or "primordial soup") in case circumstances or needs change. This uncertainty in the policy or management environment should influence the way in which research and its use is understood or evaluated, particularly in the policy or organizational context.

Nature of Use. Both knowledge-driven and problem-solving models of research use assume that there is one decision maker who equitably parses the alternatives, benefits, and costs of any approach to a given problem to determine the best solution. That is, the models assume if research generates insight into a problem and identifies an effective solution, then the research will be accepted by a "rationale" decision-maker.[2] Political models add interest groups to the equation and assume that there is not one, but many players who could have very different goals and values and at least some whose position on a given issue is predetermined. In this context, research supporting that position becomes "ammunition" that is used in the political process.[3] In such tactical models, the fact that research is underway, rather than its findings per se, is valued. For users of this kind of research, the fact that the research is ongoing promotes the interests of the bureaucracy in the status quo, delaying action or deflecting criticism. Spitz and Abramson (2005), among others, perceive such uses of research as counterproductive in that it postpones, or even altogether prevents, the adoption of effective policy solutions. But Weiss (1999) argues that these uses are not inappropriate or unimportant, but legitimate, unless the findings are distorted or misinterpreted.

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[2] Readers may not that the differences across these models are closely aligned with the kinds of distinctions made by Allison and Zellikow (2nd edition, 1999) in explaining the Cuban missile crisis (*Essence of Decision*).

[3] For additional analysis of the role of coalitions, political parties and interest groups see Heaney (2006).

Models that account for the fact that there may be several paths to and/or players in a decision appear to correspond better than knowledge-driven and problem-solving models to real-world processes. For example, Gamble and Stone (2006), in examining U.S. policy on equity, make a compelling case for rejecting the classical model of research use, which assumes that disparities in health care are addressed only if they are first documented by research as findings and are then disseminated. Instead, the authors argue, health disparities are addressed only if the disparities are converted into political issues that, in turn, are defined such that the government can do something about them with whatever policy/legislative tools are available. In this view, research, if it is to be effective, must frame the problems it reveals as “bad situations and moral wrongs that government can and should fix.” Regardless of whether one views it appropriate that researchers frame the policy program, such framing may be essential to actually incorporating research into policymaking. The issue, then, is who should or will do the framing.

Cumulative Versus “Just in Time” Research. In any of the models, the research itself must enter the policymaking or management arena. According to Weiss (1979), this can happen, at least in the problem-solving model, through two main pathways.

In the first, the research already exists, and it is drawn upon as needed to address policy problems by users who have found it themselves or who have had it brought to their attention. The sticking point in this pathway is how to communicate the research to policymakers. Addressing the communications challenge may require different types of activities that clarify the key findings across bodies of research and effectively link them to policy concerns. In the research world, synthesis tends to get less priority than original research and communication skills may be lacking. For example, AcademyHealth’s (2006) assessment of the needs for health services research from the perspective of researcher and users of this research, for example, highlights the perceived defects users see in the training of researchers to be skilled communicators and leaders. To address this shortcoming, there have been calls for intermediaries that might include, for example: (1) dedicated “policy entrepreneurs,” who are credible and can translate research into state policy implications in ways that are relevant and well-received (Coburn 1998); (2) responsible “knowledge brokers” who can translate research into support for actions that will lead to better care for children (Simpson 2004); and (3) contracted ”consultants” funded by users to identify and translate relevant knowledge to particular policy or management questions (Jacobson et al. 2005).

In contrast to the first entry point that involves existing research that builds over time and often was not spurred by a particular policy or management issue that has to be decided now, the second way research may enter the policy or managerial arena is when research is purposefully commissioned to bridge a given policy or information gap. The assumption here is that such research will be more useful because it will more directly and immediately address an unmet need. Hence it can be viewed as “just in time” research. For example, an evaluation of a program might be commissioned, or researchers might be asked to conduct a study to answer a pressing policy question.

While the link between research and policy is more direct in the second entryway, Weiss (1979) argues that the connection between user commissioning of research and its use is typically overstated. Though she doesn’t explain the statement, one can speculate that one reason just-in-time research may not be used as much as its commissioners hope is that it is very hard to be “on time” given the time frames typically needed to commission and conduct research and the rapidity with which decision making needs change over time. Another may be the tensions that exist because most research requires simplifying or parsimonious assumptions to make the research practical to conduct. These contrast with the specificity of some policy questions. For example, research may seek to understand the link between a given type of financial incentive and physician behavior whereas users want to know exactly how should financial incentives in paying physicians be constrained operationally to allow flexibility yet minimize risk of bad outcomes. Similarly, they may seek to identify particular Medicare policy changes will yield precisely the amount of savings needed to offset the costs of another valued policy. Such differences in requirements and perspective often are hard to bridge.

Realistically, the distinction between drawing on existing knowledge and creating “new” or “just in time” knowledge to inform policy may be somewhat artificial depending on how such research is defined. For example, user targeted syntheses or analyses may include a combination of existing and new research. Lack of consensus also is likely to exist over whether the work of consultants or others who are asked to answer a policy question (and thus conduct policy analysis) is best viewed as new research, as an effort to synthesize and apply existing knowledge, or something entirely different. The correct answer, if there is one, may vary both with the situation and with how “research” gets defined.

2. A Proposed Framework for Examining Knowledge-Transfer Strategies

To support their research on the knowledge-transfer processes used by applied health and economic/social research centers in Canada, Lavis et al. (2003) developed an framework that organizes the effort to examine knowledge-transfer strategies by identifying five questions that are basic to translating findings.

- What should be transferred (the message)?
- To whom should knowledge be transferred (the target audience)?
- By whom should knowledge be transferred (the messenger)?
- How should knowledge be transferred (process and supportive communications)?
- With what effect should knowledge be transferred (evaluation)?

Based on what appears to be an informal review of the literature, the authors identified what can be termed “best practices” and “caveats” for how each of these questions can be addressed to most effectively support the transfer of knowledge (Table 2). The authors also define four basic audiences for this knowledge: the general public, clinicians/service providers, managers in the private sector who function as decision makers, and policymakers at various levels of government. These groups correspond fairly well to the three levels of users Eisenberg (1998) defines for health services research: public policy, health care systems policy, and clinical policy—except that the public is explicit in the Lavis model as a fourth type of user.

Lavis’ analysis suggests that research transfer strategies are effective only if they incorporate the following:

- “Actionable” findings, usually from a body of research, that can be translated into a “message” in ways that go beyond numbers, facts, or single studies
- Audience-specific messages that are part of a well-conceived strategy for reaching those who can act and are likely to be reached
- A credible “messenger” that the target audience respects and trusts
- Continued interaction between user and the messenger over time
- Realistic performance measures for a given type of research (e.g., informing debate is likely to be an appropriate goal for health services research, while behavior change may be appropriate for clinical research in which values may be presumed play a lesser role than facts in uptake.)

Lavis et al. (2003) also note that if such transfer strategies are to be pursued successfully, there must be a substantial investment in understanding the audience and its needs, in building credibility, and in the ongoing exchange of ideas. Not all research organizations or individual researchers, however, are positioned to make this investment. The authors also acknowledge that not all research has to have an impact, and that to see it as such is an overused excuse that fails to fully acknowledge our policymakers’ need to learn of potential solutions.

Table 2. Framework for Knowledge Strategy (Lavis et al)

Question	Evidence on Best Practices	Caveats and Clarification
1. What is to be transferred to decision makers (the message)?	Transfer actionable message from a body of research not simply a single research report or study. Message can place study in context. Research shows ideas rather than data influence decision making.	Not all research can or should have an impact. (But this excuse can be overused—decision makers need to learn about potential solutions.) Accountability mechanisms need to be in place on appropriateness of message.
2. To whom should research be transferred (the target audience)?	Identify clearly target audiences and fine tune strategies for their decisions. Multiple audience-specific messages are needed.	Learning about decision making environments requires substantial investment. Research does not show how to identify the audience. Could ask (1) who can act; (2) who can influence those who can act; and (3) which audience is likely to be most successful and which messages are relevant to them.
3. By whom should research knowledge be transferred (the messenger)?	The credibility of the messenger delivering the message is important to knowledge transfer.	Building credibility as messenger is time consuming. One size fits all unlikely to work. Researchers with communication skills can be ideal. Trusted intermediaries (knowledge brokers) can substitute.
4. How should research knowledge be transferred (process and supporting communication)?	Interactive engagement appears most effective, regardless of the audience. (Passive processes are not effective.)	Interaction can occur at many stages of the research process. Over time, two way exchange can produce cultural shifts. Individualized feedback can be effective. Web sites and newsletters, etc. can augment interaction, especially if it is targeted or searchable.
5. With what effect should research knowledge be transferred (evaluation)?	Performance measures for knowledge transfer should be appropriate to the target audience.	While behavior change consistent with evidence may be appropriate for clinicians, informing debate may be more appropriate for public policy. Measures can capture process (e.g., presentations made), intermediate outcomes (e.g., awareness, knowledge), or ultimate outcomes (decisions). Research can be used instrumentally (specific and direct ways), conceptually (enlightenment), and symbolically (to justify an action).

Source: Author's summary of John N. Lavis, Dave Robertson, Jennifer M. Woodside, Christopher B. McLoed, Julia Abelson and the Knowledge Transfer Study Group. "How Can Research Organizations More Effectively Transfer Research Knowledge to Decision Makers?" *Milbank Quarterly* 81(2): 221-248, 2003.

3. Related Social Science Insights based on Analysis of Innovation

Greenhalgh et al. (2004) recently reviewed and synthesized the literature on what is known about the diffusion of innovations in health service organizations. While the focus of the review is on organizational adoption of an innovation—whether based on research or not—managers of organizations are a potential user of health services research.[4] Further, policy and organizational decisions about innovations each tend to be influenced by many of the same kinds of variables. Table 3 shows the key factors and variables discussed by Greenlalgh et al. and what we see as the key findings and their implications for health services research. Greenlalgh identifies a number of findings from the innovations literature that are relevant to use of health services research. In particular, the following points appear central.

- ***Some kinds of knowledge are easier to transfer than others.*** Uptake is enhanced if ideas are unambiguous and easy to apply. The ideas are especially useful if they suggest actions that are consistent with values and address perceived problems that users agree require a change.
- ***Uptake of knowledge is not an event but a process that unfolds over time.*** There are antecedents to the process, changes in readiness for information, and a process of adoption (decision making). Even then, the effects of a decision depend on an implementation or a follow-up process to turn the decision into meaningful action. Consequences from change or policy can lead to refinement of that change or policy, and anticipating these consequences will influence uptake.
- ***Knowledge generators, knowledge purveyors, and change agents may or may not be the same people.*** Knowledge transfer involves some type of link between knowledge developers and users of that knowledge. Individuals involved in the knowledge itself may be internal or external to an organization. The former have some inherent credibility and advantages in terms of organizational access. To effectively link knowledge to the user requires the linker to have particular communication skills and an effective strategy for bringing the knowledge to the user. Research suggests that when the communicator comes from a similar base of experience and characteristics (e.g. policy or operational experience in the area under consideration, prior work with people respected by the user), their effectiveness may increase.

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[4] Eisenberg (1998) notes that clinical managers are one user of health services research. Stephen M. Shortell (2004), a leader in the field of health services research, has highlighted research needs to support managerial and organizational challenges facing health services delivery in the United States if increasing value is to be achieved.

Table 3. Diffusion of Innovation in Service Organizations (Greenhalgh et al)

Categories of Relevant Factors	Relevant Variables	Potential Applicability to Health Services Research Transfer
The Innovation	Relative advantage, compatibility, low complexity, triability, observability, potential for reinvention, fuzzy boundaries, risk, task issues, knowledge of knowledge required, technical support.	Takeup of change or knowledge easier when the ideas are unambiguous and simple to apply, viewed as useful and consistent with values, yield visible benefits, allow flexible application, and have risks in line with benefits.
The Individual	Needs, motivation, values and goals, skill, learning style, social networks.	Individuals differ in ways that influence their reaction to and use of knowledge. They may by nature be easier to reach (early adopters), have a different intellect or tolerance for ambiguous findings, associate different meanings with the same facts, and make decisions differently (e.g., authoritative versus collective). Regardless, they need to know of findings, have adequate access to information to explore them, and understand the consequences of action based on findings (change).
The User System	Structure (size/maturity, formalization, differentiation, decentralization, slack resources), absorptive capacity for new knowledge (pre-existing knowledge and skills, ability to integrate new knowledge, ability to share knowledge across networks), receptive context for change (leadership and vision, good management relations, risk taking climate, clear goals and priorities, high quality data capture.	The nature of the "user" system matters and influences the way take up occurs and its likelihood. Take up is easier in mature and differentiated systems in which units can make decisions relatively autonomously, when takeup addresses real needs, when resources or slack capacity exists to pursue and absorb knowledge, when external links help infuse knowledge, and when leadership supports spread of knowledge and pursuit of new ideas.
The Knowledge Purveyor or Change Agent (Diffusion and Dissemination)	Communication and influence may be diffused (informal/unplanned) or disseminated (formal/planned). Relevant variables include social networks, similarities, peer opinion, marketing, expert opinion, champions, boundary spanners and change agents.	Inter-personal influence through social networks exert a large influence over the uptake of knowledge. Uptake is more likely when messenger and audience are similar, opinion leaders support it, a few key individuals champion it, the boundary between user and outside purveyor is permeable, and when formal programs take account of user needs and perspectives with tailored strategies.
System Readiness for Innovation	Tension for change, innovation-system fit, power balances (supporters/opponents), assessment of implications, dedicated time/resources, monitoring and feedback.	Uptake (change) is more likely if the status quo is viewed as intolerable, the solution fits the values of the organization, supporters are well placed, and there is time and capacity to evaluate and act on information.

Table 3 *(continued)*

Categories of Relevant Factors	Relevant Variables	Potential Applicability to Health Services Research Transfer
Linkage	Design Stage: shared meanings and mission, effective knowledge transfer, user involvement in specification, capture of user-led innovation. Implementation stage: communication and information, user orientation, product augmentation (e.g., technical help), project management support.	When there is organizational linkage between knowledge generator (research center) and user, uptake is more likely, especially if relations are good. External purveyors of information are more effective when they are similar to users, have good interpersonal skills, can translate user needs to knowledge producers, and enable to power users to make decisions.
Implementation Process	Decision-making devolved to frontline teams, hands-on approach by leaders and managers, human resources issues especially training, dedicated resources, internal communication, external collaboration, reinvention/development, feedback on progress.	Follow through and the implementation process will have a large effect on the ultimate effectiveness of knowledge transfer in influencing the path between knowledge uptake and change.
Outer Context	Social political climate, incentives and mandates, interorganizational norm-setting and networks, environmental stability.	External influences on users influence uptake of information. Formal knowledge transfer initiatives sometimes, but not always, are effective. Congruence with external policy requirements makes uptake more likely though it doesn't influence the capacity of the organization to implement.

Source: Author's analysis of Trisha Greenhalgh, Glenn Robert, Fraser MacFarlane, Paul Bate, and Olivia Kyriakidou. (2004). "Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations." *Milbank Quarterly* 82(4): 581-629

Note: Columns 1 and 2 comes largely from Figure 3 (p. 595). Column 3 is a composite of textual findings and this author's translation of them to the health services research context.

- ***Certain kinds of users may be easier to reach than others.*** "Open" organizations with many links to external information and solid networks that tie them to people and organizations externally are more "permeable," in terms of absorbing ideas. Uptake requiring decision making is easier in organizations in which there is a clear and relatively autonomous decision-maker who can "make something happen." Transfer and action are more likely to occur when leadership favors new ideas, when there is someone in the organization to champion change, and when opinion leaders support particular actions.

- ***Knowledge transfer does not necessarily require or occur through formal processes.*** Research on the effectiveness of initiatives to formally transfer knowledge show only some are effective. Informal, unplanned diffusion plays a significant role in knowledge transfer. Social networks, people that span organizational or interest boundaries, change agents, peer opinion, and other factors influence awareness and uptake.

- ***The organizational and policy environment in which uptake occurs is an important influence on whether, how, and the extent to which knowledge is absorbed.*** If decisions consistent with research findings help users meet external requirements they fact in any case, uptake may be more likely regardless of the implementation burden. Resources and an organization's "slack capacity" to redirect resources to seek or use knowledge will play a critical role in whether the organization tends to do so. Actions requiring an ongoing commitment of organizational resources are more likely to occur in a stable environment.

In sum, the literature review reinforces the importance of viewing the translation of research into policy or management use as a complex, time-consuming process involving the convergence of a number of factors. Researchers can both control parts of the process and influence others through the way in which they go about their work. But they are likely to be more effective when there is infrastructure to support the process. Such an infrastructure is particularly useful in facilitating the informal transfer of information through the networks it creates and the support it provides for tailoring the message embodied in the research to needs of policymakers. Some kinds of findings, regardless of the supporting infrastructure, will find a more receptive audience than others. Which ones do may change over time with the environment. Users and the organizations in which they are based also differ in ways that influence their receptivity to information. When the demands of a user's environment converge with research findings, uptake may be more likely.

4. Multiple Pathways to Use

The literature, together with common wisdom, points to several pathways through which research is used. By "used," we mean that, at a minimum, that policymakers and managers are aware of ideas generated through the process of research, and that those ideas have some influence either on the debate over policy or management decisions or on the actual decision themselves.

Table 4 presents 10 potential pathways through which research may become known and applied in the policy or management process that appear to be consistent with the literature. In general, the pathways fall into a continuum. On one end are the pathways that reflect traditional views of "knowledge development" and "enlightenment." These pathways emphasize in particular the merits of the research findings in generating knowledge that is used. In contrast, pathways at the other end of the spectrum emphasize more active management of efforts to create, synthesize, and apply findings. This involves (1) doing something to or with the research to increase the chances that it will be used in—or useful to—the policy process, or (2) developing new user-driven mechanisms for creating knowledge in the hopes that the knowledge will be more targeted to user needs and interests.

The first four pathways in Table 4 are the most traditional.

- The ***"big bang"*** pathway assumes that a given study will produce blockbuster findings that immediately inform or change, usually in the policy debate. For example, findings from the National Medical Expenditure Survey (from AHQR's predecessor agency the National Center for Health Services Research) provided clear data on the number and characteristics of the uninsured that were influential in Congress' consideration of bills dealing with the effects of unemployment on health care coverage (Wilensky 1987). Findings by McGlynn and others on the RAND team (2003) measuring the proportion of health care that was inappropriate in quality have been extensively used to support changes in policy and practice designed to improve the quality and value of health services. Though rare, "big bang" research carries a great deal of weight. The messages distilled from the research that that may be relevant, often by chance, to current issues, often resonate the most. Their influence also may last a long time (RAND 2006).

Table 4. Potential Pathways to Research Translation

Specific "Stylized" Pathways	Brief Description and Key Elements	Example
"Big Bang"	Results of a single study, often published in an influential journal and cited in the major media, frame the debate in new ways or drive initiatives	Original National Medical Care Expenditure Survey finding on number of uninsured. McGlynn/Rand study of percent of care that is appropriate.
Personal Emissaries—Users Consult "Experts"	Researchers take it as a personal mission, on their own or as agents of funders or interests, to interact and build relationships with policymakers to share information. Policymakers or staff call on known experts for advice.	Certain health services researchers become well known political pundits and experts, either publicly or behind the scenes. Interests employ experts that will support their views. Foundations support Congressional fellowships for researchers to work with Congress.
Gradual Accumulation and Diffusion	Researchers follow others in studying given questions with gradual decentralized build up of knowledge. No formal mechanisms of diffusion, but policymakers or their aides or staff note the evidence or interest groups introduce it to the debate. No vetting for "accuracy"	It becomes accepted that insurance coverage makes a difference in access to health care and outcomes. Administration cites concern over "crowd out" as one reason for opposing state child health insurance program expansion.
Gradual Accumulation and Guided Dissemination	The research enterprise obtains support that allows it to conduct structured syntheses that summarize research and the syntheses are published or reported to highlight critical findings and the level of evidence behind them.	User Liaison funded syntheses; MCRR syntheses (e.g., organizational behavior). Luft book on HMO Performance. Building Bridges and similar meetings linking academic researchers with researchers in operational or policy settings.
Targeted Synthesis of Accumulated Research around Problems	Researchers and policymakers collaborate on identifying policy questions that can be answered by research. Researchers synthesize the answers. Policymakers review analysis to enhance its utility.	RWJF Policy Synthesis Project. Canadian Center for Health Services Research efforts. Institute of Medicine is commissioned to study and develop evidence-based recommendations on how to address a given issue.
User Commissioned Studies around Specific Problems	A user (often a government agency) contracts with an organization or individual to conduct a specific study that will answer a pressing policy issue.	CMS (then HCFA) commissions evaluation of whether Medicare HMOs save money. ASPE commissions work on the elasticity of use to price of services (copayments). Congress mandates particular demonstrations or studies.
Formal Intermediary Brokered Translation	Agencies set up to analyze existing research and new data to answer specific kinds of policy questions on a time frame set by policymakers. Outside public sector groups establish "neutral meeting grounds" to discuss research.	CBO, MedPAC, and CRS capacity. National Health Policy Forum and Alliance for Health Reform. Kaiser Commission on the Uninsured. Commonwealth Commission on Value Based Health System. State health policy centers within or outside of government. Research and analysis activity within interest groups or public interests.
Researcher as User—When policymakers have research skills	A person with research experience is appointed to a major policy position in the public or private sector and uses that post to encourage translation.	Mark McClellan appointed to head CMS and encourages public reporting and effectiveness research. Karen Davis heads ASPE's health reform initiative and integrates research into analysis. Bill Roper works for Aetna and encourages evidence based health promotion.

Table 4 *(continued)*

Specific "Stylized" Pathways	Brief Description and Key Elements	Example
Collaborative Processes	Government establishes a vehicle whereby funding is made available to support and joint researcher/user interactive process to create and use research that is relevant to policy and practice.	Canadian Foundation for Health Services Research requires investigator initiated grants to be reviewed both by users as well as the researchers. Only applicants that meet threshold criteria on quality and relevance are funded. AHRQ's IDSRN/now ACTION program encourages collaboration between researchers and health delivery organizations or other user groups.
Media Driven Translation Strategy	Major media along or with others generate their own polls and primary analyses on policy relevant topics which they then publicize and use to frame issues.	PBS/Kaiser Family Foundation/Harvard Polls. Investigative journalism in the business sector that sometimes includes primary data collection or analysis generating new information. Reporters hired as "experts" (Susan Dentzer at NPR).

Source: Author's analysis.

- ***Personal Emissaries—Researchers as Experts Consulted by Users.*** In this pathway, users consult “experts” to help them understand the relevance of research to immediate policy questions. Some researchers are more entrepreneurial than others in this regard. They may write op eds, network at policy events, or cultivate relationships with users. In 2004, economists Uwe Reinhardt and Stuart Altman were honored by AcademyHealth with the HSR Impact Award as recognized leaders in this form of translation. Sometimes users initiate the contact. For instance, if a researcher publishes often, the visibility of his or her work may capture the attention of a user who, in turn, asks to meet with the researcher for an informal consultation. In this context, the expert is usually assumed to provide advice that is informed both by his own work and his knowledge of related work by others. However, the range of experts on a given topic is wide, and the line between one assessment and another of what the research says and what it means may not always be consistent across emissaries, particularly when the assessment is filtered through the values of the researcher or the user. In the policy or management context, research answers are unlikely to be fully congruent with policy questions so researchers inevitably need to use judgment in deciding when and how to respond.

- ***Gradual accumulation and diffusion*** has historically been the pathway through which most health services research is assumed to influence policy and management use. Researchers are trained to answer questions that are fundamentally relevant to policy or management, and the knowledge base is gradually expanded as the answers accumulate. Over time, certain findings become established, shifting from “expert” to “common” knowledge. A good example of how this pathway works is the knowledge that now exists on the impact of the lack of health insurance coverage on access to care and outcomes. Nevertheless, as Weiss (1979) notes, there is no quality control to the findings that are identified through this process. Formal dissemination could enhance “scientific vetting,” as occurred with the more formal synthesis and translation of already relatively accepted findings on insurance coverage (Institute of Medicine, 2001)

- ***Gradual accumulation and guided dissemination*** is similar to the previous pathways in that it assumes a somewhat unguided and unplanned accumulation of evidence. What differentiates it is the presence of a formal plan or mechanism for synthesizing or communicating findings. Probably one of the best known examples of this Luft (1981)’s work synthesizing research on health maintenance organizations and similarly structured syntheses on this topic that followed. Syntheses may come about in various ways. Many years ago, the National Center for Health Services Research (NCHSR, AHRQ’s predecessor) commissioned formal syntheses of research as part of its “User Liaison Program.” In some cases, researchers may conduct such a detailed review of the evidence on a particular topic to support new primary research. For example, Bazzoli et al (2004) published a detailed review of what was learned from two decades of health care research of organizational change in *Medical Care Research and Review*, a peer reviewed journal that tries to provide an outlet for such scientific syntheses. Conferences sometimes are funded to disseminate or consider findings on particular topics to an audience made up primarily of policy analysts from various organizations (Gold 1998). As defined, the aim of this pathway is to distill the main findings from a body of research. The audience often is other researchers or more analytically sophisticated users or research sponsors.

The next four pathways give users of research and the stakeholders who seek to influence them a larger role in the products of the research.

- ***Targeted Synthesis Around Policy Problems or Questions.*** This pathway differs from guided dissemination in that it gives users a much larger role in developing the syntheses. Users may help to define the questions around which the research is to be synthesized (subject to feedback on the availability of research to answer them). Users are also heavily involved in specifying the format in which the results are presented and the findings discussed, the idea being to make these products relevant to policymakers. Obviously, the value of the synthesis will depend on whether there are core research findings to address relevant topics, some of which may be difficult to anticipate in advance. Work by the Canadian Foundation for Health Services Research and the Robert Wood Johnson's Synthesis Project falls in this category (Lomas 2000; RWJF 2007). So probably does the Institute of Medicine's work, though the composition of the expert panels the use to guide the work often restricts the kinds of user perspectives which have influence. The availability of an underlying body of knowledge, which is flexible enough to be applied to a variety of problems, allows such syntheses to be feasible.

- ***User-Commissioned Studies Around Specific Problems.*** In this pathway, the ultimate user or client of the research is the person who commissions it, such as the Center for Medicare and Medicaid Services, a state Medicaid agency or a health system. Work structured in this way is much more likely to be "work for hire" or conducted "under contract." Researchers conducting this research vary in the independence they have to define their methods, present findings and draw conclusions; the degree of independence provided or perceived will influence the authority and credibility of the results such studies bring to bear on a debate. Some commissioned studies have generated findings that are among the most well regarded research studies (e.g., the RAND national health insurance experiment) (Newhouse et al 1996; the evaluation of Medicare HMOs (Brown et al 1993). If the goal is to build knowledge, the perceived risk associated with such a model is that studies will be narrowly defined by questions that are context and time specific, the result being that the research findings do not contribute as much as they might otherwise to the cumulative base of knowledge that is available over time to support policymaking and managerial decision-making. On the other hand, some argue that context plays a vital role in applying research findings. For example, in considering how to make evaluation findings useful, Tiley and Pawson (1997) suggest that context cannot be ignored. They argue for "realistic evaluation" designed to answer not "what works," but "what works for whom and in what circumstances."

- ***Formal Intermediary-Brokered Translation.*** Because of the recognized gap between knowledge generators and users, some organizations, especially government, have set up formal entities that employ well trained analytical staff who know the existing literature and are skilled at original research, particularly on a short time frame. In the federal government, good examples are the Medicare Payment Advisory Commission and other independent agencies established specifically to address Congress's need for policy analysis. A number of states have health policy centers, often affiliated with universities or foundation-funded independent organizations. In the private sector, some large organizations have their own research and analysis unit. In this setting and the others as well, whether these are designed to inform versus promote the corporate agenda varies. In recent years, certain foundations have established commissions whose major function is to employ analysis to support interest mediated consideration of particular issues. Efforts often have as advisors a range of parties to reflect the diversity of interests. In the health care field, examples include the Kaiser Family Foundations' Kaiser Commission on Medicaid and the Uninsured, The Robert Wood Johnson Foundation funded Council on Health Care Economics and Policy, and The Commonwealth Fund's Commission on a High Performance Health System.

- ***Researcher as User.*** On rare occasions, trained and experienced researchers are appointed to key policy or management positions in which they become the user of research. Familiar with both sides of the same coin, they may initiate efforts in which research is used to suit their policy objectives and to build analytic capacity that better allows them to do so.

The final two pathways are relatively new, and they reflect emerging strategies to create research that will be used more aggressively in matching research with user needs.

- ***Collaborative Processes.*** Efforts are underway in some places, like the Canadian Foundation for Health Services Research (Lomas 2000) to modify traditional assumptions about how research is carried out. For example, peer review may include both users and researchers, with the best designed processes to evaluate research grant proposals requiring passing minimum thresholds on both scientific and practical review. Ongoing relationships may be fostered between research organizations and users, as in AHRQ's ACTION program. Processes often are structured so that researcher and user agree on the criteria for what makes a useful study.
- ***Media-Driven Translation.*** The mass media influences not only public opinion, but that of opinion leaders. In recent years, some major media outlets arguably have become not just intermediaries in the communication of research findings but generators of that knowledge as well. Recognized media outlets (e.g., the three major television networks working alone, national newspapers like the New York Times, Wall Street Journal or USA Day) now regularly sponsor surveys or other research analyses that address questions they view as important to their readers (especially opinion leaders) and then publicly report the findings. One example is the way Public Broadcasting Systems (PBS) and ABC News have teamed up with the Kaiser Family Foundation/Harvard School of Public Health to study public opinion. Nationally focused papers like the *New York Times or Wall Street Journal* may pursue long term "investigative reports," sometimes conducting their own primary analysis of data, including financial records, and use it to raise an issue for public attention. The distinction between journalism and research may not always be clear, particularly when the resulting analysis involves primary data analysis and tools for objective analysis.

While each of these ten can be considered “stylized pathways” that may not always exist in their pure form in the real world, the pathways together reflect the range of ways in which research may become known and used by policymakers and organizational managers. Often, of course, particular examples of research use will reflect the influence of a composite of several pathways.

While pathways may not be totally “pure” in terms of their distinction from one another, their characteristics still can be compared. Table 5 presents what this author views as selected distinctions between the pathways, the time lag between research and use, the pathways through which that occurs, and the most critical risk inherent in that pathway from the perspective of use of knowledge. Five distinctions are identified and considered.

- ***Who initiates the research?*** Researchers drive the topical focus in the first five pathways but have a lesser role in the others because users or intermediaries representing them have a critical influence in what is researched. For this and other reasons, researchers are likely to have more control over the process in the initial pathways than those that come later, though distinctions are not always clear or consistent.
- ***How much time exists to generate useable findings?*** When researchers are in control there is substantially less time pressure than there usually is when users pose the questions. If intermediaries representing users draw on existing research to answer user questions now, this allows researchers to focus on medium to long term questions.
- ***What is the lag between when research findings are generated and when they are likely to be used?*** Findings from single studies have the potential to be used faster after the studies are completed—whether defined by researchers or users—than studies whose use must await the accumulation of evidence. Brokers that translate study findings to address current policy issues can shorten the time between when a policymaker or manager asks a question and when it is answered, assuming existing research to address user needs exists.
- ***Who’s in control of the way the message is formulated?*** When researchers are actively engaged in communicating messages to users they have the most control. However, those generating the findings never have full control of the message in any pathway because of the role the press, other researchers, or users (policymakers, managers, interest groups) likely play in filtering what is heard.

Table 5. Comparison of Pathways on Various Dimensions

Specific "Stylized" Pathways	Main Source of Research Idea	Time Pressure on Generation of Relevant Findings (Research Duration)	Likely Lag between Research Completion and its Use	Person that Formulates the Message from Research that Policymaker or User Hears	Most Substantial Risk vis-a-vis Effective Use of Research
"Big Bang"	Researcher	Low	Possibly short	Researcher/press	Window of opportunity not there
Personal Emissaries—Users Consult "Experts"	Researcher	Low unless user presses	Possibly short	Researcher or expert that draws upon research	Research authority used to give credibility to "false" findings
Gradual Accumulation and Diffusion	Multiple Researchers	Low	Typically long	User	No one ever makes the links; older findings forgotten
Gradual Accumulation and Guided Dissemination	Multiple Researchers	Low	Typically long	Researcher to extent dissemination clarifies findings	The main message is "more research is needed"
Targeted Synthesis of Accumulated Research around Problems	Multiple Researchers	Low	Typically long	Intermediary doing the synthesis	Policy problems are too generic or the window of opportunity passes
User Commissioned Studies around Specific Problems	User	High	Possibly short	Researcher may not have full autonomy or independence	Very narrowly defined studies that are not done in time and not very useful later.
Formal Intermediary Brokered Translation	Intermediary Representing User	Low	Typically long but synthesized closer to the time policy makers want it	Intermediary brokering the translation	Qualified people who can perform this function are limited and cannot be fund or replaced
Researcher as User—When policymakers have research skills	User	High	Depends	User	Loss of credibility as conflicts between user and researcher world views prove hard to surmount.
Collaborative Processes	Both	Varies	Depends	Both	"Worst of all worlds"—research not good quality or useful
Media Driven Translation Strategy	Intermediary representing user	High	Typically short	Media	Important caveats or qualifications get lost.

Source: Author's analysis

- ***What is the most substantial downside risk inherent in the pathway?*** Each pathway has its own particular risks. The researcher dominated pathways tend to be most at risk that research will never be used either because no one knows of it, the findings are not clearly obvious, or the window of opportunity is not there or passes. User commissioned studies run the risk focusing attention too much on current issues to the detriment of more "generic" research that adds to future flexibility. Pathways making heavy use of intermediaries face supply constraints because few people are trained to broker versus generate knowledge, particularly objectively. The less distance that exists between user as proponent of a policy and the sources of the research, the more the potential for real or perceived bias exists. Researchers run the risk of equivocating ("more research is needed"); policy users and those who seek to influence them may run the opposite risk of "oversimplification."

In sum, there are trade-offs in each pathway and ways that each pathway can be done "better" or "worse," at least from the perspective of using research to objectively inform policy and managerial decision-making.

B. APPLICATION TO HEALTH SERVICES RESEARCH

Health services research, in general, and the type of health services research considered here in particular, will influence the nature of the findings and their likely use. The funding source also has an influence on the relevance of diverse pathways. Implications for research on health care costs, productivity, organization and market forces, particularly through investigator initiated grants, are discussed below.

1. Focus for Research

The AHRQ project focuses specifically on learning more about how market forces, financial incentives, or resource constraints, influence the performance of the health care system. These studies are not focused on clinical effectiveness, quality, or health information technology per se. Clinical outcomes could be included to the extent that they reflect such variables as outcomes of particular organizational or financial incentives. Studies of this type of health services research focus less on what is effective clinical practice and whether it exists than they do on the role of market forces or competition on such outcomes and how to measure or enhance the costs and productivity of health care. The variables examined through health services research are particularly valuable in applying social science perspectives to policy and management questions.

Because of the topical focus, the main audience for this research is both federal or state policymakers, and health system managers seeking to better understand how to make their policies or organizations work more effectively. Clinicians are less likely to be an audience except when the uptake of the research findings generated from our studies generates policy or organizational change that affects their work environment or income. Clinical practice, per se, absent such mediated influences, is not the focus.

A second relevant aspect of the research is that studies in this area disproportionately examine organizations or markets, rather than individuals.[5] Although producing clear findings is a challenge in all health services research, research on how organizations or markets behavior is especially challenging. Health plans, hospitals, and even most physician practices are complex organizations whose behavior reflects the combined influence of a variety of mediating structures and variables, like the way government pays for care, the regulatory requirements that exist for that organization or market, organizational norms and policies, the way care is organized, patient expectations, and the professional norms of each segment of the labor force Because of this complexity, single studies are less likely to generate results that have clear policy or management implications and even studies that span a number of organizations may generate

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[5] For example, when we examined AHRQ’s grants since the late 1990s that met the substantive criteria laid out here, 97 of the studies had organizations as the unit of analysis (health plans, hospitals, physician practices or others) and 15 involved markets. Only 37 involved individuals—mainly studies that look at the effect of organizational policies or market behavior on individuals.

findings showing considerable diversity that complicates drawing clear conclusions that “x works and leads to y.”[6]

2. Type of Research

Research is funded in different ways. AHRQ grants traditionally have been funded through peer review processes that parallel those at NIH. Awards have as their core selection criteria “excellence” in addressing questions that researchers on the peer review panel viewed as important. Use of scientific merit versus user criteria to award grants is common within investigator led research. We know, from interviewing a recent chair of a main AHRQ review panel for this type of grant, that they applied such considerations. Some of the grants that were funded came from solicitations that were very open; others were spurred by limited calls for research on a certain topic of topics.[7] For the most part, researchers defined the call for proposals and constituted the review panel. The logic is that this form of study encourages the accumulation of research on important and long standing issues of general concern whose relevance will continue over time. But it may be less responsive to current needs or issues that cut across disciplinary bounds.

There has been much less financial support for investigator led research recently than in the past in AHRQ and probably elsewhere. As a source of total funding for health services research of any type, AHRQ accounts for only $319 million of an estimated $1.5 billion in total FY 2006 spending (Coalition for Health Services Research 2006.) Further, AHRQ’s budget has been

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[6] Each organization is in some ways unique in ways that are poorly captured or not captured at all in existing data. Market studies must explain the interaction geographically of multiple organizations, institutions, policies, and preferences. Whereas individual studies have access to data on as many as millions of individuals, the number of organizations and markets of a given type is typically much more finite. Thus, even if data were available, funding robust explanations of underlying processes and relationships and their effects on outcomes is challenging.

[7] Although AHRQ’s records do not capture the source of funding for individual projects, some may have been funded by requests for applications on topics such as “Health Care Access, Quality and Insurance for Low-Income Children” (HS-99-005) or “Health Care Markets and Managed Care” (HS-00-001).

increasingly tied to specific areas of work, most of them relating to clinical quality rather than organization, market behavior and costs. (Gray, Gusmano, and Collins 2003). In interviews we had with recent AHRQ grantees and others, we heard that diminished funding influenced both the pool of relevant applicants for health services research on organizations, markets and costs and the size of the grants. While AHRQ still has a mandate to study health care costs, productivity, organization, and market forces as one of its nine areas, the agency has had a tough time convincing policymakers to expand the funding for this and other similar forms of research. In addition, AHRQ's history has left its leadership with residual ambivalence over how aggressive it wishes to be in pushing out findings to policymakers in particular. Use of MEPS to support modeling for health insurance expansion in the Clinton Administration, for example, proved as much a threat as an advantage to the agency's future when the administration changed (Grey et al. 1992).

3. Environmental Context

The environment of health care also influences the use of health services research on health care costs, productivity, organizations, and markets. In the 1990s, the growth of managed care resulted in a tremendous interest in organizational and market behavior. Since the managed care backlash, interest has shifted to more incremental and narrowly defined approaches to quality improvement and cost management. Further, ideological divisions have been strong, limiting the use of health services research for other than "ammunition" in some important policy debates. In all likelihood, the terrain will shift again in the future as issues change and the political environment shifts.

No matter what the terrain, interest in cost containment is likely to remain high. That means that it is important to learn not just how to define the "best" quality care and whether it exists, but also how to leverage organizational and market forces to this end and, equally relevant, how to make care more affordable and create the greatest value for society. This means that while the particular interest in health care markets, organizations, productivity and costs will wax and wane over time, the issues health services research addresses are fundamental ones that are likely to be of ongoing relevance to policymakers and managers. Thus, researchers seeking support are well advised to become “smarter” in understanding the pathways through which health services research is used so they can better explain how findings are used and justify the contributions.

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APPENDIX C

CASE STUDIES OF AHRQ GRANT-FUNDED RESEARCH ON HEALTHCARE COSTS, PRODUCTIVITY, ORGANIZATION, AND MARKET FORCES

APPENDIX C.1

OVERVIEW

CASE STUDIES OF SELECTED AHRQ GRANT-FUNDED RESEARCH PROJECTS ON HEALTHCARE COSTS, PRODUCTIVITY, ORGANIZATION AND MARKET FORCES

by

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The Institute of Medicine defines health services research as an interdisciplinary field that investigates the structure, organization, and processes of health services delivery and financing, as well as its effects on people and populations (Gray et al. 2003). Research on health care costs, productivity, organization, and markets is a core component of this discipline because it addresses how the organization and financing of care influences system performance. From its origins in the National Center for Health Services Research, the Agency for Healthcare Research and Quality (AHRQ) has always played a central role in financing research in this field (Gray et al. 2003; Coalition for Health Services Research 2005, 2006a). But little information exists on what types of research have been supported, what has been learned, and how it has been used.

To address this gap, AHRQ contracted with Mathematica Policy Research, Inc., (MPR) in 2006 to review systematically grant-funded research on health care costs, productivity, organization, and market forces. Working with AHRQ we identified 149 relevant grant-funded projects (see Krissik et al. 2007). As one component of the evaluation, we conducted case studies of seven of these projects. We specified the seven grants because they represent examples of various ways in which grant-funded research projects in this area are disseminated publicly and used in decision making. The case studies focused on the following questions about the selected grant-funded projects:

- What were the goals of the research in each grant-funded project and what research methods were used?
- What were the key findings of the research?
- How were findings disseminated to potential users of the information, and what role did the research play in the policy process?
- What factors contributed to, or interfered with, the effect of the findings on adoption of policy or process?
- What are the lessons learned from the case studies for enhancing use of research in private and public policymaking?

The selected cases were intended to describe and illustrate the various pathways through which research is used to inform relevant policy or managerial decisions, and to generate lessons about research dissemination and translation of research findings to use in policymaking. These seven case studies complement other components of our evaluation, including work that identified pathways through which research findings get applied to policy concerns (Gold 2008) and a web-based survey of all 149 grants that were identified as relevant to this evaluation. (Stewart et al. 2008).

In the following sections, we describe our methods for the seven case studies and summarize our findings. We then discuss each of the seven case studies in more detail in the remainder of this document.

A. METHODS

Case Study Selection. We selected these cases from two main sources. First, we took advantage of our in-depth analysis of nine randomly selected grants from Phase I of our evaluation to assess whether any appeared particularly successful in terms of publication and other forms of dissemination. (Krissik et al. 2007) Second, we sought the recommendations of five AHRQ project officers (Michael Hagan, William Encinosa, Bernard Friedman, Ryan Mutter, and Amy Taylor) in identifying additional cases.

We selected the grant projects to study to achieve diversity in terms of (1) grant size and topical focus, (2) illustrative pathways for dissemination and translation to policy, and (3) uses for private and public policy decision making. This process yielded seven case studies:

- The Effect of Clinic Payment and Structure on Costs (Kralewski, University of Minnesota)
- Rural Response to Medicare+Choice: Change and its Impact (Mueller, University of Nebraska Medical Center)
- Prescription Drug Cost-Sharing: Affordabilty/Safety (Hsu, Kaiser Foundation Research Institute)
- Asthma Quality in Varying Managed Medicaid Plans (Lieu, Harvard Pilgrim Health Care)
- Quality Measures and Managed Care Markets (Luft, University of California San Francisco)
- Structuring Markets and Competition in Health (Newhouse, Harvard Medical School)
- Quality of Care for Children with Special Needs in Managed Care (Shenkman, University of Florida)

Two of the grants (Kralewski and Mueller) were identified through our examination of the nine randomly selected grants in Phase I. The remaining five were identified through project officer recommendations. Two of the grants (Luft and Newhouse) were significantly larger than the others and were funded through a program project grant, or P01, which included a solicitation for projects focusing on “managed care and markets.” The P01 grant was intended to establish new research centers, nested within one or more research organizations, that would build expertise and research knowledge in the topical area through multiple research projects conducted under the grant.[1]

The seven grants ranged in size from $203,000 to $5.3 million. The grants were funded between 1998 and 2006, with the length of the studies ranging from two to five years. The substantive focus of the grants also ranged widely, falling into three categories: (1) effects of competition or financial incentives on health plan or provider behaviors including payment on provider practice patterns, (2) effects of health managed care structures on delivery of services within health plans, such services to children with special needs, and (3) effects of financial incentives on consumer decision-making including use of prescription drugs. The research covered a variety of population groups including adults and children and those covered by both private and publicly-sponsored health insurance programs. The seven projects were granted to investigators at various types of institutions in different areas of the country, including universities, independent research organizations, and health plan affiliated organizations.

Data Collection and Analysis. Each case was developed based on a review of grant publications--grant applications, final project reports, and selected journal articles--and discussions with the principal investigators and key users of the findings. We conducted approximately five telephone discussions for each case, guided by a semi-structured protocol. Draft write-ups of the each case study were shared with the respective principal investigators after they were completed, with a request for feedback on the accuracy of stated facts.

B. KEY FINDINGS FROM THE CASE STUDIES

Dissemination, Translation and Targeted Audiences. Each of the grants generated useful, policy-relevant results that were published in peer-reviewed journals. Each project was also notable in the extent to which principal investigators went beyond journal publication and disseminated results to relevant audiences through oral presentations, participation in meetings, and other types of publications. Some results supplemented findings in the existing research literature, while others provided new information in a largely unexamined area. Depending on the topical focus and the particular results from each study, the target audiences varied widely from national or state policymakers, health care industry representatives, purchasers, or consumer representatives. Some target audiences were narrow (e.g., Medicaid officials within one state) and some were broad (e.g., a wide variety of stakeholders interested in the effects of competition on quality of care).

The case studies illustrate a variety of pathways for translating research into use for decision makers (see Gold 2008), with most demonstrating how multiple pathways can be used within a

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[1] The remaining five studies were funded through investigator-initiated R01 grants.

single project. For example, the study led by Kralewski illustrated how intermediaries or end users can play important roles in both shaping research designs to answer important questions and facilitating dissemination results to end users. He worked with the Medical Group Management Association to disseminate of results on effects of payment on physician practice patterns to member medical groups. Research conducted within the Newhouse grant provided an example of a "big bang" research project that generated new findings in an area not previously studied in much detail; specifically, the project examined the effects of incentive-based formularies on drug selection and use. This led to publication of findings in a highly visible journal, which provided useful information to both private and public policy decision makers and spurred follow-on research in the area. Work by Chernew and McLaughlin, as part of the P01 grant led by Luft, showed how research projects can contribute to a growing body of research, while also developing the expertise of less experienced researchers pursuing a research career in that field.

Other projects illustrated how results from studies can be targeted to specific users to maximize their use. In particular, Shenkman worked closely with Florida Medicaid program officials to disseminate results on the effects of Medicaid managed care on children with special needs. Similarly, through his work with the Rural Policy Research Institute, Meuller engaged congressional staff affiliated with the Rural Health Coalition and Rural Health Caucus in disseminating results on the impact of Medicare+Choice policy on rural areas.

Factors Affecting Dissemination. Commonly identified factors affecting whether studies affected dissemination including

- ***The Extent to Which Potential Users of the Research Are Aware (or Even Involved in Design) of the Research Prior to the Conduct of the Research.*** This involvement helps shape the relevance of the findings and also builds anticipation for the results by users.

- ***The Extent to Which Interested Users, Funders, or Intermediaries Are Able to Assist with Dissemination to Other Parties.*** Sometimes users or other stakeholders may go beyond informal consultation or involvement in research design and have a more active role in dissemination, such as sponsorship of conferences or publications or dissemination to members of influential organizations.

- ***Prominence and Reputation of Both the Investigators and the Journals in Which Results Are Published.*** Publication of findings in prominent journals can generate publicity on its own, including media attention, and can provide a platform for further dissemination. At the same time, investigators who are already prominent in their field are most readily able to communicate their findings when participating in related professional activities (e.g., presentation at policy conferences) or when being sought out for the opinions by the media or policymakers on relevant policy topics.

Key Lessons. Each case study has its own lessons for improving the use and usefulness of research on health care costs, productivity, and market forces. As we describe in the remaining sections of this document, some common lessons include the importance of (1) developing relationships with potential users, (2) understanding how results might be used for different policy decisions and the timing of those decisions, (3) fitting each research project within a broader “stream” of research conducted by the investigator and contributing to a broader body of research conducted by other investigators, and (4) developing expertise—and a reputation for expertise—of the investigators, which enhances both the quality of ongoing research and visibility of the research among policymakers.

APPENDIX C.2

PRESCRIPTION DRUG COST-SHARING: AFFORDABILITY/SAFETY

PRESCRIPTION DRUG COST-SHARING: AFFORDABILITY/SAFETY

Principal Investigator: John Hsu, MD, MBA, MSCE
Funding Period: 8/1/03 – 7/31/06

ABSTRACT

The research conducted under this grant provided critical evidence about the effects of prescription drug cost-sharing for elderly populations. The investigators compared claims and survey data of elderly enrollees with and without caps on prescription drug spending in Kaiser Permanente's Northern California Medicare+Choice program to understand how drug cost-sharing was associated with changes in health and health care spending. The results, showing that drug cost-sharing was associated with greater use of emergency rooms and non-elective hospitalizations, death, worsened health indicators, and no change in overall health spending, were published in the *New England Journal of Medicine* and widely presented at academic and professional conferences.

BACKGROUND

This research was undertaken in a context in which increased concern was focused on the absence of a prescription drug benefit within Medicare. A key issue for consideration involved how to design the benefit package—including how to structure cost-sharing. The primary rationale for patient drug cost-sharing is to promote cost-effective drug utilization. However, there are reasons to believe that drug cost-sharing may have unintended consequences for vulnerable populations. Prior research reported that limits on drug coverage for vulnerable populations resulted in declines in adherence both to essential and non-essential medications[1,2] and increased use of nursing homes[3] and emergency department visits,[2] which likely lead to higher overall program costs. Additional studies had found lower adherence among chronic disease patients in tandem with greater cost-sharing.[4,5,6] Because many of the elderly have chronic conditions, for which they require daily drug therapy, they may be at risk for adverse outcomes under certain drug cost-sharing benefit designs. However, few studies had explored the effects of prescription drug cost-sharing in elderly populations.

Before implementation of the Medicare Prescription Drug and Modernization Act of 2003 (MMA), elderly Medicare beneficiaries not eligible for prescription drug coverage from Medicaid or other public programs may have obtained some drug coverage through retiree health benefits or enrollment in a Medigap or Medicare+Choice health plan. The extent of this coverage varied across employers and health plans.[*]

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[*] Medicare has a history of allowing beneficiaries to receive their Medicare benefits by enrolling in a private plan—historically, a health maintenance organization or similar coordinated care plan. Such plans typically integrate Medicare coverage with coverage by Medicare supplemental policies (i.e., Medigap). These plans are paid a capitated amount by Medicare for Part A and B benefits. If they can provide benefits for less than they are paid by Medicare, they are required to use the savings to enhance benefits, offset Medicare cost-sharing, or offset premiums

This research took advantage of Kaiser Permanente's experience with offering drug benefits to Medicare beneficiaries in northern California through Medicare+Choice to learn more about the effects of cost-sharing on Medicare beneficiaries' medical care utilization and health status. Kaiser historically offered a relatively comprehensive benefit that imposed no dollar limits on the amount of coverage. In 2001, Kaiser instituted a $1,600 annual prescription drug benefit cap for Medicare+Choice enrollees and, in 2002, it lowered the annual cap to $1,000. Enrollees had varying levels of cost-sharing for prescription drugs before they reached the cap. After this, enrollees became responsible for paying 100 percent of their drug costs. However, Kaiser's Medicare+Choice population also included beneficiaries not affected by the caps because they had supplemental employer insurance that provided coverage for prescription drugs beyond the Kaiser caps. For this reason, prescription drug cost-sharing for these enrollees was much lower, compared to beneficiaries without supplemental coverage.

RESEARCH GOALS

This study evaluated both the clinical and economic consequences of prescription drug caps in an elderly Medicare population enrolled in Kaiser Permanente's northern California Medicare+Choice plan in 2002 and 2003. The specific goals of the study were to evaluate whether prescription drug caps were associated with:[7,8]

- Increased rates of emergency department (ED) visits, hospitalizations, and mortality
- Adverse physiologic outcomes in patients taking drugs for hypertension, hyperlipidemia, and diabetes
- Lower total medical costs to the health plan
- Lower costs for prescription drugs, hospitalizations, ED, and outpatient clinic care

STUDY DESIGN

The study used a prospective cohort design to compare outcomes of Kaiser Permanente's elderly Medicare+Choice enrollees subject to the caps versus enrollees not subject to the caps due to supplemental insurance. Specifically, the investigators used multivariable longitudinal regression analyses to compare drug consumption, hospitalizations, ED visits, outpatient visits, death, and pharmacy and medical costs between elderly Medicare patients subject to the cap and

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(continued)

for supplemental services. Before Medicare covered prescription drugs, many plans used some of these savings to offer a prescription drug benefit. The scope of this benefit diminished as Medicare tightened its payments under the Medicare+Choice program, enacted in the Balanced Budget Act of 1997, and ultimately superseded by Medicare Advantage, which was authorized by the Medicare Prescription Drug and Modernization Act of 2003; this Act authorized the Medicare drug benefit, effective 2006.

those not affected by it, adjusting for insurance-related characteristics (e.g., length of time enrolled in Kaiser Permanente), demographic, and health status characteristics. Using similar longitudinal regression-adjusted analyses, the investigators also compared drug adherence and physiological outcomes for elderly beneficiaries treated with drugs for hypertension, hyperlipidemia, and diabetes by cap status. All regression models included a variable for the predicted propensity score for benefit caps to further adjust for differences between patients subject and not subject to the cap.[7,8]

PRINCIPAL FINDINGS AND RESULTING PUBLICATIONS

Among enrollees subject to the cap, 13 percent exceeded it in 2003. Patients subject to the cap had consistently worse outcomes than patients with supplemental coverage, including significantly higher rates of ED visits, non-elective hospitalizations, and death. Although they had fewer outpatient visits and lower drug spending compared to patients not subject to the cap, there was no significant difference in total medical spending in 2003 between patients subject and not subject to the caps. Among patients treated with drugs for hypertension, hyperlipidemia, and diabetes, drug consumption was 15 percent lower (95% CI: (11.4, 18.1)), 27 percent lower (95% CI: (23.1, 30.4)), and 21 percent lower (95% CI: (14.3, 26.6)), respectively, for patients subject to the caps. Drug spending also was significantly lower for patients with caps. Physiological outcomes as measured by systolic blood pressure, LDL cholesterol, and glycated hemoglobin levels were significantly worse for patients subject to the caps.[8]

The findings from this research were published in the June 1, 2006 edition of the *New England Journal of Medicine*, “Unintended Consequences of Caps on Medicare Drug Benefits.” Additional papers generated by this grant were published in *Health Services Research* and *Clinical Therapeutics*.[9,10]

POLICY RELEVANCE AND TARGET AUDIENCES

Previous research documented an association between limited or no drug coverage and adverse outcomes, but few studies had empirically analyzed the effects of drug cost-sharing on health outcomes and plan expenditures among an elderly Medicare population. This study provided evidence that drug caps led to lower adherence and increased hospitalization and ED use, as well as worse physiological outcomes in patients treated for hypertension, high cholesterol, and diabetes. Although pharmacy costs were lower for patients subject to the caps, there was no difference in overall medical expenditures due to higher use of ED and hospital care.[8] These results were important for decision makers and advocates involved with the design of prescription drug benefits for elderly and non-elderly populations.

In addition to other researchers and academics, the target audiences for this study included:[11]

- ***Federal policymakers involved with Medicare Part D.*** These results are particularly relevant to Medicare Part D decision makers, because the population studied was composed of elderly Medicare beneficiaries. Although the study was not published until the first year of Medicare Part D implementation, and it would not have had an impact on the design of the drug benefit, it may be relevant to evaluating the potential effects of the “donut hole,” a feature of the design of Medicare Part D that requires beneficiaries to pay the full amount for prescription drugs between an initial set of benefits after the deductible is reached and catastrophic coverage.[^]

- ***Advocates and key stakeholders.*** These include persons and organizations interested in issues relevant to prescription drug and health care benefits.
- ***Organizations that provide drug benefits to elderly and non-elderly populations.*** These organizations may use the results of the study to help make decisions about prescription drug benefits. Although the population studied included elderly patients only, the results may be applicable to other populations.

DISSEMINATION

The *New England Journal of Medicine* (*NEJM*) generally is recognized as one of the top medical journals in the United States, and results published in this journal often are widely published in shorter articles by major newspapers, magazines, and trade publications aimed at general audiences. In this case, both the *Washington Post* and the *Wall Street Journal*[12] published articles about the study based on the *NEJM* article,[13] as did several specialty journals.[14,15] In addition, the Kaiser Family Foundation Daily Health Policy Report of June 1, 2006 featured the results of the study, as well as interviews with Dr. Hsu and Dr. Ken Thorpe, a professor of health policy at Emory University who wrote an accompanying editorial in the NEJM on the study results.[16] The Kaiser Daily Health Policy Reports generally are read widely by health care policymakers. Dr. Hsu also was contacted by policymakers at the Medicare Payment Advisory Commission (MedPAC) and the Centers for Medicare & Medicaid Services (CMS) to discuss the findings of the *NEJM* paper further.

Dr. Hsu won AcademyHealth’s “Article of the Year” award for the *NEJM* paper in 2007. This helped to bring further attention to this research among AcademyHealth conference participants. AHRQ also provided some dissemination support for this research by interviewing Dr. Hsu about the study and uploading the interview on the AHRQ website as a video blog.[17]

Other avenues of dissemination included multiple presentations at academic, policy, and trade conferences, such as International Health Economics Association, AcademyHealth, International Society for Pharmaceutical and Outcomes Research, and HMO Research Network.[18]

[^] By statute, the Medicare standard benefit has a first dollar-deductible ($250 in 2006). After that, beneficiaries pay 25 percent up to an initial coverage limit ($2250 in 2006). Beneficiaries then pay all the costs of prescription drugs until they reach the true out-of-pocket cost limit ($2510 in 2006). After that, they pay only nominal cost-sharing. The gap between initial coverage and catastrophic coverage is colloquially referred to as the “donut hole.” Beneficiaries can receive prescription drug coverage from either free-standing prescription drug plans or Medicare Advantage plans that also integrate Part A and B benefits. The statute allows firms to offer actuarially equivalent or expanded benefits, financing any differences in either costs with additional premiums or offsets from savings on Part D or, for MA, Parts A and B.

FACTORS AFFECTING TRANSLATION

Publishing the research in the *NEJM* and the subsequent attention the paper received helped to make this research highly visible. However, it is unclear as to whether any specific policy changes occurred directly as a result of this research. Many policy decisions depend not only on the science underlying the issue, but on political and other constraints that policymakers must consider. In particular, the results of the study were published during the first year of Medicare Part D, and while the results garnered substantial attention, including calls from MedPAC and CMS,[11] they may not have been able to affect Medicare policy, due to other program constraints.

Given the time and resource constraints that policymakers must consider, this type of research project often can be considered successful, even if it serves only to inform policymakers at the time of dissemination. The ability to provide policymakers and the public with good information is important in itself.[11] This information may be added to the body of knowledge on the topic and used in the future to inform or alter public policies.

Another factor that aided the dissemination of study results was the principal investigator's commitment to respond quickly to press inquiries. Specifically, Dr. Hsu noted that it is critical for researchers to understand the deadlines under which journalists typically work and the types of information they need. The more that researchers are able to respond quickly to press inquiries, provide clear and concise statements about the research, and illustrate points, the more likely it is that their work will be disseminated widely in the press.[11] Understanding target audiences was also a key factor noted in facilitating use of the research. The investigators presented the results of their research at more than 20 conferences that included research, policy, and clinical audiences, which helped to increase their knowledge about the specific research, as well as to gain broader visibility in the field for research on prescription drug issues.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

This grant illustrates nicely how a well-conceived and conducted study may be disseminated broadly through publication in a prestigious journal and the resultant attention receives. It also demonstrates how research may inform policymakers and other decision makers, even if no immediate action is perceptible. It may have been only the first of several key studies evaluating the effect of prescription drug cost-sharing on elderly Medicare beneficiaries that will continue to inform policymakers in years to come.

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Fung, V., J. Huang, R. Brand, and J. Hsu. “Racial/Ethnic Differences in Adherence to Hypertension Medication and Treatment Intensification and Blood Pressure Control in Medicare Enrollees.” AcademyHealth Annual Research Meeting, Orlando, FL, 2007.

Wang, H., J. Huang, V. Fung, and J. Hsu. “Switching to Generic Statins: A Natural Experiment.” HMORN Annual Conference, Portland, OR, 2007.

Fung, V., J. Huang, R. Brand, B. Fireman, J. Newhouse, J. Selby, and J. Hsu. “Racial/Ethnic Disparities in Hypertension Medication Adherence and Blood Pressure Control.” HMORN Annual Conference, Portland, OR, 2007.

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Huang, J., and J. Hsu. "Adherence to Angiotensin Drugs: Potential Explanations for Non-Adherence." HMORN Annual Conference, Sante Fe, NM, 2005.

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APPENDIX C.3

THE EFFECTS OF WITHHOLD PAYMENTS ON MANAGED CARE PLANS ON COSTS OF CARE IN MEDICAL GROUP PRACTICES

CASE STUDY

THE EFFECTS OF WITHHOLD PAYMENTS FROM MANAGED CARE PLANS ON THE COSTS OF CARE IN MEDICAL GROUP PRACTICES

Principal Investigator: John E. Kralewski, Ph.D.
Funding Period: April 1, 1999 – March 31, 2001

ABSTRACT

This grant funded one aspect of a stream of research focused on the performance of medical group practices. The research funded by this grant focused on the effects of withhold payments from managed care plans on costs of care in medical groups. Other projects included, for example, a 2008 study of the factors influencing physician use of e-prescribing after their group practice adopts that technology. All of the related studies were conducted with the main stakeholders and have influenced the policies and administrative procedures in their organizations.

BACKGROUND

For more than 10 years, Dr. Kralewski's research agenda has focused on studying the cost and quality of care in medical group practices. He believes that the structure of medical group practices is a key element in creating cost-effective physician practice styles.[1] AHRQ and other organizations (including Blue Cross Blue Shield of Minnesota and the Medical Group Management Association [MGMA][2]) have funded a number of Dr. Kralewski's studies in this area. The AHRQ grant focused on withhold payment was funded after he had conducted studies related to (1) the organizational characteristics of medical group practices in a managed care environment, and (2) the effects of payment methods on the costs of care in medical group practices. Both studies were funded by Blue Cross Blue Shield of Minnesota and utilized data from that organization.[3,4] The AHRQ grant allowed Dr. Kralewski to build on the findings from his previous studies by assessing the effects that "withholds" have on the subsequent use of resources to care for patients in a group practice. The contracts that some group practices have with managed care organizations (MCOs) allow the MCO to withhold a portion of a practice's payment until costs are within a certain target rate.

After this study, Dr. Kralewski received funds via AHRQ's Integrated Delivery System Research Network (IDSRN) program. As a partner on the IDSRN, he conducted a study to assess the influence of physician financial incentives in medical group practices on clinical errors. Findings indicated that the culture of the group practice influences quality more than payment.[5] MGMA then funded the researchers to develop a culture measurement instrument, which is now being used by researchers and medical group practice managers as a research tool. The most recent study using the instrument was focused on use of e-prescribing technologies in medical group practices. Through the AHRQ's Integrated Delivery System Research Network (IDSRN), Dr. Kralewski also studied the impact of payment policies on the cost, content, and quality of care in group practices.

RESEARCH GOALS

The withhold study sought to gather better information about what medical group practices can do to bring about more cost-effective practice styles among physicians. Specifically, this study assessed the effects that an MCO's withholding of a portion of a clinic's payment has on patient care in that clinic. The study also examined the influence of clinic organization and culture on costs, and on the effects of withholds. Two associated studies also were conducted: the effects of clinic structure and payment on prescription drug use, and disease prevention practices for women.[6] The e-prescribing study further demonstrated that the practice culture is a major factor influencing physician performance.

STUDY DESIGN

The study was built on data obtained from the earlier studies on group practices' organizational characteristics and the effects of payment methods. Organizational data from 1995 were available from a survey of 156 clinics providing services for a Blue Cross MCO, as well as cost data on 86 clinics from 1995. For the new study, Dr. Kralewski and his colleagues collected data that allowed them to capture 1997 costs for 109 clinics. Cost and patient data were obtained from Blue Cross records. These data were analyzed to determine the relationship between how a clinic was paid (payment method) and cost of care. Site visit interviews with administrators, medical directors, and clinicians in 10 group practices were also conducted to study the internal management of costs.

PRINCIPAL FINDINGS AND PUBLICATIONS

The potential of withhold payments to support cost-effective medical care in medical group practices is unclear. Findings indicated that withholding a portion of the payment to high cost group practices had a significant negative effect on lab and x-ray use, but those savings were not large enough to influence overall costs of care. Withholding part of the clinic's payment did not influence hospital and professional costs significantly. Interviews with group practice administrators revealed that while it appeared that payment withholds from one health plan had little effect on costs, the cumulative effect from multiple health plans did lower costs.[7]

The study also validated findings from earlier studies indicating that those group practices with a higher share of their physicians' compensation based on a share of the clinic's net revenue was more sensitive to method of payment including withholds.[8] It also validated earlier studies that had shown that practices with a higher proportion of primary care physicians and more female physicians had higher costs, and those with more experienced physicians and those using more clinical guidelines and physician profiles had lower costs.[9] The two associated studies on prescription drug errors and disease prevention practices for women indicated that, while several clinic-level cost management programs had a negative effect on the use of prescription drugs, clinic payment methods had no such effect. Nor did clinic payment affect the provision of prevention services for women.

Dr. Kralewski has published his research findings extensively in peer-reviewed journals, including *Health Services Research*, *Health Care Management Review*, *Medical Care*, *Journal* *of Ambulatory Care Management*, *American Journal of Managed Care*, *Managed Care*, *Journal of Healthcare Management* and *Medical Care Research and Review*.

POLICY RELEVANCE AND TARGET AUDIENCE

Dr. Kralewski's research is targeted on the performance of medical group practices, and has the potential to influence payment and other administrative policies in these organizations. By collaborating with MGMA, the researcher is able to disseminate his findings directly to this target audience. During a long history of collaboration, MGMA has helped Dr. Kralewski frame research questions of interest to its members. The organization collects data on its members about all aspects of practice management, which they then allow Dr. Kralewski to use as a basis for many of his studies. MGMA views Dr. Kralewski's research as policy and practice relevant, as it is aimed toward trying to improve performance on costs and quality by changing certain aspects of group practices (e.g., the organizational structure, financial incentives, etc.).[10]

Dr. Kralewski's findings illustrate the ways in which the design of payment methods within a group influences physician ordering and costs of care. Although it was unclear from the withhold study what role target payments with withhold provisions have in supporting cost-effective medical care, the study did find that group practices can lower costs and improve quality by structuring the practice to maximize physician financial incentives and provide a clinical environment that supports cost-effective clinical decision making.

Through qualitative analysis, the withhold study provided insight into the factors that limit the influence of withhold payments in reducing costs. Such factors include resistance generated within some practices that view withhold penalties as highly political (and some large practices are able to negotiate contracts that preclude withholds). Further, withholds are often a very small part of a practice's total revenue, so there is little incentive to attempt to change their physician practice styles. Finally, in group practices that are part of a large care system, the system administrators often cannot determine which of their group practices are not cost-effective, so they do little in response to the withholds except to try to negotiate better contracts. Dr. Kralewski found that, when more health plans employ a withhold system, and/or it becomes a significant part of overall revenue for a provider, this system clearly has a negative effect on costs.[11]

Dr. Kralewski's research also demonstrates those characteristics of group practices that make them more responsive to external financial incentives. Group practices that tend to be most responsive to withholds are those that (1) are physician owned; (2) are of medium size; (3) have full-time administrators and medical directors; and (4) tie their physicians' compensation to net revenue, and incorporate any withholds in their physicians' compensation.

The research provides key insights into the impact of payment systems on medical group practices, and it is clear that these targeted stakeholders are aware of the findings. What is less clear is whether group practices actually have used the knowledge to make changes to their physician practice styles. Dr. Kralewski and the collaborating organizations have only limited information about practice changes or direct use of the findings resulting from dissemination of the research. MGMA distributed the information on the withhold study to its members, but does not have a system set up has for interpreting any impact of the information.

DISSEMINATION

In addition to publishing his findings in peer-reviewed journals to raise the profile of his research, Dr. Kralewski has utilized his relationships with organizations such as MGMA to disseminate his research. He has presented several times at MGMA's annual meetings to approximately 1,000 association members at each meeting. His study findings also have been disseminated in issue briefs that MGMA sent to approximately 6,000 group practices. MGMA republishes findings from the research in their newsletter and a journal that reach all of its members.

MGMA also provides information from these studies to their government affairs office in Washington. The government affairs office provides information to Congress, the Centers for Medicare and Medicaid Services (CMS), and other agencies. However, MGMA was not aware of Dr. Kralewski's research being disseminated to policymakers in this way.[12]

The Minnesota Medical Association (MMA) collaborated with Dr. Kralewski on the earlier study that involved a survey of clinics, and also assisted with dissemination. MMA published the study results in its monthly magazine, *Minnesota Medicine*, which is sent to all 11,000 MMA members, legislators, and state agency officials.[13]

AHRQ also has helped to disseminate results of Dr. Kralewski's research, especially the qualitative case study findings. He has presented three of his studies to audiences at AHRQ, including to health care providers and administrators at AHRQ's Annual Patient Safety and Health Information Technology conference, and to a wider audience at AHRQ's Annual Meeting. He also has benefited from his collaboration with Blue Cross Blue Shield by presenting at the insurer's National Institute for Health Care Management Meetings.[14]

FACTORS AFFECTING TRANSLATION

Key Relationships. Dr. Kalewski's collaborative relationships with MGMA, Blue Cross Blue Shield of Minnesota, and the MMA contributed to the use of this research. These organizations provided his team with data and access to the target audience. Dr. Kralewski and his colleagues were able to make users aware of their findings by presenting findings at the organizations' meetings, and disseminating their findings in their publications. A close working relationship with medical practices was key to success of this stream of research.

Reputation of the PI. Another factor contributing to the potential use of this research is Dr. Kralewski's reputation. He is well-regarded by the organizations with which he has worked, and his research on medical group practices is considered solid and of high quality.[15] Developing research on medical group practices for more than a decade, he has built a strong base of knowledge for those interested in this topic. Some of the collaborators with whom we spoke said that Dr. Kralewski's research likely had a substantial impact on advancing knowledge in this area.

Difficulty of the Topic. The topic of this research may have been an impediment to its use. One of the collaborating organizations indicated that research on organizational factors affecting performance of medical groups is difficult and time-consuming, and that there is no way to track what the group practices do with the research once they have it.[16] Also, some changes in group practices are difficult to make. The interviewee pointed out that relevant changes in policy and market behavior (e.g., pay-for-performance) were occurring during the time Dr. Kralewski's conducted this research, as well as afterward, but there is a lack of evidence that the research played a role in these changes because of a lack of monitoring of potential effects. It is very difficult to attribute any changes in group practices to research.

Importance of Withholds. The specific topic of the impact of withhold payments on group practices may have limited the use of the findings in practice. As discussed earlier, some group practices negotiate contracts that preclude withholds, or the withholds comprise such a small amount of their total revenue that the payments do not make much difference. For these practices, the withhold study would not have much impact. Health plans, however, might still be interested in these findings and could use the knowledge when developing payment strategies.

Generalizability. This research is targeted to medical group practices in the private sector, which may limit its applicability to public policymakers. Less than one-third of practicing physicians are employed in group practice settings with at least three physicians. The remaining two-thirds of physicians operate in solo practices, medical schools, managed care organizations, hospitals, or community health centers.[17] However, there is sustained interest in the group practice model as a organizational approach for delivering medical services. Moreover, the findings are broadly applicable to designing incentives in other sites of health care delivery.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

When asked about lessons for facilitating the use of research, Dr. Kralewski emphasized the need for well designed projects with strong methodologies that generate trust among those who should be using the findings. Policymakers and practice administrators often find research projects to be irrelevant to their needs or find that they can't trust the findings. Building strong relationships with the field of practice enhances the relevance of the research and often sharpens the research questions. These relationships also insure dissemination of the findings and application in practice and policy arenas. Dr. Kralewski also stressed the need for research streams that include a series of related projects designed to enhance health care in today's setting but to also further the knowledge base that will be relevant to yet unknown future issues. A strong knowledge base about how medical group practice organization structures influence the cost and quality of care will serve administrators and policymakers well when new challenges replace those currently being addressed.

ENDNOTES

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[13] Telephone interview with Janet Silversmith, Director of Health Policy, Minnesota Medical Association, May 1, 2008.

[14] Kralewski March 2008 interview.

[15] Telephone interview with Dr. Bill Gold, Senior Vice President, Healthways (former Chief Medical Office of Blue Cross and Blue Shield of Minnesota), April 22, 2008.

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APPENDIX C.4

ASTHMA CARE QUALITY IN VARYING MANAGED MEDICAID PLANS

CASE STUDY

ASTHMA CARE QUALITY IN VARYING MANAGED MEDICAID PLANS

Principal Investigator: Tracy Lieu
Funding Period: 9/1/99 – 3/31/03

ABSTRACT

The research conducted under this grant included a multisite evaluation of practice site policies associated with improved outcomes for Medicaid-insured children with asthma. The investigators found that policies to promote cultural competence, improve continuity of care, and use asthma reports to clinicians were associated with increased use of preventive medications and better parent ratings. The results were published widely in policy and clinical journals and presented at various conferences. The most recent asthma guidelines cite the research's findings about cultural competence, and suggest the findings as potentially helpful for improving quality of care.

BACKGROUND

Medicaid managed care has expanded rapidly since the early 1990's.[1] At the time this research was conducted, there was little evidence for the effects of Medicaid managed care on outcomes among Medicaid children. Researchers and policymakers worried that the payment mechanisms used by many managed care programs (i.e., capitation, either fully or partially capitated payments) might be reducing incentives to provide high-quality care to patients with chronic conditions that require more intensive services. There was particular concern for vulnerable populations with chronic diseases, including children and the elderly.[2,3]

The Asthma Care Quality Assessment (ACQA) study, conducted by researchers working in collaboration with health plans to provide coverage for Medicaid patients and seek to promote child health, evaluated the quality of care provided to asthmatic children enrolled in Medicaid managed care plans in California, Washington and Massachusetts. In particular, the investigators evaluated how the characteristics of Medicaid managed care organizations may have improved health care and patient satisfaction outcomes, including preventive medication use and better parent care ratings. Characteristics of practice sites hypothesized to affect these outcomes included policies to promote cultural competence, continuity of care, communication with non-English speaking and low-literacy patients, case management, reports to clinicians, support for self-care, and the use of guidelines, as well as organizations' structural features (e.g., size, share of patients with Medicaid, and payment policies) and clinician and parent management strategies for quality of care.[4]

The investigators focused on asthmatic children for several reasons. Asthma is one of the most common chronic diseases among children, as well as the most common reason for their emergency room visits and hospitalizations.[5,6] At the time of the study, evidence suggested that poor and minority children may be even more susceptible to adverse outcomes attributable to lower quality medical care.[7] Previous research also had documented variations in quality of asthma care for Medicaid-insured populations.[8] The investigators hypothesized that asthmatic children enrolled in Medicaid managed care would be responsive to variations in quality of care, allowing them to identify various organizational factors that promote high-quality care.

RESEARCH GOALS

The goals of the study were to:[9]

1. Assess the quality of care provided to asthmatic children enrolled in Medicaid
2. Identify practice site characteristics and managed care structural features associated with improved quality of care
3. Identify clinician and parent characteristics that promote improved asthma management

STUDY DESIGN

This study was a prospective cohort study of asthmatic children ages 2 to 16 years old enrolled in any of five Medicaid managed care organizations in California, Washington, and Massachusetts, and followed for one year. Asthmatic children were identified based on physicians' diagnosis of asthma or prescription of anti-asthmatic medications in the one year prior to the study; asthma status and eligibility was confirmed through interviews with parents. Parents were interviewed at baseline and followup about the child's asthma status and medication use. They also were asked to provide reports about their child's care and ratings of care, as well as information on family demographics and structure. Primary care physicians of asthmatic patients were surveyed at baseline and followup with self-administered questionnaires about various asthma care practices and their experiences with financial incentives and referral policies that might affect asthma care. Practice sites were surveyed one time about their size, type (e.g., community health center, private office, HMO); practice site policies; and patient populations. In addition, the investigators obtained data from computerized claims systems. Quality of care was measured by preventive medication use, parent ratings of care, one-year change in children's asthma physical status, preventive medication prescribing, and hospitalizations.[4,10]

PRINCIPAL FINDINGS AND RESULTING PUBLICATIONS

Practice site policies to promote cultural competence, such as recruiting ethnically diverse and bilingual nurses and providers, offering cross-cultural or diversity training, and providing appropriate printed materials for specific populations, were associated significantly with increased rates of preventive medication use and better parent care ratings. Policies to improve continuity of care also were associated with increased use of preventive medications. Use of asthma reports to clinicians was associated significantly with improved preventive medication prescribing patterns, as well as better parent ratings and patient physical status at followup. Other organizational factors, such as practice site size, type, payment, and share of patients insured by Medicaid, had no identifiable association with improved quality of care.[4]

Analyses of care processes used by the practice sites included in this study found substantial variation across sites. Further, this variation was not attributable to the managed care organization to which the site belonged, but rather to the practice site itself.[11] These results suggest that interventions to improve quality of care for asthmatic children enrolled in Medicaid managed care should be targeted to practice sites rather than to broader managed care organizations.[11]

This study led to multiple publications in such peer-reviewed journals as Pediatrics, Archives of Pediatric and Adolescent Medicine, Journal of Asthma, Annals of Allergy, Asthma and Immunology, Journal of Health Care for the Poor and Underserved and Health Services Research. [4,10,11,12,13,14,15,16,17]

POLICY RELEVANCE AND TARGET AUDIENCES

This study identified specific organizational factors associated with better quality of care, particularly policies to promote cultural competence, improve continuity of care, and use asthma reports to clinicians. This information may be of particular use to clinicians, practice site managers, and managed care organizations interested in improving quality of care and outcomes among vulnerable populations.

Three target audiences, in addition to research audiences, were identified as potential users of this information:[18]

1. Clinicians
2. Clinical policymakers, i.e., those providers and practice managers who work in clinical sites and make decisions about internal operations policies
3. Health care systems policymakers, including decision makers at the local and state levels

DISSEMINATION

The project did not have a particular overarching dissemination plan at its inception, although all parties understood that the investigators would publish in peer-reviewed journals that would reach their target audiences.[18]

Though not planned at the start, the study findings also were disseminated publicly in various ways. In addition to the peer-reviewed publications, the authors presented their findings at various conferences, including the pediatric academic societies' annual meetings. They also were invited to speak at several conferences by AHRQ, including a conference the "National Initiative for Health Care Quality (NIHCQ)" conference.[18,19] AHRQ also used the results of this research in their Knowledge Transfer Learning Network, a network of five to six states who had received grants from the Centers for Disease Control and Prevention (CDC) to reduce disparities in asthma outcomes.

AHRQ also disseminated the results of this research, along with other relevant studies on low-income asthmatic children, in a “Research in Action” brief posted on the AHRQ website.[20] Contacts at AHRQ thought that the findings from this research also may have been disseminated to America’s Health Insurance Plans (AHIP) members because AHIP has a fairly extensive asthma program, but a search of their website found no references to this research.[21]

Results were disseminated to selected individuals at all managed care organizations participating in the research study. At Kaiser Permanente, for example, the director of research reviewed all papers before they were submitted for publication. The investigators also made sure that other leaders in the development of asthma quality guidelines in the participating organizations saw the results of the study.[18]

The findings from this research on cultural competence also have been cited in recent guidelines to improve asthma management. In particular, recent documents suggest that policies to improve cultural competency and performance feedback for physicians treating Medicaid-insured children may help improve asthma management by clinicians.[22,23] Such inclusion seems likely to encourage greater awareness of the relevance of adopting the kinds of successful cultural competency policies identified in this study.

FACTORS AFFECTING TRANSLATION

The wide dissemination of findings to various audiences and their inclusion in guidelines enhanced the likelihood that they would be used. Because practice sites and managed care organizations were provided with the findings, they were in a position to make changes. Regrettably, we do not know whether this occurred, given that no formal examination of this question was included in the study, and the authors are not aware of any parallel data that address this point. Some practice sites already were using policies to promote cultural competence, so the results suggest reinforcement of existing strategies rather than a change.[18]

Many researchers and policymakers are concerned about disparities in health care. The findings about cultural competence and other organizational-level factors associated with improved quality may continue to inform researchers and policymakers seeking potentially actionable findings with which to address disparities in health care.[24] However, the non-randomized nature of the study may limit its acceptance in clinical practice. In particular, policymakers may find it difficult to encourage practice sites to change practice patterns based solely on a correlational study rather than a randomized trial.[19] This reduced the authority of the guidelines.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

This research likely reached broad audiences through multiple publications in the peer-reviewed literature, presentations by the lead investigators, citations in AHRQ reports and publications, and the recent asthma care guidelines. This research clearly demonstrates how widespread publication on various findings in multiple journals may be used and further cited by multiple sources, generally adding to the existing body of knowledge.

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APPENDIX C.5

QUALITY OF CARE AND MANAGED CARE MARKETS

CASE STUDY

QUALITY MEASURES AND MANAGED CARE MARKETS

Principal Investigator: Michael Chernew/Catherine McLaughlin
FUNDING PERIOD: 7/15/00 – 6/30/05

ABSTRACT

This study examined the relationships between employer choice of health plans, the level of health care competition in local markets, and health plan quality performance. A series of articles were published on the findings, in journals including *Health Affairs, the Journal of Health Economics,* and *Medical Care*, followed by other dissemination activities including presentations at both academic and government sponsored conferences. The results provided empirical data informing policy debates about the extent of meaningful competition in the market and whether competition may increase or decrease health care quality. The grant-funded research also helped advance the career of a junior researcher on the study who has since continued to develop research expertise in the area of quality of care and competition. The study was undertaken as part of a larger effort involving two other projects in the area of managed care and competition. See Appendix A for a description of all research activities funded under the grant.

BACKGROUND

Employers and policymakers are increasingly concerned about purchasing quality health care for employees, as well as containing costs. Existing evidence suggested that increased competition among HMOs led to lower premiums compared to markets with less competition. However, there was little evidence about the effect of competition on market behaviors such as choice of plans based on quality, or ultimately on quality performance itself.

RESEARCH GOALS

The research that was the focus in this case study was divided into two projects within the larger grant. The projects addressed two related issues: 1) whether purchasers (employers) make health plan choices on the basis of health plan performance scores, and 2) whether health plan competition in markets is associated with variation in health plan performance.

Project 1. In the first project (McLaughlin, principal investigator), investigators created a data set that included HMOs that were available to, and offered to employees, by large employers in multiple markets in the U.S. along with these HMOs' CAHPS and HEDIS performance scores. The data set also included information on the health care markets in which those HMOs operated. The investigators developed multivariate models that predicted employer choice among HMOs as a function of absolute performance on CAHPS and HEDIS scores and as a function of performance relative to HMO competitors, while controlling for other health plan and market features. The investigators also examined the composition of HMO provider networks to assess the degree of provider overlap among competing plans; in particular they estimated the probability that a provider participating in one HMO also participated in one or more competitor HMOs in the same market.

Project 2. In the second project (Chernew, principal investigator), investigators created a data set with CAHPS and HEDIS scores for HMOs linked to information on the level of health plan competition in markets they operated. Competition was defined in terms of the level of dispersion versus concentration of enrollment in local HMOs (Herfindahl-Hirshman Index) in a market, defined as metropolitan statistical area (MSA); that is, markets where enrollment is dispersed relatively evenly among many HMOs is considered more competitive than markets where enrollment is concentrated in a small number of HMOs. Performance was measured using CAHPS and HEDIS scores for those HMOs. They used a Multiple Indicator Multiple Cause (MIMC) model to estimate the association between market competition levels and the performance scores of HMOs in those markets.

PRINCIPAL FINDINGS

In project 1, the researchers found that employers considered performance measures a significant factor in choosing among health plans. Employers were found to be more likely to offer health plans with relatively high performance ratings, all else being equal, whether measured in terms of clinical performance (HEDIS) or consumer assessments of care (CAHPS). They also found that the likelihood of plan offerings by employers was also associated with other plan characteristics, such as older plans, non-profit plans, and broader provider network plans. Primary results from this research were published in the *Journal of Health Economics* in 2004. While noting data and methodological limitations, the authors conclude that the findings provide some reassurance to policy makers and stakeholders that employers—possibly acting as agents for their employees—do consider performance in making health plan choices, and may not necessarily opt for the cheapest plans with increased competition if they are also of low quality.

In project 2, the researchers found that there was little relationship between the level of competition in local markets and performance measures of the plans operating in those markets. In particular, there were few statistically significant associations found in multivariate modeling between a) market-level measures of competition and b) health plan measures of performance. For a few measures, performance was significantly lower in more competitive markets. At the same, time the authors found that HEDIS, not CAHPS, were higher in markets with greater managed care penetration (as opposed to market competition, perhaps because providers feel greater pressure to perform on these managed care performance measures when more of their patients are enrolled in managed care. The authors concluded that although the study was not designed to draw causal inferences, the findings from the study imply a need for "reassessing the belief that competition will inherently improve quality." The results of this study were published in the *Medical Care* in 2005.

Based on related research conducted under project 1, published in *Health Affairs* in 2004, the investigators concluded that competitive effects on quality may be limited by other market structural issues such as a large degree of overlap in provider networks among plans operating in the same market. Because many or all plans in a market have overlapping provider networks, no plans have much opportunity to differentiate themselves with respect to quality, and thus plans may focus competition on non-quality factors, such as premiums and benefits. Follow-up research also found that managed care penetration level (rather than competition) is associated with higher performance measures, although not with improvement in these measures over time. The researchers also undertook follow-up qualitative research, interviewing health plans about why they think that competition has had a limited effect on quality.

POLICY RELEVANCE & TARGET AUDIENCES

The research funded under this grant made important contributions to the debate about the potential for harnessing competition, especially at the health plan level, to achieve quality improvement. They also provide insight into whether employers, in particular, can be agents in driving improvements in quality. On the one hand, the findings do not appear to support the argument that increased competition necessarily leads to improvements in quality. Other market conditions may impede improvements that might arise through competition. On the other hand, the finding that employers take performance measures into account in purchasing decisions may reassure those who worry, conversely, that competition can have detrimental effects on quality.

The findings are of interest to a relatively broad range of audiences, including private purchasers, health plans, and consumer advocates, as well Congressional, federal and state government agencies concerned with competition and quality of care issues. The Congressional Budget Office (CBO) and the Federal Trade Commission (FTC) were examples of agencies that are active users of this research and other related studies on competition. In its federal budget "scoring" activities, CBO attempts to account for market or behavioral-based responses to federal reforms that may encourage or regulate competition, and it relies on this type of research for estimating those responses. As a regulator of anti-competitive behavior, the FTC uses research that both defines and measures competition and attempts to measure its effects on market performance. At the same time, private purchasers, health plans, and those involved in quality measurement and quality assurance, also had strong interests in the results, as they sought to increase quality of care in their organizations or for the populations they serve. In our interviews, potential users of the research noted that findings did not directly determine specific decisions about particular policies or programs under development or consideration; instead they were broadly informative about complex dynamics in health care markets, helping policy makers shape policy directions in a more informed way.

DISSEMINATION

Initial dissemination of results from these studies occurred principally through articles in the health services and health economic journals noted above (see full list in references at the end of this case study). These publications provided the basis for other dissemination activities that included follow-up papers and issue briefs, participation in conferences sponsored by AcademyHealth, AHRQ, the FTC and elsewhere, Congressional testimony, and informal discussions with stakeholders and policymakers. For example, Dennis Scanlon presented results from project 2 at a conference held by the FTC in 2004 entitled "Health Care Information and Competition." The conference was designed to bring in academic and government researchers to present a series to help inform FTC staff understand the complex relationships between information, competition, and quality of care.

Dissemination has also come in the form of follow-on research and collaboration with other stakeholders or researchers. For example, as part of the efforts to get health plan executives' reactions to existing quantitative findings, the executives were given summaries of the quantitative research. The researchers also collaborated with staff at the National Committee for Quality Assurance, an organization charged with accrediting health plans and other organizations, in developing measures of quality using CAHPS and HEDIS data—raising the visibility of the analysis with this organization.

Dissemination activities benefited from having prominent investigators on the project who are active in national research and policy-making circles. The principal investigators (McLaughlin and Chernew) have national reputations for work in this area, and often consult with policy makers on issues in this topic area in either formal or informal capacities.[1] In their positions, the investigators had opportunities to present results informally to others with decision-making responsibilities. For example, one of the principal investigators, Michael Chernew, was recently appointed to the Medicare Payment Advisory Commission, a Congressional agency that advises on Medicare policy issues. He also serves as a member of a research advisory panel at the National Committee for Quality Assurance, has held leadership roles at the Coalition for Health Services Research, and is a member of the Commonwealth Fund's Commission for a Higher Performing Health System. The other principal investigator, (Catherine McLaughlin) was the Vice-Chair of the Citizens Health Care Working Group, a federal nonpartisan committee, and is on the editorial board of several health services research journals, serves as a member of such committees and boards as the Institute of Medicine, the National Academy of Social Insurance, and the American Hospital Association's Health Research and Educational Trust, and has served as associate director of Robert Wood Johnson Foundation's Clinical Scholars and Scholars in Health Care Policy Research programs.

The grant also provided important support for a third researcher on the study (Dennis Scanlon) at an early point in his career and participation in the research helped advance his career focus on research in this area during the grant period. Dr. Scanlon began participating in the research study at about the time that he took a faculty position at Pennsylvania State University, having begun this area of research as a doctoral student at the University of Michigan. His doctoral dissertation, completed in the late 1990s, focused on the effects of competition on quality of care, and continued collaboration on the grant with Drs. McLaughlin and Chernew allowed him to pursue a leading research career in this area. Dr. Scanlon now sits on a research advisory committee of the Leapfrog group, which promotes quality of hospital care, is the member of editorial board of multiple health services journals, and has since led research projects focused on related projects including regional value-based purchasing efforts and nursing home quality sponsored by the Robert Wood Johnson Foundation and the Center for Health Care Strategies.

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[1] One of the researchers, Michael Chernew, is now at the Harvard Medical School. The other, Catherine McLaughlin has taken a position at Mathematica Policy Research, Inc., but maintains an appointment at the University of Michigan.

FACTORS AFFECTING TRANSLATION

The research sought to develop understanding of the relationships between market behavior and information on quality of care. Based on interviews conducted for this case study, the primary factors affecting success of the research were:

1. ***Providing Solid Empirical Findings Adding to An Overall Body of Research that Can Help Policymakers and Stakeholders Understand Complex Relationships Between Market Competition and Quality of Care.*** For example, the research demonstrated that employers take quality into account in purchasing health plans on the basis of various performance measures. However, other market factors, such as overlap in health plans' provider networks, may reduce plan variation in performance and constrain plans' ability to make changes in operations in response to employer preferences about quality. Broad and overlapping provider networks may be in response to employer preferences for ensuring broad access to providers for their employees.

2. ***Using Opportunities to Informally Present Findings and Broader Lessons from the Research in National or Local Policy Forums.*** The research and policy expertise of the principal investigators and their participation in policy and research organizations as well as their involvement in policy forums and deliberations provided them opportunities to present lessons from the research in key policy discussions.

3. ***Supporting the Career Development and Enhancing the Expertise of Researchers Who Then Serve as Sources of Information and Expertise for Policymakers and Other Decision-Makers.*** This grant was central to the career development of one of the junior researchers on the project, allowing him to continue to develop further research and expertise in the areas of competition and quality.

4. ***Contributing to Methodological and Data Development for Ongoing Study of Competition and Quality.*** This included further development and refinement of the use of both market and plan measures to characterize health care markets, such as managed care plan characteristics, market concentration levels, and managed care penetration, and methods for using multiple performance measures (such as HEDIS and CAHPS) for assessing overall health plan performance.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

This case study provides an example of a highly-successful health services research project that combined traditional peer-reviewed publications, proactive dissemination of findings to policy makers, and participation in policy leadership activities by the investigators. Together, these research translation activities added empirical information to a broad policy debate about whether and how competition may enhance health care quality in health care markets.

A key lesson from the case study is that both formal and informal dissemination activities may be mutually supportive of one another. Publication and peer review in respected journals can enhance the rigor and scientific acceptance of the results, which in turn can support other dissemination activities targeted to policymakers and enhance investigators’ research and policy leadership careers. At the same time, the reputation of investigators for research expertise allowed them opportunities to share their results with policymakers in informal ways, and has also facilitated further pursuit of empirical research in the area of health care competition and quality.

APPENDIX A

Under this AHRQ grant-funded study, a team of researchers at University of California-San Francisco, University of Michigan, and Brigham and Women's Hospital/Harvard Medical School sought to understand whether increased competition had an impact on quality of care demanded by employers, quality of care delivered by insurance companies, advertising strategies used by insurance companies, and health care outcomes among patients, particularly racial and ethnic minorities.

The research project was large and multifaceted, with total funding of $5.3 million. Unlike most of the case study RO1 grants addressed in our evaluation, this grant was structured as a "program project" or PO1 grant, awarded in response to applications to a specific program announcement in 1999 (www.ahrq.gov/news/press/pr1999/mfmcare.htm). The program announcement indicated AHRQ's intention to spend up to $11 million to support two to three centers of excellence for health care markets and managed care research. The announcement noted: "the studies conducted by these centers will help public policymakers understand, monitor, and anticipate how changes in the nation's market-driven health care system affect costs, access to services, and quality of care. Some of the studies are expected to look at the impact of these changes on rural and minority populations."[2] These grants were also intended to encourage development of expertise, knowledge and collaboration among a group of researchers in multiple institutions, and it led to a number of other highly visible findings produced through other projects.

This grant funded study was organized into four research projects tied to the goals above, researchers collaborated closely on methods and data:

> ***Project 1: Health Plan Performance and Employer Choice of Plan (Team Leader: Catherine McLaughlin):*** To what extent does information on health plan performance and quality affect employers' decisions about which plans to offer? There has been concern that employers in competitive markets focus solely on cost in determining which plans to offer; this may lead to a "race to the bottom," whereby employees are offered only low-cost, poor quality plans. This study evaluated whether employers use available information on health plan performance and quality to decide which plans to offer.

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[2] Another case study of research conducted by researchers at Harvard University (principal investigator: Newhouse) was also funded through this program announcement.

Publications

Chernew, M.E., Gowrisankaran, G., McLaughlin, C.G., Gibson, TB. Quality and Employers' Choice of Health Plans. *Journal of Health Economics*, Volume 23, Issue 3, May 2004, Pages 471-492

Chernew, M.E., Wodshis, W. Scanlon, D.P., McLaughlin, C.G., "Overlap in HMO Physician Networks." *Health Affairs*, March/April 2004, 23(2): 91-101

Project 2: Health Plan Quality and Market Forces (Team Leader: Michael Chernew): To what extent is increased competition in the health insurance market associated with improved quality scores over time? Many policy makers and academics have advocated for increased competition to lower prices and improve quality. This study was designed to evaluate whether improved quality of care may be driven by increased market competition.

Publications

Scanlon DP, Swaminathan SS, Chernew ME, Bost J, Shevock J. Competition and health plan performance: evidence from HMO insurance markets. *Medical Care* 2005; 43(4):338–346.

Scanlon DP, Swaminathan S, Chernew ME, Lee W. Does competition improve health care quality? (Revise and resubmit at *Health Serv Res)*

Scanlon DP, Swaminathan S, Chernew ME, Lee W. Competition in health insurance markets: limitations of current measures for policy analysis. *Med Care Res Rev* 2006 Dec; 63(6Suppl):37S-55S.

Scanlon DP, Swaminathan S, Chernew ME, Lee W. Market and plan characteristics related to HMO quality and improvement. *Med Care Res Rev* 2006 Dec; 63(6 Suppl):56S-89S.

Swaminathan S. Persistance of HMO performance on childhood immunizations: are good HMOs always good and bad HMOs always bad? (Revise and resubmit at *Health Serv Res*)

Presentations

"HMO Competition and Quality Improvement." AEA/ASAA, Washington DC 2003

"US HMO Performance: Which Plans are Improving?" IHEA, San Francisco, 2003

"Competition and Health Plan Performance: Evidence from Managed Care Insurance Markets," Allied Social Science Associations 2004 annual meeting, San Diego, 2004

"Predictors of HEDIS performance and Improvement," FTC Conference on Healthcare Information and Competition

Project 3: Do Health Plan Advertising Strategies Reflect Market Incentives? (Team Leader: Adams Dudley): To understand whether market factors affect health plan advertising strategies, particularly strategies to attract better risks. Health plans competing on price and quality may have an incentive to enroll the best risks to maintain profitability. This study evaluated whether health insurance companies responded to changing market structures by trying to engage in propitious risk selection through advertising campaigns. A component of the evaluation included analysis of whether advertising campaigns were targeted to minorities.

Publications

Mehrotra, A, Grier, SA, Dudley, RA. The Relationship Between Health Plan Advertising and Market Incentives: Evidence of Risk Selective Behavior. Health Affairs, 2006;25(3):759-65.

Mehrotra A, Grier SA, Dudley RA. Methods for analyzing health plan ads in health services research. (In preparation)

Poster Presentation

Mehrotra A, Grier S, Dudley RA. The Relationship Between Health Plan Advertising and Market Incentives. Abstract Poster 1269-1, June 23-25, Washington DC 2002 Annual Research Meeting of the Academy for Health Services Research and Health Policy,

Project 4: Market Changes and Minorities: National and Community Perspective (Team Leaders: Haas and Phillips)**:** To evaluate market-level and organizational factors that contribute to differences in access to care and health status by racial and ethnic minorities. This study was designed to understand how various area-level, managed care market-level and health plan characteristics may affect access to care and quality of care. This study may identify potential policy-levers to improve care for minorities. The study also expanded in scope from the initial proposal to evaluate the effect of Medicare Part D on medication costs for vulnerable populations.

Publications

Baker LS, Phillips KA, Haas JS, Liang SY, Sonneborn D. The effect of area managed care market share on cancer screening. *Health Serv Res* 2004; 39:1751- 1772.

Gellad WF, Huskamp HA, Phillips KA, Haas JS. How the new Medicare drug benefit could affect vulnerable populations. *Health Aff* 2006: 1:248-255.

Gellad WF, Huskamp HA, Phillips KA, Haas JS. Angiotensin receptor blockers on the formularies of Medicare drug plans. *J Gen Intern Med* 2007; 22(8):1172-5.

Grier SA, Mehrotra A, Dudley RA. The use of race and ethnicity in health plan advertisements: is there evidence of risk selection? (In preparation)

Haas JS, Fitzmaurice G, Brawarsky P, Liang SY, Hiatt RA, Klabunde CN, Brown ML. Association of regional variation in physicians' colorectal cancer screening recommendations with individual use of colorectal cancer screening (*Prev Chronic Dis*, in press).

Haas JS, Lee LB, Kaplan CP, Sonneborn D, Phillips KA, Liang, SY. The role of race/ethnicity, socioeconomic status and health insurance on the risk of obesity in children and adolescents. *Am J Public Health* 2003; 93:2105–2110.

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Haas JS, Phillips KA, Sonneborn D, McCulloch CE, Liang SY. The effect of managed care insurance on the use of preventative care for specific ethnic groups in the United States. *Med Care* 2002; 40:743–751.

Haas JS, Swartz K. The relative importance of worker, firm, and market characteristics for racial/ethnic disparities in employer sponsored health insurance (*Inquiry*, in press).

Liang ST, Phillips KA, Haas JS. Measuring managed care and its environment using national surveys: a review and assessment. *Med Care Res Rev* 2006 Dec; 63(6 Suppl):9S-36S.

Liang SY, Phillips KA, Tye S, Haas JS, Sakowski J. Does patient cost sharing matter? Its impact on recommended vs controversial cancer screening services. *Am J Manag Care* 2004; 10:99-107.

Phillips KA, Haas JS, Liang SY, Baker LC, Tye S, Kerlikowske K, Sakowski J, Spetz J, Sonneborn D. Do gatekeeper requirements affect cancer screening utilization? *Health Serv Res* 2004; 39:153-178.

Phillips KA, Liang SY, Haas JS, Stebbins M, Aldredge BK. Prescription drug dispensing limits and patterns. *Manag Care Interface*; 2005; 18(7):41–46.

Phillips KA, Stotland NE, Liang SY, Spetz J, Haas JS, Oren E. Out-of-pocket expenditures for oral contraceptives and number of packs per purchase. *J Am Med Womens Assoc* 2004; 59:36-42.

Sakowski J, Phillips KA, Liang SY, Haas JS. Willingness to recommend a health plan: who is dissatisfied and what don't they like? *Am J Manag Care* 2004; 10:393-400.

Tye S, Phillips KA, Liang SY, Haas JS. Health plan characteristics as predictors of screening mammography: moving beyond the typologies of managed care. *Health Serv Res* 2004; 39:179-206.

Other Publications

Luft, Harold S.; Rappaport, Karen M.; Yelin, Edward H.; Aubry, Wade M. "Evaluating Medical Effectiveness for the California Health Benefits Review Program." *Health Services Research*, 41(3, Part II):1007-1026, June 2006.

Luft**,** Harold S. Ph.D.; Dudley, R. Adams. "Measuring Quality in Modern Managed Care." *Health Services Research*, 38(6, Part I):1373-1379, December 2003.

Miller, Robert H.; Luft**,** Harold S. "HMO Plan Performance Update: An Analysis Of The Literature, 1997–2001." *Health Affairs*, Jul/Aug2002, Vol. 21 Issue 4, p63, 24p

APPENDIX C.6

RURAL RESPONSE TO MEDICARE+CHOICE: CHANGE AND ITS IMPACT

CASE STUDY

RURAL RESPONSE TO MEDICARE+CHOICE: CHANGE AND ITS IMPACT

Principal Investigator: Keith Mueller, Ph.D.
Funding Period: August 1, 1999 – April 30, 2003

ABSTRACT

This grant was used to examine the viability of Medicare+Choice (M+C) in rural areas, highlighting trends and significant barriers that have persisted despite the incentives of expanded federal payments. The principal investigator (PI) built on his historical base of work and connections in rural health to communicate the results directly to a broad spectrum of Congressional staff and others with an interest in federal policy in this area.

BACKGROUND

The Rural Policy Research Institute (RUPRI) is a university-affiliated organization whose mission includes providing objective information on rural issues to federal policymakers. As director of the RUPRI Center for Rural Health Policy Analysis, Dr. Mueller and his colleagues have been studying the role of managed care in rural areas since 1995. The researchers began to establish relationships with members of Congress when they completed studies on the volatility and variation in Medicare managed care payment rates and were asked to provide information to Congressional committees about the impact of health policy on rural America.[1, 2]

When the Balanced Budget Act (BBA) of 1997 was passed, it sought to encourage plans to locate in rural areas less well served by M+C's predecessor Medicare HMO contracting program. A key strategy was to reconfigure payment so as to create a minimum "floor" payment in rural counties; for many of these counties, the floor represented a significant increase in payment relative to prior rates. Dr. Mueller was also President of the National Rural Health Association when the BBA was enacted, which further strengthened his interest in studying rural M+C issues. He applied for a grant from AHRQ, and so began his ongoing work on geographic variation in M+C enrollment.

RESEARCH GOALS

In applying for the AHRQ grant, the PI's objectives were to ascertain (1) whether M+C plans were indeed offering plans in rural markets, and (2) what factors drive rural managed care enrollment and penetration. Dr. Mueller and his research team aimed to predict the reasons for expecting particular models of M+C—including provider-sponsored organizations (PSOs) or health management organizations (HMOs)—to grow in rural areas. They also wanted to develop hypotheses concerning the consequences of rural provider participation in M+C. These hypotheses focused on the following outcomes: adoption of new management strategies in marketing, finance, information systems, and negotiations; development of processes for quality assurance; changes in the volume of uncompensated care; and, effects on local control and economic activities.[3]

STUDY DESIGN

The AHRQ study involved quantitative and qualitative research, and had three components: (1) empirical modeling to explain patterns of enrollment in M+C plans across rural counties throughout the nation, (2) interviews with key informants in each state to obtain a qualitative measure of provider activities as related to the development of managed care plans in rural areas, and (3) case studies to detect the consequences of changes made to develop and increase participation in managed care plans.

Data were taken from a set of unique U.S. county-based files compiled and maintained by RUPRI, which contained more than 1,400 variables with data merged from various sources, including: the Area Resource File, the Department of Agriculture, the Centers for Medicare and Medicaid Services (CMS), and the U.S. Census Bureau. The researchers also completed interviews with key informants in 43 states, and conducted case studies of health plans in four states. M+C enrollment data were entered into the RUPRI database and were used to produce annual updates that tracked enrollment of rural beneficiaries into managed care plans. In addition to data tables and graphs, analysis included maps showing enrollment and changes in enrollment over time.

PRINCIPAL FINDINGS AND PUBLICATIONS

The researchers concluded that M+C had failed to serve rural America. Although enrollment increased in the early years following the BBA of 1997, it later declined and, in 2002, fewer rural beneficiaries were enrolled in Medicare HMOs than prior to the BBA. Empirical modeling to determine why the M+C program has failed in the U.S. showed that market conditions were more important than the amount of Medicare payments in determining firms' decisions to enter and exit rural areas. Those conditions included the market share obtained by the plan, the number of beneficiaries enrolled, and the length of time a plan was active in a given area. Plans that exited rural areas were more likely to be for-profit and have fewer enrollees and a lower market share.

Resistance by local providers was a major factor cited by health plans and key informants as inhibiting the growth of managed care plans in many rural areas. Rural physicians were perceived as being resistant to criteria-based medicine, unwilling to recognize practice limits, and less accepting of new technology. Other barriers plans cited to participating in M+C included difficulty in negotiating payment rates with local providers and burdensome federal regulations—specifically, requirements for quality measurement and reporting not applicable in the rural market.[4]

Dr. Mueller and his colleagues published these findings in numerous issue briefs developed by RUPRI, and in more traditional peer-reviewed publications, such as *Health Services Research* and the *Journal of Rural Health.*

POLICY RELEVANCE AND TARGET AUDIENCE

From the start, the researchers sought not only to study M+C in rural areas, but also to generate findings that would be of interest and shared with policymakers interested in influencing federal legislation on this topic. In particular, the PI identified as targets the U.S. Senate Rural Health Caucus, the U.S. House of Representatives Rural Health Coalition, and CMS. Although this study ended before the Medicare Advantage (MA) legislation was enacted in 2003, the topic of Medicare and M+C was a hot topic at the time, and Dr. Mueller's findings informed Congress of the reasons for success or failure of M+C in rural areas.

Dr. Mueller's colleagues believe that these results have been quite influential, and that policymakers have paid a great deal of attention to the data on enrollment and payments. Our interviews confirm that staff in key Congressional offices were very aware of the research conducted under this grant, and found it policy-relevant. Policymakers had expected that enrollment in M+C would expand in rural areas after the BBA was enacted, but Dr. Mueller's research proved otherwise, a significant finding. Policymakers had ongoing concerns about what was occurring with managed care in rural areas, and the study findings contributed to their knowledge. The research became available in 2001 and 2002, as the Medicare Modernization Act (MMA) of 2003 was being considered. Dr. Mueller's research likely contributed to the formation of this legislation, although how directly this occurred is unclear. One possible instance is that the MMA increased payments to all Medicare Advantage (formerly M+C) plans, including those in rural areas. Dr. Mueller also indicated to us that his research influenced a specific provision in the MMA that required Medicare preferred provider organizations (PPOs) certified in 2006/2007 to offer services on a regional basis, and not county-by-county.[5]

The Congressional staffers with whom we spoke had high regard for Dr. Mueller and his research. The Senate Finance Committee has used his analyses, and asked the researcher to run county-level data when they were evaluating MA payment policies. The committee then sent the data to the Congressional Budget Office (CBO) to assist with program estimates and scoring proposals.[6] The Senate Finance Committee also has used Dr. Mueller's research to evaluate Part D plans in rural areas, and to understand what else was occurring in rural areas. A Senate staffer with whom we spoke described how Dr. Mueller's research helped influence the recent U.S. farm bill.[7] His research identified which rural hospitals were eligible to receive assistance for telehealth/medicine. He identified which facilities were most at risk, and which of the underserved needed the most federal assistance. The staffer said that legislators crafted policy using this information.

DISSEMINATION

RUPRI has been a key facilitator of dissemination for Dr. Mueller, and has helped him to reach his target audience. A director at RUPRI defined the organization's role as "the intersection between research, policy analysis, and practice."[8] RUPRI staff pull together information that they believe policymakers can use. Although it is not a lobbying organization, RUPRI interacts actively with Congress. As mentioned earlier, Dr. Mueller directs the RUPRI Center for Rural Health Policy Analysis, one of eight Rural Health Research Centers funded by the federal Office of Rural Health Policy (ORHP). The Center's specific objectives include conducting original research and independent policy analysis that provides policymakers with a more complete understanding of the implications of health policy initiatives, and disseminating policy analysis to ensure that policymakers will consider the needs of rural health care delivery systems in the design and implementation of health policy.[9]

Dr. Mueller and his co-researchers on this grant also were members of RUPRI's Rural Health Panel. The Panel consists of academics who provide science-based, objective policy analysis to federal policymakers. One of Dr. Mueller's co-researchers remarked that the Panel is very committed to getting their research findings out to key legislative staff in Congress (e.g., the Rural Health Care Coalition and Rural Health Caucus).[10] The Panel determines the key issues to address before Congress, after which RUPRI's Washington, D.C. office helps translate the information and disseminate it to policymakers and their staff through issue briefs. These policy briefs are distributed through office visits and mailing lists. RUPRI's D.C. staff also work as liaisons between the Panel and policymakers, and help to arrange meetings between Panel members and Congressional staff. They target committee members to whom they send information, and remain in constant communication with committee staff on research findings and new issues as they emerge. The RUPRI staff also help to facilitate formal briefings, for which RUPRI researchers present their findings to legislators and their staff.

RUPRI takes a "snowballing" approach to dissemination, in which they talk to staffers viewed as key players, after which these staff suggest other staffers to contact.[11] The constant communication about what the research shows versus the concerns that the House and Senate hear about often helps to shape the research conducted by Dr. Mueller and his RUPRI colleagues. In addition to active dissemination to Congress, RUPRI uses more passive modes, such as posting papers, summaries, and presentations on the RUPRI website. They hope that policymakers will use their website as a key source of information on rural health. The method of dissemination depends on the issues studied, and what attention the study may receive. RUPRI and ORHP determine whether and how to disseminate certain studies rather than others.[12]

In addition to the dissemination by RUPRI and the peer-reviewed publications mentioned earlier, Dr. Mueller also has disseminated his study findings at national conferences such as those of the International Health Economics Association, the National Rural Health Association, and the Gerontological Society of America.

FACTORS AFFECTING TRANSLATION

Availability of Well-Positioned Intermediary. Dr. Mueller's relationship with RUPRI greatly enhanced the use of this research. Most researchers do not have the infrastructure that RUPRI provides.[13] This organization gives researchers funding for dissemination activities, and is funded by the federal government specifically to provide information to Congress and other federal stakeholders. RUPRI has easy access to Congress. RUPRI and Dr. Mueller have a mutually supportive relationship, with Dr. Mueller benefiting from the access that RUPRI provides, while RUPRI feels that it would be "weaker" without Dr. Mueller because his reputation as an excellent researcher gives RUPRI a good reputation as well.

Active Interest of PI in Reaching Policymakers. The PI's personal interest in facilitating the use of this research also has played an important role in the ability of this project to reach policymakers. The PI uses hard work and determination to disseminate his research findings to policymakers; colleagues say he is very successful at seeking connections between research and policy. He actively communicates his findings to Congressional staff, as well as to CMS and other federal agencies. Congressional staff view him as “an objective and independent source of information and analysis.” As one of Dr. Mueller’s colleagues told us, “Few researchers want to hang out on the Hill and talk policy with staffers, but Keith does. The combination of his interest in talking to policy staff, as well as his qualifications and competency, facilitated getting the research findings out there and used.”[14]

Existence of a Defined Target Audience. The fact that this research targeted a clear audience was also a key factor in its dissemination. As one researcher said, “Rural health stakeholders are well-organized and easy to target. They’ve bonded and have established policy networks that are easily identifiable, and this makes dissemination fairly easy.”[15] By specifically targeting dissemination toward the Rural Health Caucus and Rural Health Coalition, Dr. Mueller and RUPRI have an audience already interested in rural health issues. There are drawbacks to this strategy, however. We spoke with one Congressional staffer who is not involved in the Rural Health Coalition or Rural Health Caucus, and she thought that every member of Congress should be on RUPRI’s dissemination list. She was disappointed that RUPRI did not seem to disseminate information to staffers other than those involved with the Rural Health Caucus or Coalition, since those members who do receive RUPRI’s resources may not have as much influence as a larger body of legislators.

Timeliness of Results. The timeliness of the study results appears to have been important for their use. The research findings were published in time to coincide with the development of MMA (although again, it is not clear how influential the findings were). In general, Dr. Mueller conducts research on topics of current interest to policymakers, and is able to disseminate his findings quickly, with the assistance of RUPRI. Congressional staff laud the researcher’s responsiveness and say that the timing of his research is key. As one staffer said, other researchers reach out to Congress and then produce a 25-page white paper that no one has time to read. Dr. Mueller, on the other hand, produces short, targeted briefs that are very useful to staff.

Competition. The development of legislation involves input from a number of competing sources (e.g., constituents, lobbyists, researchers, etc.). Dr. Mueller’s research may have gotten into the hands of policymakers, but it is unclear whether his findings have had any more influence than other sources also trying to inform federal policy. As one researcher indicated, unless a study produces “dramatic” results, it is difficult to attribute legislation to any specific research study, because so many voices are trying to be heard. The barrier of competing interests is of no fault of the researcher, but rather is in the nature of the political process.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

Establish Relationships with Users. Dr. Mueller has established relationships with key staff members on many Congressional committees. He has reached out to policymakers and says that he has used hard work and perseverance to establish contacts. He relies heavily on this “open, face-to-face communication.” He advises that, once a researcher has sent his or her study findings to policymakers, it is essential for that person to be accessible and responsive to any questions or requests for information.

Present Findings Appropriately for Audience. Policymakers and their staff do not have time to read lengthy reports. If research is targeted to this audience, reports should be short and readable. Dr. Mueller says that a researcher should be able to describe what he or she has learned in 20 words or less. None of Dr. Mueller's issue briefs are more than four pages long. Also, it is critical to be able to state findings concisely either in writing or verbally. Dr. Mueller advises researchers to identify one or two key points in current policy debates that are relevant to their research findings, and then communicate these to appropriate policymakers in half a page or less.

Consider Timeliness of Study Results. Producing a study on a topic of importance in current policy debates may help to facilitate the use of research findings. Findings must be disseminated in a timely manner, which is often difficult when policy issues change rapidly.

ENDNOTES

[1] McBride, T., Penrod, J., and K. Mueller, "Volatility in Medicare AAPCC Rates: Trends in U.S. Counties, 1990 – 1997." *Health Affairs*, September/October, 1997.

[2] Telephone interview with Dr. Mueller, June 7, 2007.

[3] AHRQ Grant Application, No. 1R01HS10183-01, PI: Keith Mueller.

[4] Final Report to AHRQ, Grant No. R01HS10183, PI: Keith Mueller.

[5] Telephone interview with Dr. Mueller, March 20, 2008.

[6] Telephone interview with Shawn Bishop, U.S. Senate Finance Committee, May 19, 2008.

[7] Telephone interview with Dr. Janelle Krishnamoorthy, Aide to U.S. Senator Tom Harkin, July 2, 2008.

[8] Telephone interview with Brian Dabson, President and CEO of RUPRI, April 16, 2008.

[9] RUPRI website, www.rupri.org <last accessed in July 2008>.

[10] Telephone interview with Dr. Andrew Coburn, May 21, 2008.

[11] Coburn interview.

[12] Dabson interview.

[13] Coburn interview.

[14] Coburn interview.

[15] Coburn interview.

APPENDIX C.7

STRUCTURING MARKETS AND COMPETITION IN HEALTH CARE: ROLE OF INCENTIVE BASED FORMULARIES ON DRUG SELECTION AND USE

CASE STUDY

STRUCTURING MARKETS AND COMPETITION IN HEALTH CARE: ROLE OF INCENTIVE-BASED FORMULARIES ON DRUG SELECTION AND USE

Principal Investigator: Haiden Huskamp, Harvard University
FUNDING PERIOD: 7/5/00 – 6/30/05

ABSTRACT

This project assessed the effects of incentive-based formularies (varying copayments for benefit coverage of different tiers of drugs) on the use and costs of prescription drugs. Findings confirmed that such financial incentives influence consumers' choice of drugs. The results, published in the *New England Journal of Medicine* (*NEJM*), came at a critical time in the development of national policy, with the enactment of the Medicare Part D drug benefit. The results were influential in discussions about the design of the new Medicare benefit, and they also informed private sector decisions about using such financial incentives in drug benefit packages. The project was undertaken as part of a larger grant that funded several other projects in the area of managed care and competition. The goal of the larger grant was to encourage the development of expertise, knowledge, and collaboration among a group of researchers; it led to a number of other highly visible findings produced through other projects. (See Appendix A for a description of the broader grant.)

BACKGROUND

The project was conducted through Harvard University, in collaboration with Medco, a major pharmacy benefit manager (a "carve out organization").[1] Medco manages pharmacy benefits for health plan and purchaser/employer clients throughout the United States, covering about 65 million Americans. Harvard researchers (led by Dr. Haiden Huskamp) and Medco agreed to partner on a study to assess the effects of formularies on prescription drug use and costs, based on an agreed-upon study design and data-sharing approach. For its part, Medco obtained agreements from selected employer clients in order to allow the firm to share the data with Harvard researchers. There were no financial arrangements between Harvard and Medco; formal arrangements were limited to a data use agreement for data sharing. Medco leadership was interested in the project because they believed the results could inform their decision making about approaches to managing prescription drug use.

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[1] Carve-outs are organizations that contract with health plans or purchasers to manage and provide particular types of health care services—usually non-physician or hospital services—covered by health benefit plans. Carve-outs are most commonly used for mental health or substance abuse services (sometimes referred to as managed behavioral health organizations) or prescription drugs (often referred to as pharmacy benefit managers).

The study design involved a “pre-post” comparison of experiences of employees in two firms that had their prescription coverage changed to an increased use of incentive-based formulary coverage. One employer had coverage changed from a one-tier formulary, requiring the same copayment for all drugs, to a three-tier formulary, with increasing copayments for each successive tier. Less expensive generics were placed in the first tier, and had the lowest copayments; preferred brand-name drugs were placed in the middle tier, with higher copayments; and non-preferred brand-name drugs were placed in the third tier, with the highest copayments. The second employer changed from a two-tier (generics in one tier; brand names in the other) to a three-tier formulary, which involved moving non-preferred brand name drugs into a third, highest-copayment tier. In essence, for both employers, copayments were increased for highest cost, brand name drugs; the list of drugs available did not change. These changes then were compared to experiences of employees who had no change in coverage during the same period; that is, a “difference-in-difference” design. Harvard University researchers conducted the analysis, with Medco staff contributing to study design decisions and consulting on data issues.

PRINCIPAL FINDINGS AND KEY PUBLICATIONS

Principal findings were published in the *NEJM* in December 2003 (Huskamp et al. 2003). They showed that the use of an incentive-based formulary (switching from a one-tier formulary to a three-tier formulary) significantly increased the likelihood that consumers switched to lower cost prescription drugs from higher cost drugs used for the same clinical purpose. However, the formulary also significantly increased the probability that consumers ceased taking certain drugs altogether. In addition, the results also indicated a major shift in spending from health plans to consumers as a result of the changes in coverage.

The study results showed that consumers using relatively high-cost cholesterol-lowering drugs (statins) who changed from one-tier formulary to three-tier incentive based formulary were substantially more likely (49 percent vs. 17 percent) to switch to lower-cost versions of these drugs after implementation of the incentive-based formulary, compared to consumers experiencing no change in coverage. Similar results were shown for other drugs, including ACE inhibitors and proton pump inhibitors.

Despite effects on consumer choice of drugs, the study showed mixed results in terms of effects on overall spending on these drugs. Overall spending under the incentive-based formulary was 3 percentage points less for proton pump inhibitors, compared to a comparison group, but not significantly different for the other drugs studied. Distributional effects between purchasers and consumers, however, were more notable. The results indicate that, on average, purchasers—rather than consumers—accrued financial savings from the incentive-based formularies. As many consumers switched to lower cost drugs, there were substantial reductions in purchaser spending for specific drugs affected by coverage changes (58 percent for ACE inhibitors, 15 percent for proton pump inhibitors, and 14 percent for statins), compared to slight increases in spending for these drugs when there was no change in coverage for the comparison groups. At the same time, because many consumers did not switch to lower cost drugs and thus paid higher copayments, monthly spending by consumers under the new incentive-based formulary arrangements increased by 142 percent for ACE inhibitors, 148 percent for proton pump inhibitors, and 117 percent for statins.

Finally, consumers switching from a one-tier formulary to three-tier incentive-based formulary were significantly more likely than those in the comparison group to discontinue use of relevant drugs altogether (16 vs. 6 percent for ACE inhibitors; 32 vs. 19 percent for proton pump inhibitors; and 21 vs. 11 percent for statins).

POLICY RELEVANCE AND TARGET AUDIENCES

Potential users of the research interviewed said that this case study was highly relevant to both private and public decision making about prescription drug benefits. They said that decision makers and stakeholders—including health plans, purchasers, pharmacy benefit managers, and consumer organizations in the private sector, as well as staff in Congressional and federal agencies—have become aware of the tradeoffs involved in using incentive-based formularies in prescription drug benefit plans. This awareness was due partly to information produced from this study. On one hand, incentive-based formularies can have significant effects in encouraging consumers to shift from higher- to lower-cost drugs offering the same clinical benefits. On the other hand, a concern was that findings showed significant proportions of consumers ceased using certain drugs altogether, and that cost burdens for consumers increased overall.

The research also was used to support analysis of specific policies. The Congressional Budget Office took the research findings on effects on spending into account as part of its budget estimates for the Medicare prescription drug benefit. In particular, the findings informed a variety of factors that CBO considered in its “scoring” approach including enrollment by beneficiaries, participation by private plans, and beneficiary behavior in using drugs within plans under different benefit arrangements. In addition, according to Congressional staff interviewed, the study’s findings as to the effects of incentives on the distribution of costs among plans and consumers also provided a key piece of information for assessing the “Low Income Subsidy” component of the Medicare prescription drug legislation. This legislation was designed to protect lower income beneficiaries from the burden of higher cost sharing arrangements, given that these beneficiaries might be most likely to discontinue taking medications when faced with significant copayments.

The study also encouraged other researchers to undertake additional research to confirm the findings. Most of these studies reached similar conclusions, studying different populations and using somewhat different methods. This, in turn, increased the credibility and long-term impact of the original research conducted under the AHRQ grant. It also had the effect of increasing the external reputation of the Harvard researchers who undertook the research in this area, and led to several other related and highly visible studies, some of which were also conducted as part of the AHRQ grant funding. For example, they were able to examine carve-outs, formularies, and consumer behavior issues in other areas of prescription drug use, including for mental health drugs and drugs for children with attention deficit disorder.

Key audiences for the research findings included the leadership of health plans, purchasers, pharmacy benefit managers (carve-out organizations), and consumer organizations (unions) in the private sector, as well as staff in Congressional and federal agencies involved in the design of the new Medicare prescription drug benefit.

DISSEMINATION

The primary vehicle for dissemination was the publication of results in the *NEJM*. The prestige and large readership of the journal generated high visibility for the findings. In addition to its primary role as a source of information, publication in the *NEJM* generated visibility and interest that led the authors to many follow-up opportunities for further dissemination of the findings and discussions of their implications. The authors actively pursued these opportunities in a variety of settings, including presentations at conferences, interviews with the press, and consultations with staff at government agencies. As examples, the investigators consulted often with staff at the Medicare Payment Advisory Commission and CBO in analyzing potential changes resulting from the Medicare Part D legislation. Study findings were presented at the AcademyHealth meetings, and distributed in the Robert Wood Johnson Foundation's Health Care Financing and Organization (HCFO) finding brief. Dr. Huskamp participated in numerous meetings and conferences such as an annual meeting of the International Society of Pharmacoeconomics and Outcomes Research, the International Research Pharmacy Cost Management Conference, and an Invitational Summit for State Policymakers on Part D Implementation hosted by AcademyHealth and Rutgers Center for State Health Policy. Dr. Huskamp's work was widely cited in a variety of trade press and she was often quoted in stories covering the Medicare Part D legislation.

Medco's active involvement in the research process also contributed to the dissemination to individual private sector users. In particular, Medco staff said that the *NEJM* article was published at essentially the same time as the annual benefit review cycle Medco conducts with its purchaser clients; Medco staff examined prescription drug benefits for possible changes in the coming year. Medco highlighted the study to all of its clients, and used the results to inform their discussions.

FACTORS AFFECTING RESEARCH TRANSLATION

Key factors facilitating the research in this project were:

1. The researchers' ability to partner with an organization (Medco) that had the ability and willingness to provide access to necessary data, and also was interested in using the results, and able to do so.
2. The researchers' ability to publish the results in a highly visible journal at a time when interest in the subject studied was high.
3. Timing and targeting of the study so that it was of maximum interest at a time of active policy development. The study focused on a question that was of interest to both private and public policymakers, but for which little prior research existed. It also generated its results around the same time legislation was passed that expanded coverage for prescription drugs for Medicare beneficiaries, and just prior to implementing regulations for the new law.

The researchers and users we interviewed did not identify many factors impeding use of the research, in part because the results became relatively well known and, given the timing of the release of the results, the uses were immediately apparent to stakeholders.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

Those interviewed noted that, in some ways this was an unusual study, because the results were generated and highly publicized at a key moment in the decision making/policy process. They recognized that this is the ideal and may be hard to anticipate or obtain. Research takes time, and it is not always certain at the outset which questions will be relevant when the research is completed. Access to highly visible journals such as *NEJM* also is very limited, since few health services research articles are published each year, and then only certain high-profile topics are likely to draw reviewer and editorial interest.

The other lesson was that, while prestigious publication carries the strong potential to generate study interest, the use of results also depends on how actively researchers are willing to follow up. Although the researchers involved in the study originally were focused on publication in journals as the primary method for dissemination, other dissemination activities that occurred almost as consequence of the *NEJM* publication were instructive to the researchers as illustrating the value of these activities in facilitating the use of research. These activities included disseminating issue briefs, presenting at conferences, writing “perspective” pieces, and testifying at legislative hearings. Those interviewed for this case study noted that funders increasingly require plans for dissemination in advance of research being conducted, and believe that this requirement is a good development. Overall, the researchers and users see peer-reviewed publication as a balancing act because, while it can be challenging and time-consuming with no guarantee of success, it nonetheless provides credibility and visibility to the research that cannot be provided through other dissemination vehicles.

APPENDIX A: OVERVIEW OF THE BROADER GRANT PROJECT

This study was part of a five-year, $4.5 million project AHRQ funded through Harvard University (Joseph Newhouse was PI) to examine the effects of managed care and health care competition on health care markets. The project was one of the two grants featured in our case studies that were awarded as part of an AHRQ "program project," or PO1 grant.[2]

Managed care—that is, health care provided through HMOs, PPOs, and other types of managed care plans—grew steadily throughout much of the 1980s and 1990s. Key features of managed care include limited networks of providers, negotiation of fees and/or risk-sharing arrangements with providers, and incentives (primarily achieved through differences in benefit coverage) for consumers to use provider networks. In this decade, managed care arrangements remain a powerful force in health care markets throughout the United States, although growth has not continued as it did in the early to mid-1990s.

The research goals for the study included (1) creating a better conceptual understanding of how managed care affected medical care markets, (2) advancing statistical methods in understanding this range of problems, and (3) carrying out a number of empirical studies to examine the effects of managed care. In addition, after the grant began, supplementary funding was awarded to examine the effect of variation in reimbursement on utilization of cancer chemotherapy.

A key focus of the grant was to achieve synergy, cross-cutting expertise, and cross-fertilization of ideas, theory, and data through multiple projects sharing common theoretical and statistical "cores." The grant allowed a broad team of researchers to collaborate with one another while pursuing work on several individual projects. Overall, the project included economic theory and statistical "core" projects, plus six targeted research projects focused on particular topics, as well as a supplementary chemotherapy reimbursement study.

PROJECT SUMMARIES

Economic Theory Core. The purpose of this core project was to apply principal-agent methods to contracting in health care, particularly from the standpoint of a regulator seeking efficient services from a health plan, or a health plan buying from a health care provider. A series of papers was produced related to optimal risk adjustment, the importance of "predictability" of health care expenditures, the importance of payment policy in the context of multiple payers, and the effects of pay-for-performance. An innovative line of research begun under this particular

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[2] A 1999 program announcement indicated AHRQ's intention to spend up to $11 million to support two to three centers of excellence for health care markets and managed care research. The announcement noted: "the studies conducted by these centers will help public policymakers understand, monitor, and anticipate how changes in the nation's market-driven health care system affect costs, access to services, and quality of care. Some of the studies are expected to look at the impact of these changes on rural and minority populations."

core is the idea of regarding a quality report as a policy instrument, based on principal-agent methodology. One of the major findings is that summary quality reports can be as powerful as risk adjustment in contending with selection incentives.

Key Publications

Ellis, R.P. and T.G. McGuire. "Predictability and predictiveness of health care spending." *Journal of Health Care Economics*, vol. 26, no. 1, 2007, pp. 25-48.

Glazer, J. and T.G. McGuire. "Setting Health Plan Premiums to Ensure Efficient Quality in Health Care: Minimum Variance Optimal Risk Adjustment." *Journal of Public Economics*, 2002a, pp. 153-173.

Glazer, J. and T.G. McGuire. "Multiple Payers, Commonality, and Free-Riding in Health Care: Medicare and Private Payers." *Journal of Health Economics*, vol. 21, 2002b, pp. 1049-1069.

Glazer, J. and T.G. McGuire. "Optimal Quality Reporting in Markets for Health Plans." *Journal of Health Economics*, vol. 25, 2006, pp. 295-310.

Glazer, J. and T.G. McGuire. "Optimal Risk Adjustment." In *Elgar Companion to Health Economics*, edited by Andrew Jones. Edward Elgar Publishing, 2006.

Glazer, Jacob, Thomas G. McGuire, and Joseph P. Newhouse. "Using Performance Measures to Motivate 'Report-Averse' and 'Report-Loving' Agents." *Journal of Health Economics*, vol. 26, no. 6, December 2007, pp. 1170-1189.

Rosenthal M.B., and R.G. Frank. "What Is the Empirical Basis for Paying for Quality in Health Care?" *Medical Care Research & Review*, vol. 63, no. 2, 2006, pp. 135-157.

Statistical Core. The purpose of this core was to identify and apply statistical methods to prominent and common research problems in the study of market behavior and managed care. This core focused on statistical methodology for making causal inferences about effects in situations where subjects are not randomized to treatments (e.g., drugs, health plans, and other providers). A series of papers was produced related to robust methods for assessing the causal effects of multi-valued treatments on health outcomes, applications of regression and propensity score methods to studies of the quality of care of health plans rather than purely methodological development, a statistical exploration of racial disparities, and quality and utilization differences between for-profit and not-for-profit Medicare plans.

Key Publications

Normand S.L.T., R.G. Frank, and T.G. McGuire. "Inference in Quasi-Experimental Designs." 2006 (working manuscript).

Schneider E.C., A.M. Zaslavsky, and A.M. Epstein. "Racial Disparities in the Quality of Care for Enrollees in Medicare Managed Care." *JAMA*, vol. 287, no. 10, 2002, pp. 1288-1294.

Schneider E.C., A.M. Zaslavsky, and A.M. Epstein. “Use of High-Cost Operative Procedures by Medicare Beneficiaries Enrolled in For-Profit and Not-For-Profit Health Plans.” *New England Journal of Medicine*, vol. 350, 2004, pp. 143-150.

Schneider E.C., A.M. Zaslavsky, and A.M. Epstein. “Quality of Care in For-Profit and Not-For-Profit Health Plans Enrolling Medicare Beneficiaries.” *American Journal of Medicine,* vol. 118, no. 12, 2005, pp. 1392-1400.

Tchernis R., M. Horvitz-Lennon, and S.L.T. Normand. “On the Use of Discrete-Choice Models for Causal Inference.” *Statistical Medicine*, vol. 24, 2005, pp. 2197-2212.

Tchernis R., S.L.T. Normand, J. Pakes, P. Gaccione, and J.P. Newhouse. “Selection and Plan Switching Behavior.” *Inquiry*, vol. 43, no. 1, 2006, pp. 10-22.

Trivedi A.N., A.M. Zaslavsky, E.C. Schneider, and J.Z. Ayanian. “Trends in the Quality of Care and Racial Disparities for Enrollees in Medicare Managed Care.” *New England Journal of Medicine*, vol. 353, no. 7, 2005, pp. 692-700.

Trivedi A.N., A.M. Zaslavsky, E.C. Schneider, and J.Z. Ayanian. “The Relationship between Quality of Care and Racial Disparities within Medicare Health Plans.” *JAMA*, vol. 296, no. 16, 2006, pp. 1998-2004.

Zaslavsky A.M., E.C. Schneider, and A.M. Epstein. “Racial Disparities in the HEDIS Measures of Health Care Quality.” *Proceedings of the American Statistical Association, Joint Statistical Meetings*. American Statistical Association, 2002, pp. 3933-3938.

Project 1: Market Structure and Physician Performance (Project Leaders: Rosenthal & Landon)

Methods: Used data from the Community Tracking Survey to study the effect of market features, such as competition and other organizational arrangements, on physician perceptions of quality and satisfaction with their practices. Researchers also analyzed data from CAHPS and undertook preliminary work to study the impact of incentive formulary adoption on a large commercial MCO, using pharmacy and medical claims.

Results: Physician satisfaction levels declined marginally between 1997 and 2001. The strongest predictors of satisfaction were measures of clinical autonomy and physicians’ ability to obtain services for their patients. Exposure to managed care was weakly related to satisfaction. Nearly half of all physicians reported that formularies negatively impacted the quality and efficiency of care. Fee-for-service (FFS) Medicare beneficiaries rated experiences with care higher than did managed care beneficiaries, but differences varied across states. Managed care enrollees reported fewer problems with paperwork, information, and customer service, and were more likely to report having received recommended preventive services.

Key Publications

Frank, R.G. "Behavioral Economics and Health Economics." NBER Working Paper No. 10881. November 2004.

Landon B.E., J. Reschovsky, and D. Blumenthal. "Changes in Career Satisfaction among Primary Care and Specialist Physicians, 1997-2001." *JAMA*, vol. 289, no. 4, 2003, pp. 442-449.

Landon B.E., J.D. Reschovsky, H.H. Pham, and D. Blumenthal. "Leaving Medicine: The Consequences of Physician Dissatisfaction." *Medical Care*, vol. 44, no. 3, 2006, pp. 234-242.

Landon B.E. "Career Satisfaction among Physicians." *JAMA*, vol. 291, no. 5, 2004, p. 634.

Landon B.E., J.D. Reschovsky, and D. Blumenthal. "Physicians' Views of Formularies: Implications for Medicare Drug Benefit Design." *Health Affairs*, vol. 23, no. 1, 2004, pp. 218-226.

Landon B.E., A.M. Zaslavsky, S.L. Bernard, M.J., Cioffi, and P.D. Cleary. "Comparison of the Performance of Traditional Medicare and Medicare Managed Care." *JAMA*, vol. 291, no. 14, 2004, pp. 1744-1752.

Rosenthal, Meredith B. and Joseph P. Newhouse. "Managed Care and Efficient Rationing." *Journal of Health Care Finance*, vol. 28, no. 4, Summer 2002, pp. 1-10.

Project 2: Structure of Hospital Networks (Project Leader: Ma)

Methods: This project was concerned with provider contracting in a managed care environment, focusing on the issues of how plans select providers, as well as inducing them to supply services efficiently.

Results: Four papers were produced: Lien, Ma, and McGuire (2004) addressed the issue of what mechanism a provider can use to influence the quantity used by a patient. Lien, et al. (2006) pursued a detailed study of provider-patient behavior. Chone and Ma (2005) and Biglaiser and Ma (2003) explored information issues in provider contracting.

Key Publications

Biglaiser G. and C.A. Ma. "Price and Quality Competition under Adverse Selection: Market Organization and Efficiency." *RAND Journal of Economics*, vol. 34, 2003, pp. 266-286.

Chone P. and C.A. Ma. "Asymmetric Information from Physician Agency: Optimal Payment and Healthcare Quantity." 2005. Paper under review.

Fleming, E., H. Lien, C.T. Ma, and T.G. McGuire. "Managed Care and Trends in Hospital Care for Mental Health and Substance Abuse Treatment in Massachusetts: 1994-1997." *Journal of Mental Health Policy and Economics*, vol. 6, 2003 pp. 3-12.

Lien H.M., C.A. Ma, and T.G. McGuire. "Provider-Client Interactions and Quantity of Health Care Use." *Journal of Health Economics*, vol. 23, no. 6, 2004, pp. 1261-1283.

Lien H.M., M. Lu, C.A. Ma, and T.G. McGuire. "Treatment Progress and Patient Compliance in Therapy for Alcohol Abuse." Paper under review**.**

Ma, C.A. "Managed Care and Shadow Price." *Health Econ Letters/Health Econ*, vol. 13, 2004, 199-202.

Project 3: Increased HMO Penetration and the Quality of Care for Cardiac Disease (Project Leader: Guadagnoli)

Methods: Intended to answer the question, "Did the spread of managed care within the Medicare program have effects that spilled over into the traditional FFS Medicare program and, if so, what were the consequences for quality of care?" Earlier work suggested that managed care penetration reduced spending in traditional Medicare. For this project, Meara et al. used data on more than 100,000 Medicare beneficiaries in the mid-1990s who were hospitalized with a diagnosis of acute myocardial infarction and had coronary angiography.

Results: Among patients with angiography, the researchers found small and statistically insignificant reductions in the use of coronary angiography as managed care penetration increased. Among patients for whom angiography is not effective, there was a decline in the number undergoing the procedure as managed care penetration increased. A higher penetration of managed care thus had a modest spillover effect on reducing inappropriate procedures in the Medicare population, and no measurable effect on appropriate procedures.

Key Publications

Meara E.R., M.B. Landrum, J.Z. Ayanian, B.J. McNeil, and E. Guadagnoli. "The Effect of Managed Care Market Share on Appropriate use of Coronary Angiography among Traditional Medicare Beneficiaries." *Inquiry*, vol. 41, no. 2, 2004, pp. 144-158.

Project 4: Carve-Outs and Cost Shifting (Project Leaders: Huskamp & Alegria)

Methods: Designed to examine the impact of benefit carve-outs for different types of services (e.g., mental health, substance abuse, and prescription drugs) and to explore cost shifting across different health care sectors resulting from benefit carve-outs. Due to unanticipated data problems, the researchers changed their original analyses so as to analyze the impact of pharmacy benefit carve-outs and tiered formulary arrangements. Data came from a large pharmacy benefit manager on several commercially insured populations and enrollees in retiree health plans, and from the Veterans Administration (VA). The researchers also decided to examine promotional strategies of drug manufacturers.

Results: An examination of the closed VA formulary found it to be effective in shifting prescription behavior toward the selected drugs, achieving price reductions from manufacturers, and decreasing drug spending. An examination of the three-tier formulary implementation of two large firms showed that enrollees covered by the employer that implemented a higher copayment increase experienced slower growth in drug spending than the comparison group (see case study). Among members of retiree health plans, those subject to a three-tier formulary were more likely to change to a lower-tier drug, have gaps in use, or discontinue use entirely. Other papers produced from this project related to the use of formularies for psychotropic drugs, the impact of generic drug entry, mental health disparities, and the treatment of depression. This project also examined cost shifting associated with the behavioral health carve-out for a population in Puerto Rico.

Key Publications

Alegria, M., Z. Cao, and T. McGuire. "Carve-Outs and Cost-Shifting under Puerto Rico's Health Care Reform: Selecting whom to Shift." Paper under review.

Alegria, M., R. Frank, and T. McGuire. "Managed Care and Systems Cost Effectiveness: Treatment for Depression." *Medical Care, v*ol. 43, no. 12, 2005, pp. 1225-1233.

Alegria, M., D. Perez, and S. Williams. "The Role of Public Policies in Reducing Disparities in Mental Health Status for People of Color." *Health Affairs*, vol. 2, no. 3, 2003, pp. 51-64.

Domino, M.E. and H.A. Huskamp. "Does Provider Variation Matter to Health Plans?" *Journal of Health Economics*, vol. 24, no. 4, 2005, pp. 795-813.

Huskamp H.A. "Managing Psychotropic Drug Costs: Will Formularies Work?" *Health Affairs*, vol. 22, no. 5, 2003, pp. 84-96.

Huskamp H.A., P.A. Deverka, A.M. Epstein, R.S. Epstein, K.A. McGuigan, and R.G. Frank. "The Impact of Incentive Formularies on Prescription Drug Utilization and Spending." *New England Journal of Medicine*, vol. 349, no. 2, 2003, pp. 2224-2232.

Huskamp H.A., A.M. Epstein, and D. Blumenthal. "The Impact of a National Prescription Drug Formulary on Prices, Market Share, and Spending: Lessons for Medicare?" *Health Affairs*, vol. 22, no. 3, 2003, pp. 149-58.

Huskamp H.A., P.A. Deverka, A.M. Epstein, R.S. Epstein, K.A. McGuigan, A.C. Muriel, and R.G. Frank. "The Impact of Three-Tier Formularies on Treatment of attention-Deficit/Hyperactivity Disorder in Children." *Archives of General Psychiatr*, vol. 62, no. 4, 2005, pp. 435-441.

Huskamp H.A., R.G. Frank, K.A. McGuigan, and Y. Zhang. "The Impact of a Three-Tier Formulary on Demand Response for Prescription Drugs." *Journal of Economics & Management Strategy*, vol. 14, no. 3, 2005, pp. 729-753.

Huskamp H.A., P.A. Deverka, M.B. Landrum, R.S. Epstein, and K.A. McGuigan. "The Effect of Three-Tier Formulary Adoption on Medication Continuation and Spending among Elderly Retirees." Revised, submitted for publication.

Huskamp H.A., J.M. Donohue, C. Koss, E.R. Berndt, and R.G. Frank. "Generic Entry, Product Reformulation, and Pharmaceutical Promotion." Working paper (to be submitted for publication).

McGuire T.G. "Setting Prices for New Vaccines (in Advance). *International Journal of Health Care Finance Economics*, vol. 3, 2003, pp. 207-24.

Project 5: Selection and Risk Adjustment in Private Employers' Health Plans (Project Leader: Newhouse)

Methods: Earlier work emphasized that, if premiums change, some individuals would change plans based on expected health insurance costs; these plan changes need not be only marginal, because, due to random variation, premium changes could be far from zero. To test this hypothesis, the researchers used data on 81,000 individuals collected by MedStat. They compared the 1998 spending of those who had been in the same plan in 1999 with those who changed plans. Such a study rarely had been done on the under-65 population.

Results: Results were consistent with the hypothesis that those switching plans were driven by expected spending. Mental health spending stood out because of the spending contrasts between those who switched to the more generous plan and those who did not. Those switching to the more generous plans spent almost three times more on mental health than those who stayed in the more restrictive plans. The findings are consistent with the concept that individuals who anticipate high future mental health spending defer use until they join a more generous plan.

Project 6: Explaining Managed Care Penetration in Rural Areas (Project Leader: Newhouse)

Methods: Originally designed to explain why managed care plans had not entered rural markets, the project's premise was that Congress had mistakenly identified the cause of lack of entry of HMOs in rural areas as low reimbursement rather than the provider market structure. Timeliness and the complexity of the project did not allow the researchers to carry out the full extent of the proposed project. The researchers defined market areas by locating providers geographically. To examine changes in physician location since 1979, they worked with data from 23 states chosen because of their low physician-population ratios and their disproportionately rural population.

Results: The number of physicians in the 23 states doubled from 1979 to 1999. More targeted specialties had not yet diffused to the smallest towns. Measures of access confirmed that metropolitan area residents had better access to physicians. Physician-population ratios in rural counties near metropolitan areas were lower than in counties not near metropolitan areas, a finding that seemed contrary to the view that physicians prefer to be near cities. Distances traveled and caseload models that allowed patients to cross county lines showed markedly less disparity between metropolitan and rural areas than measures that did not allow such crossing.

Key Publications

Rosenthal, Meredith B., Alan Zaslavsky, Joseph P. Newhouse**,** "The Geographic Distribution of Physicians Revisited." *Health Services Research,* vol. 40(6, Part I): December 2005, pp. 1931-1952.

Supplementary Project: Medicare Reimbursement and Cancer Chemotherapy

Methods: Studied Medicare beneficiaries with metastatic cancer to estimate the effect of the profit potential on chemotherapy treatment (prior to the MMA, Medicare reimbursed physicians for chemotherapy drugs at rates substantially higher than the costs physicians paid for the drugs). Data came from the Surveillance, Epidemiology, and End Results (SEER) program, and Medicare-linked claims.

Results: Reimbursement incentives did not appear to affect oncologists' decisions to administer chemotherapy to elderly metastatic cancer patients. Once a decision to give chemotherapy was made, however, physicians who received more generous Medicare reimbursements administered more expensive treatment regimens.

Key Publications

Jacobson, Mireille, A. James O'Malley, Craig C. Earle, Juliana Pakes, Peter Gaccione, and Joseph P. Newhouse. "Does Reimbursement Influence Chemotherapy Treatment for Cancer Patients?" *Health Affairs*, vol. 24, no. 2, March/April 2006, pp. 437-443.

Hsu, J., M. Price, J. Huang, R. Brand, V. Fung, R. Hui, B. Fireman, J. Newhouse, and J. Selby "Unintended Consequences of Caps on Medicare Drug Benefits." *New England Journal of Medicine*, vol. 354, no. 22, June 1, 2006, pp. 2349-2359.

Presentations

"Does Reimbursement Influence Chemotherapy Treatment for Cancer Patients?"
2003 Annual American Economics Association Meetings
2003 National Bureau of Economic Research Health Care Program Meeting
Harvard Medical School Department of Health Care Policy P01 Seminar

APPENDIX C.8

QUALITY OF CARE OF CHILDREN WITH SPECIAL NEEDS IN MANAGED CARE

CASE STUDY

QUALITY OF CARE FOR CHILDREN WITH SPECIAL NEEDS IN MANAGED CARE

Principal Investigator: Elizabeth Shenkman, Ph.D.
Funding Period: July 1, 1998 – June 30, 2002

ABSTRACT

This study examined the relationship between the organizational features of managed care organizations (MCOs) and access to specialty care for children with special health care needs (CSHCN). Findings indicate that certain MCO organizational characteristics do influence CSHCN's access to such care. Utilizing her well-established connections with state agencies, the principal investigator (PI) was able to disseminate her research to state policymakers.

BACKGROUND

While most children are relatively healthy, a small percentage of them have conditions, such as juvenile diabetes, cerebral palsy, or attention deficit disorder, which classify them as CSHCN. Although there is no uniform definition of CSHCN, the Maternal and Child Health Bureau defines the population as "those children who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally."[1] Because these needs are specialized, and could result in greater vulnerability, public programs historically have been an important source of insurance and health services for CSHCN. There are three federally funded public health care programs serving CSHCN—Title V, Medicaid, and the State Children's Health Insurance Program (SCHIP). Medicaid is the single largest source of health insurance for CSHCN.[2] Compared to private plans, Medicaid usually has a unique package of benefits designed for chronic needs, and requires little or no cost sharing.

In the 1990s, many state Medicaid and SCHIP programs began looking to managed care as a way to improve access to care while controlling expenditures. Typically, no special arrangements have been made for CSHCN, and they are enrolled into managed care along with the other Medicaid and SCHIP beneficiaries.[3] There is concern in the child health community about the impact of managed care, particularly on CSHCN. The capitated, patient-based focus of managed care could encourage emphasis on coordination and patient-centered care. On the other hand, there is the possibility that access to care for CSHCN may be constrained in these managed care environments.[4] Many MCOs use primary care providers (PCPs) as gatekeepers for referrals. In particular, there are concerns that MCOs may limit access to the specialty services many CSHCN find important. No existing studies addressed this issue previously, although a few examined outcomes for children with particular chronic conditions such as asthma or diabetes.

After the implementation of Medicaid managed care, Dr. Shenkman and her research team conducted studies related to children's health care use within managed care, including analyses related to CSHCN. They also conducted evaluations of the Florida Healthy Kids Program, established by the Florida Legislature in 1990 and now the largest component of the state's SCHIP program. Florida's SCHIP program is designed to provide coverage to uninsured children who are not Medicaid eligible and cannot afford private insurance. When the announcement for this particular AHRQ grant was published, Dr. Shenkman indicated that it aligned perfectly with her interests.[5] She was able to build on her earlier work and capitalize on connections she had made in the states of Florida and Texas when evaluating their child health programs.

RESEARCH GOALS

This study aimed to understand how managed care features are related to certain health care quality outcomes for CSHCN. The analysis assessed the effect of selected organizational features of eight Florida MCOs on the care received by CSHCN enrolled in SCHIP. In particular, the researchers wanted to examine the relationship between specific MCO characteristics and CSHCN's (1) use of health care services, (2) specialty care referrals, and (3) families' experience with their children's medical home.[6] The researchers viewed the examination of health care use as a critical component of quality assessment for CSHCN because of the perception that MCOs might restrict access to services. Access to specialty care is especially important to CSHCN, and there was concern that managed care was a constraint. In addition, ensuring that all children, particularly CSHCN, have a medical home is a national goal outlined in the *Healthy People 2010* report.[7] Access to a medical home is especially important for CSHCN because of the complexity of their care, but little was known previously about how MCO characteristics influence parents' experiences with their children's medical homes.

STUDY DESIGN

The researchers employed a quasi-experimental design, with data collected prospectively over a two-year period. Data were drawn from a population of 2,223 children who were enrolled in Florida's SCHIP program, had a diagnosis indicative of a chronic condition, and were experiencing consequences from those conditions. Eight MCOs were used in the analysis because of their stability in the SCHIP program and their location in large town and metropolitan areas.[8] At the beginning of the study, 11 MCOs participated in the Healthy Kids Program, but a few subsequently dropped out. All of the MCOs in the study used PCPs as gatekeepers. SCHIP required the MCOs to provide the same benefits package and copayment structure, but they could use different organizational strategies to deliver care. The researchers drew on four main data sources for the study: child-level enrollment information, child-level health care claims/encounter data, parent telephone survey data, and MCO administrator interview data.

Dr. Shenkman and her colleagues selected MCO characteristics to study based on their potential association with the receipt of specialty care. The following characteristics were included: (1) characteristics of the provider network, (2) use of prior authorization procedures for specialty referrals, (3) presence and type of disease management programs, and (4) ownership status of the MCO. The researchers also included information about each child's PCP such as provider type (e.g., pediatrician, family practitioner), provider compensation (e.g., fee-for-service [FFS], capitation), and child-specific information (e.g., socioeconomic status).

Using the data, the researchers examined the relationship between MCO characteristics and CSHCN's outpatient use rates, inpatient admissions, emergency room visits, outpatient specialty use, and families' experiences with their children's medical homes. Each analysis included sociodemographic variables that might influence the outcomes (i.e., child's age, gender, family income, race, ethnicity, and the number of months the child was enrolled in the program). There was no comparison group, because the sample included only CSHCN in managed care plans.

PRINCIPAL FINDINGS AND PUBLICATIONS

All sociodemographic variables except months of enrollment, ethnicity, and place of residence were significantly related to outpatient use rates for CSHCN. White children had significantly higher outpatient rates than African-American children. Inpatient use rates were not significantly associated with income, months of enrollment, place of residence, and ethnicity. For emergency room use, Hispanic children had higher rates of use than non-Hispanic children.

For the specialty care use analysis, certain child-level characteristics and MCO organizational characteristics were associated with greater specialty care use among CSHCN. African-American children were 55 percent less likely than white children to receive an outpatient physician specialty visit.[9] The number of months the child was enrolled also was significant, with the child's odds of having a specialty visit increasing by 5.4 percent for each additional month of enrollment. Three of the five MCO characteristics were significantly related to the odds of a child having a specialist visit. Children cared for in MCOs with (1) a lower percentage of PCPs paid FFS (versus capitation), (2) a greater percentage of pediatricians in the PCP network, and (3) offers of financial incentives for meeting quality of care standards, all had higher odds of outpatient physician specialist visits.

Findings from the medical home analysis indicated that African-American parents were about half as likely as white parents to report that their provider treated them compassionately or followed up with them after a specialty visit. A surprising finding was related to the MCO characteristic variables because the higher the percentage of pediatricians in the network, the less likely it was for the parent to give a positive report about (1) provider availability, (2) access to primary care services, (3) compassionate care from their PCP, and (4) receipt of comprehensive services. The researchers thought it likely that there were underlying community-level or practice setting characteristics that might explain this finding. Another finding was that the higher the percentage of PCPs paid FFS, the more likely it was that the family would report better provider availability and compassionate care. This result was not surprising to the researchers, since providers in FFS environments face fewer constraints in ordering services when compared to providers in capitated environments.

Dr. Shenkman published the results from this research grant in *Pediatrics* and *Health Services Research,* and also presented her findings at an AHRQ conference.

POLICY RELEVANCE AND TARGET AUDIENCE

The information from this research could be used to improve the structure of managed care arrangements for CSHCN. Dr. Shenkman stated that her findings regarding FFS, capitated payments, and specialty referrals support additional examination of blended payment systems.[10] Blended payment systems could encourage capitated PCPs to manage CSHCN more comprehensively, rather than making specialty referrals that may be discretionary. The study findings also indicate that providing financial incentives for meeting quality-of-care standards and ensuring access to pediatricians in the network also are important factors that affect the receipt of specialty care. Dr. Shenkman indicated that her research suggests that MCOs choosing to use these strategies would provide better access to specialty care for CSHCN. She hoped that the study findings could help state governments to improve their contracts with MCOs.

The research findings were targeted to state programs (e.g., Medicaid, SCHIP), MCOs, and researchers. Dr. Shenkman has developed long-term, solid relationships with policymakers in Florida and Texas, which facilitates her ability to reach these two target audiences. Specifically, since 1991, she has had a contract with Florida's Healthy Kids Program to conduct evaluations of the program. She also advises Florida's Medicaid agency (Agency for Health Care Administration) about its Medicaid contracts, and has evaluated Florida's Title V program and a special waiver project in the state designed to provide palliative care for children with life limiting conditions. Dr. Shenkman noted to us that some of her earlier research was used as the basis for lowering the premium amount required for SCHIP enrollees in Florida. Her research showed that premium subsidies should reach more low-income families, and the state responded.[11]

Dr. Shenkman also has provided evaluation and technical assistance to Texas' Medicaid agency (the Health and Human Services Commission [HHSC]) for their CSHCN population and SCHIP programs. Texas legislation enacted in 2003 required HHSC to show that CSHCN patients received high-quality care under Medicaid managed care, and HHSC contracted with Dr. Shenkman to help them evaluate whether the programs have met these requirements. In addition, as part of her work in Texas, she conducted a survey of SCHIP enrollees that led to legislation to lower premiums and increase co-payments after the results showed that certain populations were unwilling to pay the SCHIP premium but would pay a co-payment at the point of service. State staff also indicated that HHSC had had no prior experience with risk-adjustment payment to providers until Dr. Shenkman helped educate them and the Legislature. Her information then was applied directly to new risk-adjustment systems in the Medicaid program.

DISSEMINATION

In addition to publishing her results in peer-reviewed journals, the PI capitalized on her relationship with agencies in Florida and Texas to further facilitate dissemination of her findings to target audiences. She was invited to present her results from the AHRQ grant before staff in Florida's Agency for Health Care Administration and the Texas HHSC.

A director at Florida Healthy Kids thought the research from this grant was likely useful to the state Department of Health's children's medical health program, as well as her agency, because both organizations are interested in understanding access issues for CSHCN. Although neither Florida Healthy Kids nor Texas HHSC have used the research yet, the director in Florida thought it possible that they would use the findings in the future to help develop better contractual agreements with health plans so that they could provide better access for CSHCN. She also said that the research could help her program identify areas of concern and of which they had not been aware (e.g., the importance of financial incentives for receipt of specialty care).[12]

Furthermore, Dr. Shenkman was able to build on the research she conducted for this grant. She subsequently received another grant from AHRQ to examine access and quality of care for adolescents (including those with special needs) in Florida's Healthy Kids Program. Results from this study were published in peer-reviewed publications, including *Health Affairs* and *Health Services Research*, and also led to an invitation by the Florida governor's office to present the results of this work to a joint session of the Legislature. In addition, Dr. Shenkman received funding from the Robert Wood Johnson Foundation to continue her research on MCO characteristics and CSHCN.

FACTORS AFFECTING TRANSLATION

Relationship with States. The main factor that facilitated the use of this research was the PI's long history of collaboration with the Florida and Texas Medicaid agencies. Staff in both states regard their relationship with Dr. Shenkman as positive and productive. These relationships helped Dr. Shenkman to disseminate her research findings to her target audience.

Economic Conditions. Addressing issues raised by this study typically requires some additional resources. Legislators are more likely to support such changes when the state budget is not facing a shortfall. The economy was in better shape in the late 1990s, when Florida was just starting its SCHIP program; this circumstance made it more feasible to gain legislative support for responding to the research findings by lowering premiums in SCHIP. When funds became tighter, the Legislature responded much less positively to the findings of another study, probably because of their resource implications.

Study Limitations. Study limitations also may have hampered use of the research highlighted in this case study. The study does not provide clear benchmarks for assessing whether the specialty care received by CSHCN actually was needed.[13] The results could not determine definitively as to whether specialty care use had been appropriate, or whether some referrals had been unnecessary. It is possible that some pediatricians made unnecessary referrals; policymakers may have been interested in this information. The MCOs in the study also provided limited information about their specialty networks, and were unable to give the number of specialists available to CHSCN, which also might have been useful information to policymakers.

KEY LESSONS FOR ENHANCING THE USE OF RESEARCH IN POLICYMAKING

Relationships with Policymakers are Critical. The PI has utilized her relationships with state policymakers to facilitate data access for her research and help develop policy-relevant questions. Her longstanding relationships with policymakers provide a forum for getting her research into the public domain. Dr. Shenkman cautioned that researchers must recognize the difficulties inherent in balancing a commitment to policymakers (e.g., technical support, writing reports) with academic commitments (e.g., publishing). Having relationships gives valuable access to legislatures and state agency leaders, but there are no academic career benefits.

An Understanding of the Current Environment Is Important. If a researcher's target audience is state or federal policymakers, it is important to understand the fiscal situation of a particular state, because that may affect whether the research is useful to policymakers. If a researcher's findings recommend increasing the costs of a program, they are unlikely to receive a warm reception. During times of difficult fiscal conditions, policies often are based on available resources. Tailoring results or key points to the state's current budget environment may enhance the likelihood of the research being used.

Translation Makes a Difference. The state Medicaid staff with whom we spoke said that Dr. Shenkman knows how to communicate easily with policymakers, and she explains research questions and methods very easily. The policymakers in Texas and Florida hold Dr. Shenkman in high regard as an objective researcher, an effective communicator and educator, and an expert in the multiple dimensions of health policy. These attributes significantly improve the possibility that her research will be utilized.

ENDNOTES

[1] McPherson, M. et al. “New Definition of Children with Special Health Care Needs.” *Pediatrics,* vol. 102, no 1, July 1998, pp. 137-139.

[2] Peters, C.P. “Children with Special Health Care Needs: Minding the Gaps.” *National Health Policy Forum Background Paper*. June 27, 2005.

[3] Hill, I., Lutzky, A.W., and R. Schwalberg. “Are We Responding to their Needs? Early Experiences Serving Children with Special Health Care Needs under SCHIP.” The Urban Institute. Occasional Paper No. 48, 2001.

[4] AHRQ Grant Application, No. U01HS09949-01, PI: Elizabeth Shenkman.

[5] Telephone interview with Dr. Shenkman, May 1, 2008.

[6] A medical home is a comprehensive approach to providing medical care involving care managed and coordinated by a personal physician. The American Academy of Pediatrics characterizes a medical home as “accessible, continuous, comprehensive, family-centered, coordinated, compassionate, and culturally effective.” (American Academy of Pediatrics. “The Medical Home: Medical Home Initiatives for Children with Special Needs Project Advisory Committee.” *Pediatrics,* vol. 110, no. 1, July 2002, pp. 184-186.)

[7] U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health.* 2nd ed. Washington, DC: U.S. Government Printing Office, 2002.

[8] AHRQ Grant Application.

[9] Final Report to AHRQ, Grant No. U01HS09949-02, PI: Elizabeth Shenkman.

[10] Shenkman, E., Wu, S., Nackashi, J., and J. Sherman. “Managed Care Organizational Characteristics and the Quality of Care for Children with Special Health Care Needs.” *Health Services Research,* 2005.

[11] Shenkman, E., Bucciarelli, R., Wegener, D.H., Naff, R., and S. Freedman. “Crowd Out: Evidence from the Florida Healthy Kids Program.” *Pediatrics,* vol. 104, no. 3, 1999, pp. 507-513.

[12] Telephone interview with Jennifer Kiser-Lloyd, Director of External Affairs for Florida Healthy Kids, May 16, 2008.

[13] Shenkman, E., Tian, L., Nackashi, J., and D. Schatz. “Managed Care Organization Characteristics and Outpatient Specialty Care Use among Children with Chronic Illness.” *Pediatrics,* vol. 115, no. 6, 2005, pp. 1547-1554.

APPENDIX D

COMPARATIVE FUNDERS ANALYSIS

INVESTIGATOR-INITIATED RESEARCH ON COSTS, MARKET FORCES, ORGANIZATION, AND PRODUCTIVITY:

COMPARING FUNDING APPROACHES AT AHRQ TO THOSE AT NIH AND RWJF'S HCFO PROGRAM

by

Kate Stewart
Tara Krissik
Marsha Gold

November 2008

OVERVIEW

To better understand AHRQ's role in supporting and disseminating investigator-initiated research on costs, market forces, productivity, and organization, MPR conducted a comparative analysis of two other public and private funders that support similar research—the National Institutes of Health (NIH) and the Robert Wood Johnson Foundation's (RWJF's) *Changes in Health Care Financing and Organization* (HCFO) program. We conducted 10 interviews (5 for each funder), including representatives from each organization as well as persons outside each organization with experience as grant reviewers and grantees, and searched websites for relevant information. The goals of the comparative analyses were to understand how differences in grant-funding mechanisms, priorities for funding, and dissemination support vary across the funders, and identify potential lessons for AHRQ on making more visible to policymakers and other end users the research on costs, market forces, productivity, and organization.

AHRQ and NIH: Key similarities and differences

Our research suggests that the lifecycles of investigator-initiated research at AHRQ and NIH are quite similar; as federal funding agencies, they use the same mechanisms and processes to fund grants. Neither organization has a separate structure dedicated to funding studies of costs, market forces, productivity, and organization. Instead, they integrate such responsibilities into their general organizational structure, using staff who have multiple responsibilities. Dissemination activities targeted at policymakers are primarily the responsibility of the grantee, although newsworthy results may be disseminated via press releases by communications offices within each institution. Neither organization devotes many resources to disseminating results to policymakers. NIH's emerging interest in dissemination focuses on the adoption of empirically tested interventions in the clinical settings, which also appears to be the focus of many of AHRQ's dissemination efforts.

NIH is much larger than AHRQ and its size appears to have attracted growing interest from health services researchers looking for additional sources of funding. NIH interviewees noted the decline in funding at AHRQ for investigator-initiated research on costs, market forces, productivity, and organization (Our analysis shows that AHRQ funding for this research peaked at approximately $19 million in 2002 and declined to approximately $5 million each in 2005 and 2006.) NIH interviewees said that they have seen more applications relating to these types of research projects over time.

NIH does not specifically track research funded on cost, market forces, productivity and organization. Using criteria that are likely quite a bit broader, NIH reports its funding for health services research at $887 million in 2004, and estimates this will increase about 15 percent in 2009, to $1,021 million. The extent to which the level and increase in funding in health services research is directed towards research on costs, market forces, productivity, and organization that would be of interest to AHRQ is unclear. NIH interviewees expressed interest in these types of studies, describing various NIH-funded studies of health care costs and utilization using large databases linked to claims data, trials that randomized clinic sites to various interventions to improve quality of care, and studies of providers and delivery system factors that impede or facilitate care. Interviewees did note, as well, that there is debate within the NIH about whether it should be funding these types of research projects or whether it should focus more on clinical and basic science research.

AHRQ and HCFO: Key similarities and differences

The HCFO program also funds investigator-initiated research on topics similar to those funded by AHRQ, although at a lower level of funding. Funding levels at HCFO were approximately $3 and $4 million dollars in 2006 and 2007, respectively. The HFCO program differs from AHRQ and NIH in several other key aspects. First, HCFO funds only those research projects likely to be policy relevant (i.e., HCFO rejects applications that have methods development as their primary goal). In addition, HCFO is structured to encourage program staff to interact frequently with applicants during the application process to help frame the research questions so as to increase a project's relevance to policymakers. They also review semi-annual reports to identify projects that appear to be good candidates for future dissemination work. While some AHRQ program officers may perform such functions as well, they often have many other responsibilities and there is no dedicated organizational structure that encourages such grants development and oversight.

HCFO also provides considerably more support for dissemination activities targeted to policymakers, including hosting small-scale meetings with grantees and policymakers and sponsoring Capitol Hill briefings. They supply written dissemination materials, including policy briefs sent to a wide list of policymakers and researchers via email, and webinars. HCFO's dissemination activities have led to a number of their studies achieving high visibility among policymakers. Although the HCFO name is not as well-known as other organizations, such as the Kaiser Family Foundation and Commonwealth Fund, policymakers often are aware of the research funded by HCFO.

Conclusions

Many of our interviewees described AHRQ as the "natural home" for research on costs, market forces, organization, and productivity, although they all noted that the decline in funding for this type of research in the recent past has led investigators to seek alternative sources for such support. Results from analyses of publicly available information and interviews with persons affiliated with the NIH suggest that the number of applications and funding for health services research projects have been increasing over time. Having more available funds, NIH is generally able to fund larger projects compared to AHRQ. However, NIH interviewees also noted the internal debate within NIH on the appropriateness of NIH funding for these types of studies.

HCFO differs from AHRQ and NIH in several respects. First, as a program (rather than a multi-objective agency), it is wholly focused on funding studies related to costs, financing, and organizations. In funding decisions, it also places considerable weight on the likely policy relevance and contributions to the field, since its mission excludes developmental research with more distant payoffs. Compared to AHRQ and NIH, HCFO provides considerably more support for dissemination activities targeted to policymakers, including hosting small meetings with grantees and policymakers, providing written dissemination materials, and using webinars.

The similarities between AHRQ and NIH in terms of grant funding mechanisms and dissemination support (or lack thereof) suggests that there is little for AHRQ to learn from NIH in terms of making investigator-initiated research more visible to policymakers. However, HCFO's program provides some potentially useful lessons for AHRQ regarding improved visibility. Features used in HCFO that could be useful for more systematic application at AHRQ include:

- Methodically reviewing grantees' semi-annual reports for potential policy-relevant findings that may be useful to policymakers and good candidates for dissemination support
- Facilitating communication between investigators and policymakers through in-person meetings. These meetings appear mutually beneficial to investigators, who learn more about issues that policymakers are worried about and to policymakers, who learn about new research on important topics. Such meetings also help to raise awareness about the organization as a source of funding for this type of research
- Electronic communications, including newsletters, policy briefs, and webinars, are easy and cost-effective methods for reaching wider policy audiences. In addition, frequency of contact with potential end-users of the research impacts the organizations' visibility; organizations such as Kaiser Family Foundation and the Commonwealth Fund, which blast daily health policy news to subscribers, have achieved better name recognition than HCFO.

STUDY GOALS

As part of its mission, the Agency for Healthcare Research and Quality (AHRQ) is charged with improving the "…quality, efficiency, and effectiveness of health care by providing public and private decision makers with the information, tools, and assistance they need to improve the way they organize, finance, pay for, and regulate health care."[1] Between 1999 and 2006, AHRQ funded approximately 150 investigator-initiated research grants on topics ranging from market competition and purchaser behaviors to studies of the relative importance of organizational characteristics on health care outcomes and costs, as well as consumer responses to various market incentives (Krissik et al. 2007).

To help evaluate its activities, AHRQ contracted with Mathematica Policy Research, Inc. (MPR) to address four questions:

- Since the late 1990s, what grant research has AHRQ funded in this area?
- How are research findings disseminated to decision makers and what factors contribute to their use?
- What is AHRQ's role in supporting research in this area and how does it compare to other funders?
- What action could enhance AHRQ's efforts to track, disseminate, and encourage the use of research findings?

This paper aims to strengthen the evaluation by providing information on one relevant perspective—a comparison of AHRQ's role and approach to such grant making with that of several other major public and private funders in this area. We were particularly interested in understanding (1) the kinds of research in this area that other funders tend to support, and (2) how other funders consider policy relevance and other user interests in making grant awards and encouraging the dissemination of findings. We explored both of these topics with AHRQ in Phase I of our evaluation. By showing how similar issues are handled in different organizations, we sought to gain insights that would enrich our ability to address the questions AHRQ had for this evaluation.

METHODS: SELECTING COMPARISON PROGRAMS AND DATA COLLECTION

For purposes of this task, we focused on two major private and public funders—the Robert Wood Johnson Foundation's Health Care Financing and Organization (HCFO) program and the National Institutes of Health (NIH). HCFO is a private foundation-funded program with a long history of funding investigator-initiated research in the area of interest to AHRQ. The NIH, like

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[1] AHRQ Portfolios of Research website. Available at http://www.ahrq.gov/fund/portfolio.htm. Last accessed August 4, 2008.

AHRQ, is a federal agency that allocates a substantial amount of its funding to investigator-initiated research. Although its mission is driven by basic science and clinical research, NIH is a large institution, and among its many Institutes and programs are some whose interests have led them to fund, or consider funding, grants of the type we examine in this study.

While our evaluation of AHRQ's activities has many components, the part most relevant to this paper is the descriptive and administrative review of relevant grant-making activities we developed in Part I of the evaluation (Appendix A provides a more complete description of AHRQ's grant-making activities from our interim report). This included a review of grant-making procedures and a description of how AHRQ manages activities in support of the active dissemination of grantee efforts. Our analysis was based on a review of AHRQ's website and relevant documents, followed by interviews with project officers, and the agency's grants management and knowledge and information offices.

We had fewer resources available to study these issues in other organizations; however, we used a similar strategy. We interviewed representatives at HCFO and at various Institutes within the NIH, and searched the websites of these organizations for relevant information.

To better understand the HCFO program, we conducted a group interview with:

- Sharon Arnold, HCFO Director
- Debbie Rogal, HCFO Deputy Director
- Bonnie Austin, HCFO Assistant Deputy Director

We also interviewed:

- Nancy Barrand, Special Advisor for Program Development at RWJF, who has been involved with HCFO since its inception
- Jack Hoadley, Research Professor at the Georgetown Public Policy Institute, who had been an HCFO grantee and conducted an evaluation of HCFO for RWJF in 2001

Identifying individuals to talk with at NIH presented challenges given the large size and organizational complexity of NIH and the limited resources available for our study. To identify appropriate persons to interview at NIH, we reviewed Streamlined Non-Competing Award Process (SNAP) reports for all 52 projects funded in fiscal year 2007 from NIH's Health Services Organization and Delivery (HSOD) and Social Sciences and Population Studies (SSPS) study sections (Informants had told us that most research of the type we were interested in would have been funded through grants that came through these sections.) We reviewed the list of 52 to identify those that appeared to be similar in focus to those funded by AHRQ, and to identify the project officers associated with each grant. We also organized this list of grants by funding Institute (e.g., NIA or NCI). Drawing on this analysis, we contacted at least one project officer from the three Institutes that funded the most AHRQ-like studies (i.e., the National Institute on Aging [NIA], the National Cancer Institute [NCI], and the National Heart Lung and Blood

Institute [NHLBI]). (See Appendix Table B-1 for relevant projects by Institute.) We also attempted to interview at least one person from the HSOD review committee. Ultimately, we interviewed the following individuals affiliated with NIH:

- David Bradford, Professor, Health Administration and Policy, Medical University of South Carolina, who is currently a member of the HSOD review committee and has received grant funding from both the NIH and AHRQ
- Steven Clauser, Chief, Outcomes Research Branch, Applied Research Program, Division of Cancer Control and Population Sciences, NCI
- Lawton Cooper, Medical Officer, Clinical Applications and Prevention Branch, Division of Prevention and Population Sciences, NHLBI
- Carrie Klabunde, Health Services and Economics Branch, Applied Research Program, Division of Cancer Control and Population Sciences, NCI
- Sid Stahl, Branch Chief, Individual Behavioral Processes Branch, Division of Behavioral and Social Research, NIA

The goals of these interviews were to (1) understand the grant-funding mechanisms used by each institution to fund investigator-initiated research; (2) determine the extent to which funding research on costs, market forces, organization, and productivity appears to be a priority for each organization; and (3) describe differences in dissemination activities. In this paper we describe what we learned from each agency about these issues.

STUDY FINDINGS: COMPARISONS ACROSS THE ORGANIZATIONS

Investigator-Initiated Research at AHRQ

Investigator-initiated research at AHRQ generally is funded under research projects (i.e., “R” grants, such as R01s, R03s, R21s); research program projects and centers (“P” grants); and cooperative agreements (“U” awards).[2,3] This case study focuses primarily on research project grants,[4] as the research program projects and centers and cooperative agreements are issued under specific requests for applications (RFAs) and may undergo a different review process.[5]

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[2] AHRQ also offers grant funding for career development grants (“K” awards), fellowship programs (“F” awards), and training programs for pre- and post-doctoral fellows (“T” awards).

[3] AHRQ website. Available at http://www.ahrq.gov/fund/grantdesc.htm. Last accessed August 21, 2008.

[4] Although we focus on research grants in this document, it is important to note that 14 of the 149 grants on costs, market forces, organizations, and productivity funded by AHRQ since 1998 and identified by MPR were cooperative agreement (“U”) grants.

[5] In contrast to research grants, which are initiated by investigators on topics of their choosing, RFAs invite grant applications in specific, well-defined topic areas and are designed to stimulate activity in AHRQ programmatic

Investigators initially submit their research grants to the Center for Scientific Review (CSR), which assigns each grant a number for tracking purposes, after which it sends each grant to its appropriate review committee. After submission to CSR, the relevant phases of the grant lifecycle include (see Appendix A for additional details):

1. ***Application and Review.*** Research grants are evaluated by a peer-review study section committee three times per year, typically by the Healthcare Systems Research (HSR) study section. Membership on the review committee includes Ph.Ds, medical doctors, nurses, and other researchers. The review committee provides a summary statement for each application, which includes critiques, priority score, percentile ranking, and budget recommendations.

   The review committee members must use specific criteria to rate grant applications, including:[6]

   - Significance and originality
   - Methods and data
   - Organization of the project
   - Investigators
   - Budget
   - Facilities, resources, and environment

Other factors considered in evaluating grants include:

- Protection of human subjects
- Inclusion of women and minority subjects
- Inclusion of additional AHRQ priority populations
- Importance and impact (if applicable)
- Data-sharing plan

(continued)
research priority areas. In addition, applications in response to RFAs undergo an initial examination to assess responsiveness to the RFA before the committee conducts its review. Source: AHRQ website. Available at http://www.ahrq.gov/fund/grantix.htm. Last accessed August 21, 2008.

[6] AHRQ website. Available at http://www.ahrq.gov/fund/peerrev/peerproc.htm. Last accessed August 21, 2008

2. ***Funding Decision.*** AHRQ staff review the summary statements and consider scores, reviewers' recommendations, relevance to AHRQ research objectives, and availability of funds. To obtain funding, AHRQ project officers must present applications that meet the criteria to the Executive Management Meeting, where all award determinations are made.

3. ***Conduct of the Research.*** Once the research has been funded, the investigators are responsible for implementing the research plan.

4. ***Publications and Other Dissemination Activities.*** Grantees are responsible for developing and submitting manuscripts on their research to peer-reviewed journals. If they have proposed to conduct any other dissemination activities as part of the funded grant, such as presenting at conferences, they also are accountable for these activities. AHRQ may also assist in dissemination efforts. For example, project officers generally alert AHRQ's Office of Communications and Knowledge Transfer (OCKT) when grantees publish their findings. OCKT may include a citation and information about the research in its monthly electronic newsletter, *Research Activities*, which is sent to a distribution list of approximately 1,000 researchers, clinicians, and health systems. OCKT also may issue press releases to appropriate press outlets, depending on how "newsworthy" they consider the results. In addition, OCKT may disseminate relevant findings from AHRQ-funded research through AHRQ "learning networks" of state Medicaid programs, other OCKT publications, and interviews and other materials posted on the AHRQ website.

5. ***Reporting.*** Investigators typically provide annual progress and financial reports to AHRQ for those projects with more than one budget period. Within 90 days of the end of the project period, the investigator is required to submit a final report.

A project officer is assigned to each grant at the time of application and remains involved as the liaison between the investigator and AHRQ throughout the grant lifecycle. The level of involvement of the project officer varies. Some provide technical assistance to investigators prior to the submission of an application, whereas others become involved only after a grant has been funded. Even after funding, the role of the project officer varies, with some project officers having little contact with investigators, aside from approving interim and final reports, and others taking a more active role to provide assistance with data needs, pre-publication issues, and general questions. Towards the end of the grant period, some project officers may provide dissemination support by writing synopses for the AHRQ's *Research Activities* newsletter, setting up conferences with policymakers, or facilitating special journal issues on a given topic, while others do not involve themselves with these activities.

AHRQ funding for research on costs, market forces, productivity, and organization has fluctuated between the late 1990s and 2006. Evaluating the total value of the 149 such grants funded by AHRQ between 1998 and 2006 and identified by MPR in the first phase of this study, we found total funding was approximately $81 million. In 2000, the funding commitment was approximately $10 million, increasing to approximately $19 million by 2002, and then falling to approximately $5 million per year in both 2005 and 2006 (Krissik et al, 2008). This recent decline in funding is consistent with comments drawn from our interviews, in which numerous interviewees noted that funding at AHRQ for this type of research had declined in the recent past.

In general, AHRQ has a limited ability to track the extent to which AHRQ-funded research reaches policymakers and other decision makers, particularly after the grants end. There is little infrastructure within the agency to support such tracking, and the realities of investigator-initiated research often make it difficult. For example, researchers often publish papers after the completion of the grant and may not alert AHRQ to the publication. AHRQ publishes newsletters aimed at disseminating research findings but accepts that researchers are hesitant to publish research findings in them prior to submitting their findings to peer-reviewed publications, for fear that inclusion in AHRQ newsletters will jeopardize publication prospects.

Typically, AHRQ depends on its grantees to disseminate their findings. To the extent that AHRQ is aware of a study or publication, it will try to take note of it in *Research Activities*. Although studies of this type rarely are included on the agenda of AHRQ's annual meetings, AHRQ also sponsors conferences around topics that relate to these grants and will invite investigators to present at various conferences and meetings with policy audiences.

Comparison with NIH

Grant-funding processes and mechanisms at NIH are very similar to those at AHRQ, since the two operate under some of the same grant-making federal policies and procedures. In particular, all grants submitted both to NIH and AHRQ are sent initially to the Center for Scientific Review (CSR) for review and tracking. CSR then sends the applications to the relevant study sections. NIH and AHRQ use the same types of funding mechanisms for research grants (e.g., R01, R03, R21, K-awards, etc.), and all investigator-initiated grants are reviewed by expert review panels. The review committee at NIH that most often handles grant applications related to costs, market forces, organization, and productivity is the Health Services Organization and Delivery (HSOD) review committee, although a few interviewees noted that the Social Sciences and Population Studies (SSPS) study section also reviews these types of studies. The HSOD committee is comprised almost equally of medical professionals and researchers holding Ph.Ds, including economists and health services researchers, while the SSPS review committee is comprised primarily of Ph.Ds.

The stated review criteria are similar to AHRQ and include:[7]

- Significance of the proposed study
- Methodological approach
- Innovation

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[7] NIH website. Available at http://grants.nih.gov/grants/peer_review_process.htm. Last accessed August 4, 2008.

- Qualifications of the investigator(s)
- Scientific environment in which the study will be conducted

Other factors that affect grant scores are:

- Recombinant DNA research
- Protection of human subjects from research risks
- Inclusion of women, minorities, and children
- Vertebrate animal research
- Select agents

Our interviewees noted that factors seen as critical to writing a solid grant application include clearly stating the policy and clinical implications of the study, demonstrating that the research is feasible, discussing the limitations of the study, and not attempting to be too ambitious. If the grant proposes to do too much, the reviewers may conclude that the study is not achievable. In addition, a solid grant will have either data in hand or support for obtaining the data.

We also learned that reviewers' ratings of grant applications are expected to differ based on their professional training. For example, medical professionals typically focus on the clinical aspects of research proposals, whereas economists and other methodologists focus on statistical and methodological issues. For example, a grant application for research on clinical outcomes may provide a strong methodological approach but if it has no clinical face-validity, it will receive a low score because clinicians on the review committee fail to accept the basis of the research. Similarly, a proposal with an interesting research question but a weak methodological approach will receive a low score because the methodologists on the review committee identify the study's weaknesses. This mix of clinical and methodological expertise on the review committees is intentional; it helps to provide a thorough review of all grant applications.

A key issue for applicants is answering the "so what" question pertaining to their proposed research. As the NIH's mission is to fund "…science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability,"[8] the research must advance the mission of the Institute. Grant applications that fail to demonstrate any research implications relevant to extending healthy life or reducing the burdens of illness and disability are unlikely to obtain funding.

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[8] NIH website. Available at: http://www.nih.gov/about/index.html#mission. Last accessed September 25, 2008.

In the interviews, we heard that the clinicians on the HSOD review panel generally are open to research applications on health care costs, market forces, organization, and productivity as long as they meet or exceed the review criteria and Institute-specific research goals. Applications relating to these topics do not receive lower scores solely because they are less clinically focused in general. Rather, they receive scores based on their research design and importance to NIH. Thus, a good health services research application is as likely to receive funding as a good clinical application.

Several interviewees noted that projects of mutual interest to NIH and AHRQ can be co-funded; typically a project officer from the institution that received the application will approach a project officer at the other institution with a similar research portfolio to see if there is interest in co-funding projects. Willingness to co-fund projects may also help a proposal to obtain funding. Although NIH and AHRQ generally use funding lines based on priority scores and percentile rankings to determine which grants are funded, several NIH interviewees noted that there is some room for discretion. In particular, agencies may fund studies proposed by new investigators that fall just above the funding lines, and studies with a commitment from a co-funder may be funded if it is near the funding cut-off line.

In addition, NIH and AHRQ have worked together in the past to develop joint PARs (i.e., program announcements with special receipt, referral, and/or review consideration) for research on specific topics. It is our understanding that the NIH, with its greater resources for funding investigator-initiated research, is generally the primary funder of projects proposed in response to joint NIH-AHRQ PARs.

There was a perception among all interviewees that NIH has received more grant applications for health services research over the past few years, and that the "deeper pockets" of the NIH relative to AHRQ was a major factor in this trend. NIH interviewees noted that they considered $250,000 to be a relatively small amount for research projects but when they attempted to obtain co-funding at that level from AHRQ for relevant projects, AHRQ often was unable to provide funding at that level.

This perception of increased funding at NIH for studies related to costs, organizations, productivity, and market forces may be borne out by data, as funding for health services research projects at NIH is estimated to increase by approximately 15% from $887 million in 2004 to $1,021 million in 2009.[9] However, it is unclear whether this increase in health services research at NIH is concentrated among these topics, or if the increase in grant funding is for other types of health services research.

The HSOD and SSPS review committees are relatively new study sections at the NIH, formed to meet the need for reviewing health services research applications. This provides further evidence of the growing number of health services research applications to NIH. Most respondents thought that the trend in increased health services research at NIH was a result of less funding being available at other organizations, including AHRQ. One interviewee noted that

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[9] National Institutes of Health. Estimates of Funding for Various Diseases, Conditions, Research Areas. Available at http://www.nih.gov/news/fundingresearchareas.htm. Last accessed August 7, 2008.

they currently receive a number of applications from “AHRQ refugees.” However, there is debate within the NIH about whether it should be funding these types of research projects or whether it should focus more on clinical and basic science research and leave this type of funding to other organizations.

Even within the context of this internal debate about health services research in the NIH, interviewees expressed interest in health services research and were able to describe various studies that the NIH has funded on costs, market forces, organization and productivity. These studies include analyses of large population-based databases linked to Medicare claims and the area resource file to evaluate costs and utilization of various factors, as well as studies randomizing medical practices to various interventions to identify best practices for improving quality of care, and studies of providers and delivery system factors that impede or facilitate care.

To better understand the extent to which NIH may be funding studies related to costs, organizations, productivity, and market forces that may be of interest to AHRQ, we searched the NIH CRISP database for all funded studies reviewed by HSOD or SSPS study sections between 2004 (the earliest date available for these review committees) and 2007. Appendix Tables B-2 and B-3 provide a list of all unique studies funded by these study sections by year. (If a study was funded over several years and appeared in the CRISP database in multiple years, we categorized it by the first year of funding.) We categorized studies by whether or not they included analyses of market effects, organizational effects, or financial effects on consumer behavior for various outcomes (consistent with our analyses of ARHQ grants described in Krissik et al, 2007) that may be relevant to the types of studies that AHRQ funds.

Table 1 shows the number of NIH-funded studies that were reviewed by HSOD and SSPS review committees between 2004 and 2007, including the number and percent of these studies whose research topics may be of interest to AHRQ. Compared to SSPS, HSOD funded more studies overall and on research topics similar to AHRQ. In particular, HSOD funded 167 studies between 2004 and 2007; of these, 46 (or 27.5 percent) appear to have studied issues that may be of interest to AHRQ. SSPS funded 98 studies between 2004 and 2007; 8 of these (8.2 percent) focused on topics that may overlap with AHRQ-funded studies. The share of funded studies that were potentially relevant to AHRQ’s research on costs, market forces, organization and productivity varied across years for both review committees. While there did not seem to be an increasing share of AHRQ-like projects funded between 2004 and 2007, the recent advent of these study sections suggest that these topics have become important over time at NIH. Also, we do not have data on the total number of studies reviewed each year (i.e., including those that did not receive funding). As a result, we do not know if the overall number of applications on AHRQ-like topics has been increasing over time at NIH.

Table 1. NIH-Funded Studies Reviewed by HSOD and SSPS Review Committees, 2004-2007

	Year				
	2004	2005	2006	2007	All Years: 2004-2007
HSOD					
Total number of funded studies	35	42	46	44	167
Number potentially relevant to AHRQ	8	17	7	14	46
Percent potentially relevant to AHRQ	*22.9%*	*40.5%*	*15.2%*	*31.8%*	*27.5%*
SSPS					
Total number of funded studies	18	23	22	35	98
Number potentially relevant to AHRQ	4	1	2	1	8
Percent potentially relevant to AHRQ	*22.2%*	*4.3%*	*9.1%*	*2.9%*	*8.2%*

For NIH-funded studies, the research process is the responsibility of the investigator, and there tends to be minimal interaction between project officers and investigators during the research period, which also is often true at AHRQ. Also, there is no formal infrastructure to help disseminate study results to end-users. Each NIH Institute has an office responsible for communications and press releases, and project officers alert these offices of forthcoming grantee publications. Interviewees at the NCI also noted that the NCI has a Bulletin widely read by cancer researchers that contains information on NCI-funded research.

Several interviewees also noted that NIH funds research on dissemination and diffusion; however, this type of research generally is targeted at clinical audiences, particularly research on how to improve the adoption of findings from clinical trials that could lead to improved patient outcomes within the broader medical and public health communities. The NIH has developed PARs for this type of research and sponsored conferences on the topic.[10,11] However, we found no evidence from our interviewees or on the NIH website of any particular dissemination programs targeting policymakers.

Comparison with HCFO

First established by the RWJF in 1989, the HCFO program has two broad objectives: (1) "provid[ing] public and private decision-makers with usable and timely information on health care policy, financing and market developments;" and (2) "bring[ing] together the policy and research communities through significant convening, issues identification, research translation and communication activities."[12] In contrast to AHRQ and NIH, which may fund more basic

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[10] Dissemination and Implementation Research, PAR-06-039. Available on the NIH website: http://grants.nih.gov/grants/guide/pa-files/PAR-07-086.html. Last accessed August 21, 2008.

[11] Building the Science of Dissemination and Implementation in the Service of Public Health, September 10-11, 2007. Available at http://conferences.thehillgroup.com/conferences/di2007/registration.cfm. Last accessed August 21, 2008.

[12] HCFO website. About HCFO. Available at http://www.hcfo.net/about.htm. Last accessed August 7, 2008.

research that facilitates policy-relevant research (e.g., development of measures for studies of market competition), HCFO will fund only studies that are policy-relevant. This means that they do not fund basic research, such as that limited only to measures development or methodological issues, although interviewees said that they recognize these as important funding targets but not within their program's scope.

To determine the policy-relevance of grant applications, HCFO staff often will contact potential end-users of research (e.g., the Department of Justice) to assess their needs for this type of research and how it might better meet their needs. In addition, because HCFO staff realize that not all research may be policy relevant at the time of completion (i.e., interest in various policy issues can change over time), the staff will assess the relative importance of the research questions for policymakers and determine whether the issue seems to be ephemeral or long-lasting. HCFO often will work with investigators to reframe some of the research questions to facilitate the policy relevance of the project.

Mechanisms for funding research at HCFO also contrast with AHRQ and NIH protocols. To apply for funding, researchers first submit a brief proposal for review. If HCFO is interested, the researcher is invited to submit a full proposal. Investigators are encouraged to contact HCFO staff about research ideas even before submitting the short proposal so as to obtain feedback on whether the topic may be of interest to HCFO. For this reason, there generally is more opportunity for HCFO to interact with investigators as they develop their research protocols.

In addition to policy relevance, other criteria that grant applications must meet include methodological sophistication and importance to the field. To meet the latter criteria, the research project should be one that reviewers and HCFO staff perceive as likely to make a large impact; staff noted they do not look to fund marginal contributions to the field. Most full-length proposals are reviewed by outside expert peer-reviewers. Reviewers are asked to rate proposals based on whether they:[13]

- Develop an approach that clearly assesses the implications of a health care financing mechanism or strategy with major policy significance
- Precisely frame the statement of research hypotheses and evaluation questions, or develop a demonstration approach that follows logically from the issue being addressed
- Provide a suitable and precise research/evaluation methodology or demonstration approach and use high quality data
- Demonstrate uniqueness or originality in the proposed project
- Demonstrate support by relevant policymakers and other key groups (especially for demonstration projects) and access to necessary data sources (especially for research and demonstration projects)

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[13] HCFO Review Summary form. Received from HCFO on April 1, 2008.

- Establish a team of qualified and suitable project participants
- Can feasibly achieve the project objectives within the estimated schedule and budget

Decisions about which projects to fund are made jointly by HCFO and RWJF staff. Once grants have been approved for funding, HCFO offers its grantees various forms of technical assistance. For example, HCFO has convened meetings of researchers and policymakers to facilitate discussion of the key issues to be studied, and how the research may be more useful to policymakers. These types of meetings may help researchers to reframe their questions in a way that makes the research more likely to be used by policymakers. HCFO staff also may help investigators to establish advisory committees to review and help frame the research issues, and to assist with results interpretation. HCFO also has offered suggestions of appropriate target journals for publications and arranged consultants to help address data issues. Grantees are required to submit semi-annual reports to document progress on their research, as well as a final report upon its completion.

In contrast to AHRQ and NIH, which provide funding for various types of research, the HCFO program is dedicated to funding research on health care costs, financing, and organization (see Appendix Table B-4 for a list of projects started in 2006 and 2007). However, the scale of funding for this type of research, particularly when compared to NIH, is lower. In 2006 and 2007, HCFO awarded 16 and 18 projects, respectively, providing approximately $3 and $4 million dollars worth of funding for these projects.[14]

HCFO provides substantially more dissemination support, compared to AHRQ and NIH. While funded by RWJF, the program is also supported by AcademyHealth, which in turn receives funding to support HCFO dissemination activities for RWJF. Working through AcademyHealth, HCFO uses various formats for dissemination, including small grantee meetings, webinars, and written materials that can be posted on its website and sent to HCFO's email distribution list. The grantee meetings typically are attended by both grantees and policymakers, and are scheduled near the end of research projects. These meetings provide a forum for researchers to present preliminary findings and obtain feedback from potential end-users on results, other potential analyses needed, questions raised by the results, and potential venues for dissemination. These meetings are off-the-record and are beneficial to researchers as a vehicle to get feedback from end-users and facilitate dissemination; they are equally beneficial to potential end-users, who learn about forthcoming research. HCFO staff noted that all meetings they convene are purposefully designed to be non-partisan. A previous evaluation of the HCFO program found that grantees value the opportunity to present their results and get feedback from policymakers.[15]

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[14] HCFO website. Program Statistics, 2005-2007. Available at http://www.hcfo.net/statistics/programstatistics.htm. Last accessed August 7, 2008.

[15] Assessment of the HCFO Program. Prepared for RWJF by Jack Hoadley and Michael Gluck. Institute for Health Care Research and Policy, Georgetown University. April 29, 2001.

To facilitate dissemination in other meeting venues, HCFO staff said that they often work behind the scenes at AcademyHealth to develop panel topics for the AcademyHealth policy and annual meetings. HCFO also will sponsor Capitol Hill briefings, including congressional staffers as well as policymakers and analysts in other governmental departments, such as MedPAC, GAO, and CBO.

In the past, HCFO used to convene several large policy conferences each year on particular topical areas of relevance to HCFO grants, with audiences of several hundred people, including researchers and policymakers. While these events also were rated positively by attendees, HCFO found that focusing on smaller meetings and electronic dissemination activities was more cost-effective. For this reason, they no longer convene the large meetings but they will convene smaller meetings similar to the grantee briefings, which bring together researchers, policymakers, and practitioners for additional off-the-record discussions about existing knowledge and questions about specific issues. Staff described these meetings as brainstorming sessions that often help to develop new research ideas.

HCFO also sponsors cyber-seminars on the results of HCFO-funded research, which facilitates dissemination to policymakers and researchers who are unable to attend meetings in person. They also post lists of all projects funded, including the research abstracts and a list of publications by HCFO-funded grantees.

In addition, HCFO develops a number of policy briefs each year based primarily on HCFO-funded research; these are sent via email to distribution lists, as well as being posted on the HCFO website. These briefs are designed specifically for policy audiences and are no more than 3 to 4 pages long per topic, focusing on the primary findings and written in non-technical language. Policy briefs generally are developed only after investigators have published their findings in peer-reviewed journals. There are exceptions, such as when an issue is “hot,” and the investigators are asked to conduct Capitol Hill briefings and develop HCFO-supported electronic dissemination of study results. Interviewees noted that these cases tend to be the exception, and that many journals still may be willing to publish the results, particularly if the HCFO dissemination was targeted to specific audiences and not broadly disseminated. All policy briefs are sent to the investigators for review and approval prior to publication; some investigators assist HCFO by writing the policy briefs on their research.

To identify which research to highlight in policy briefs, staff review semi-annual and final reports, as well as copies of papers submitted for publication, to identify which studies seem most appropriate for broad dissemination. HCFO staff estimate that approximately 50 percent of research projects are disseminated via policy briefs.

Even with well-developed strategies to disseminate results to policymakers through these various formats, a relatively recent evaluation found that the HCFO name is not as well-known as other organizations, such as the Kaiser Family Foundation or Commonwealth Fund. However, policymakers were aware of much of the HCFO-funded research when questioned about familiarity with specific topics (see footnote 15). It is likely that HCFO’s ability to reach broader policy audiences could be increased if it had greater name recognition and awareness.

CONCLUSIONS

Many of our interviewees described AHRQ as the “natural home” for research on costs, market forces, organization, and productivity, although they all noted that the decline in funding for this type of research in the recent past has led investigators to seek alternative sources for such support. Results from analyses of websites and interviews with persons affiliated with the NIH suggest that the number of applications and funding for health services research projects, including research on costs, market forces, organization and productivity, have been increasing over time. Having more available funds, NIH also is generally able to fund larger projects, compared to AHRQ. However, NIH interviewees also noted the internal debate within NIH on the appropriateness of NIH funding for these types of studies.

HCFO differs from AHRQ and NIH in several respects. First, as a program (rather than a multi-objective agency), it is wholly focused on funding studies related to costs, financing, and organizations. In funding decisions, it also places considerable weight on the likely policy relevance and contributions to the field, since its mission excludes developmental research with more distant payoffs. Compared to AHRQ and NIH, HCFO provides considerably more support for dissemination activities targeted to policymakers, including hosting small meetings with grantees and policymakers, providing written dissemination materials, and using webinars.

The similarities between AHRQ and NIH in terms of grant funding mechanisms and dissemination support (or lack thereof) suggests that there is little for AHRQ to learn from NIH in terms of making investigator-initiated research more visible to policymakers. However, HCFO’s program provides some potentially useful lessons for AHRQ regarding improved visibility. Features used in HCFO that could be useful for more systematic application at AHRQ include:

- Methodically reviewing grantees’ semi-annual reports for potential policy-relevant findings that may be useful to policymakers and good candidates for dissemination support
- Facilitating communication between investigators and policymakers through in-person meetings. These meetings appear mutually beneficial to investigators, who learn more about issues that policymakers are worried about and to policymakers, who learn about new research on important topics. Such meetings also help to raise awareness about the organization as a source of funding for this type of research
- Electronic communications, including newsletters, policy briefs, and webinars, are easy and cost-effective methods for reaching wider policy audiences. In addition, frequency of contact with potential end-users of the research impacts the organizations’ visibility; organizations such as Kaiser Family Foundation and the Commonwealth Fund, which blast daily health policy news to subscribers, have achieved better name recognition than HCFO.

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APPENDIX A

CHAPTER III FROM MPR’s NOVEMBER 2007 INTERIM REPORT: “AHRQ’S ROLE IN RESEARCH IN SUPPORT AND DISSEMINATION”

III. AHRQ'S ROLE IN RESEARCH SUPPORT AND DISSEMINATION

This chapter begins to answer research question #3 regarding AHRQ's role in supporting grant research related to cost, productivity, organization, and market forces and how its role compares to that of other funders. The chapter starts with a discussion of AHRQ's infrastructure for grants, continues with a description of its support and dissemination functions, and concludes with grantee perceptions of the agency's role as a funder and supporter.

A. AHRQ GRANT SELECTION AND AWARD PROCESS

Although AHRQ has a separate process for awarding and managing grants, it does not have a specific process or infrastructure for "market forces" grants per se. The grant applications of the 149 research grants in our database were either investigator-initiated or came through a request for application (RFA) process. According to the Public Health Service Act and federal regulations, applications submitted to AHRQ are evaluated through the AHRQ peer review process. The initial peer review involves an assessment conducted by an expert panel. Most of the grants in our database were reviewed by the Healthcare Systems Research (HSR) study section. Grants awarded through the RFA process come through a study section separate than that of the HSR.[16] The AHRQ website describes the function of the HSR study section as the following:

> "Reviews applications concerned with the organization and functioning of the health care system. This focus encompasses system-level and market-level questions as well as the investigations of the behaviors of health care organizations and individual providers and patients. Issues of translational and implementation research, health care markets, access, utilization, quality, cost/financing, improve organizational delivery systems or infrastructure and capacity building research, and the provider workforce germane to this focus. Applications coming to this study section typically employ a quantitative, analytical approach to the subject matter, including behavioral modeling of health care system processes; qualitative examinations of the structure of new and emerging health care organizations are a focus as well. Applications containing statistical, economic and organizational analyses typically are reviewed by this study section, as well as applications analyzing large data sets, including medical claims files."[17]

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[16] Following are the other AHRQ study sections: Healthcare Technology and Dissemination Sciences (HCTDS), Healthcare Quality and Effectiveness Research (HCQER), and Healthcare Research Training (HCRT).

[17] *Peer Review: Study Section Descriptions.* November 2006. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/fund/peerrev/peerdesc.htm

Currently, the HSR study section consists of a chairperson, two AHRQ staff from the Office of Extramural Research, Education & Priority Populations (one a scientific review administrator who oversees the peer review process and the other a grants management specialist), and 19 external experts who are professors, medical doctors, nurses, and researchers. Following a study section meeting, the scientific review administrator prepares a summary statement for each applicant, serving as official feedback. The statement includes critiques, priority score and percentile ranking, and budget recommendations. The priority score is based on scientific and technical considerations, and the percentile (based on priority score) is an application's rank relative to other applications reviewed by the same panel at three consecutive meetings.

AHRQ staff then evaluate for possible funding the applications that have completed the peer review process. Staff consider factors such as the applicant's score, reviewers' recommendations, relevance to AHRQ research objectives, and the availability of funds. An application can then be presented for funding consideration at the Executive Management Meeting at which time AHRQ management determines which applicants receive awards. After funding decisions are made, grants management staff conduct an administrative review and cost analysis of the application. Grants management staff will then issue a Notice of Grant Award to the grantee when all administrative issues have been resolved.

B. AHRQ SUPPORT AND DISSEMINATION FUNCTIONS

1. Support for Design and Implementation

AHRQ appears to play a minimal role in providing support to grantees for design and/or implementation of grants related to cost, productivity, organization and market forces. The project officer provides limited support, although individual project officers vary in how active they are in that role. The grants that we identified were assigned to approximately 25 different project officers, but a handful of these managed multiple grants. One project officer was assigned to almost 40 percent of the 149 grants and seven others had more than five.

To better understand the role of the AHRQ project officer on market forces grants, we interviewed four AHRQ staff who were project officers for a number of the grants in our database. Our interviews indicated that project officers have less intensive roles and a lower level of responsibility on a grant compared to a contract. As one project officer said, "With a contract, you have legal standing if the contractor doesn't do the work. With a grant, they get the award and the funding and you have to trust them. They have to carry out the work without your involvement." AHRQ staff referred to grants as "gifts" or for the "benefit of the public" while contracts are for the "benefit of the government."

Although a project officer may not have as much contact with a grantee as with a contractor, we found that roles did vary among the individual project officers. Some project officers get involved with grantees even before they submit an application by providing technical assistance and discussing ideas for studies. Others become involved with a grantee after he or she has received funding. Those project officers that interact often with the grantees said they help with data use agreements, provide advice on obtaining future funding, discuss pre-publication concerns, and answer general questions. One project officer just approves the final report and does not have any other contact with the grantee.

The inherent nature of grants and the institutional structure at AHRQ contributes to the primarily inactive role of project officers on these grants. Project officers at AHRQ often manage a number of grants or are juggling responsibilities in other areas of the agency as well. Those project officers that have taken the time to become actively involved with their grantees seem to have chosen to do so because they have a strong interest in the topic or a relationship with the grantee.

2. Support for Dissemination

Similar to support for design and implementation of the grants, the role of AHRQ for disseminating findings in this area of research is relatively limited. From our interviews with principal investigators and AHRQ staff, it appears that dissemination is the primary responsibility of the grantee. When first asked, most PIs with whom we spoke could not recall AHRQ making any effort to promote their research. Upon further thinking, three PIs insisted that AHRQ made no such effort but others mentioned that AHRQ either: (1) published their findings in its electronic newsletter—*Research Activities*—that summarizes research findings from AHRQ-supported studies, or (2) issued a press release when their findings were published in a major journal. One PI said that AHRQ was instrumental in helping to publish a special issue of a journal that featured his study. Another PI said that AHRQ made her final report available through the National Technical Information Service (NTIS). (All completed final reports are supposed to be posted to this site, but as we discovered, not all are available.)

Most project officers had a limited role in disseminating results from studies. The role did vary by project officer, however, and ranged from very minor (e.g., simply alerting AHRQ's Office of Communications and Knowledge Transfer [OCKT] if a grantee had published something) to collaborative (e.g., coauthoring a journal article with a grantee or assisting with presentations). One project officer said he helps facilitate dissemination by encouraging his grantees to partner with end users and get them on board even before the grant is funded. Another project officer helps write a synopsis for *Research Activities* if one of his grantees has published an article. He also helps set up conferences (and facilitate additional AHRQ funding through a conference grant) so that grantees can present their findings to policymakers.

One reason for the limited dissemination for this type of grant-supported research may be the lack of an infrastructure or tracking system for synthesizing and disseminating findings. The project officers with whom we spoke all agree that AHRQ lacks an effective infrastructure for tracking grant outcomes. As one project officer said, "There is a lack here of a formal, well-oiled machine to determine the impact of grants… Things do get disseminated, but there isn't a formal process like there has been for other areas of interest in the agency (e.g., patient safety)." The lack of a tracking system is due to a variety of factors. First, AHRQ staff indicated some grantees have not yet finished the final analysis by the time the grant ends.[18] Second, because final reports are posted on the NTIS website, some investigators may be hesitant to include too much information in them for fear of jeopardizing their manuscript's publication. And third, because

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[18] Researchers may have multiple grants supporting a body of work. Some also may have hard-money support for their own writing and use AHRQ funds to develop data to support these.

dissemination takes time, reports are often submitted well before any publications are generated or use is made of findings.

AHRQ’s “dissemination shop”—the OCKT—has a mission (as described on AHRQ’s website) to “design, develop, implement, and manage programs for disseminating the results of Agency activities with the goal of changing audience behavior.” One specific activity attributed to OCKT is “communicating the results and significance of health services research and other AHRQ initiatives to the health care industry, health care providers, consumers and patients, policy makers, researchers, and the media with particular emphasis on communicating AHRQ initiatives in the ways each of these constituencies are most interested and are likely to lead to behavior change.” The grantees with whom we spoke were not familiar with OCKT, and despite its charge to communicate the results of health services research, it is not clear how much this is actually being done.

We spoke with AHRQ staff involved with OCKT to learn more about their dissemination activities. Staff said it is the responsibility of the grantee and the project officer to let OCKT know when an article has been accepted for publication. OCKT makes an effort to learn about publications, but often a grantee might not inform the project officer. When OCKT does learn of research findings, it determines whether the results are “newsworthy” to the following audiences: (1) a limited, professional press (e.g., if a grant is very clinical, OCKT would use a dissemination strategy targeted to publications that certain medical specialists would read); (2) the general public (e.g., if findings are deemed to be of interest to the public either on the policy or clinical side, OCKT will do a press release that the health trade press, and occasionally, a mainstream newspaper will pick up); and (3) to certain geographic areas (e.g., OCKT produced state summaries for the local press after the National Healthcare Disparities Report was released).

In addition to press releases, OCKT disseminates research findings through *Research Activities*, the newsletter that has about 1,000 subscribers consisting primarily of researchers, clinicians, and health systems. The newsletter cannot “scoop” a journal if research has been accepted for publication, which is one reason OCKT staff speculate grantees might be hesitant to inform the office of publications.

The OCKT also sponsors learning networks that build on the former User Liaison Program. One network consists of medical directors from state Medicaid programs. Staff said that to the extent market forces research could inform the decisions of participants in the network, they would bring that research to the network.

OCKT staff acknowledge that the agency has moved away from health services research in the past few years and is more focused on clinical research. When asked about the challenges of disseminating health services research, OCKT staff cited three factors: (1) research needs to be timely – i.e., researchers are on a slower timeline than policymakers who need the research now; (2) research needs to be relevant to the needs and concerns of policymakers; and (3) research needs to be translated in a way that policymakers understand it.

C. PRINCIPAL INVESTIGATORS' PERSPECTIVES OF AHRQ'S ROLE

1. Role as a Funder

Overall, the sample of nine grantees was pleased with their individual experiences on their grants, although they raised serious concerns about the declining level of available funding for this type of research. Seven of the nine grantees said that they would apply to AHRQ again for funding. Of the two who would not, one viewed her area of interest as outside the current scope of interest of AHRQ and the other was hesitant because of the perceived lack of funding for investigator-initiated research at AHRQ. While others said they would apply, two thirds of the nine grantees interviewed actually mentioned that AHRQ is lacking in money for research. One PI referred to AHRQ's budget as "pathetic," given the importance of economics-related research and the fact that the agency is the logical place to look for funding this research.

Because of the perception among the PIs that AHRQ's funding stream for investigator-initiated research is substantially less than in the past, some PIs suggested that they would apply to other organizations including NIH and HCFO. One PI said that he likes that AHRQ is smaller and more personal than NIH but he would go to NIH to fund larger studies because AHRQ just does not have the money for research. He stressed that AHRQ now funds larger studies through RFAs and it is difficult to come up with an original idea of research that it will fund because the proposal must fit within the RFA. We may explore this perception further in Phase II of our study. A few other researchers mentioned that projects that clearly should have been AHRQ projects have ended up at NIH because AHRQ lacked the funding. As one PI said, "Relative to the amount of good health services research that needs support, AHRQ's budget is not adequate. As a result, some clear AHRQ grants end up at other agencies, but they would be sent to AHRQ if the funds were available."

2. Strengths and Weaknesses of AHRQ Support

Although satisfied with their individual experiences with AHRQ and valuing AHRQ's role as a supporter of health services research, the grantees did discuss areas that the agency needs to improve, including grant management support and dissemination. We asked the grantees to compare the strengths and weaknesses of AHRQ support for this type of research to that of other funders. Other organizations that the PIs indicated they had received funding from included NIH (and its specific institutes, including the National Institute on Aging and the National Institute of Nursing Research); The Robert Wood Johnson Foundation (RWJ); HCFO; The California HealthCare Foundation; Blue Cross Blue Shield; The Commonwealth Fund; Kaiser Family Foundation; Bill and Melinda Gates Foundation; Ford Foundation; The Rockefeller Foundation; and W.K. Kellogg Foundation.

AHRQ Strength: Support for Valued Research. The majority of grantees view AHRQ's primary strength as its funding of health services research. However, all assert that funding in this area has dwindled over the years. One PI praised the opportunity that AHRQ offers for researcher-driven work and for giving researchers the ability to define their own work. These features contribute to the perception of higher prestige in receiving an AHRQ grant versus other sources such as private foundations. He contrasted AHRQ funding with that of foundation funding, which he claimed sometimes comes with the expectation that the research should help advance the mission of the organization. In another comparison to foundation funding, a researcher said that foundations generally like to see “action” projects that implement interventions but AHRQ offers a real advantage because it funds more general research. Another PI said that although NIH has funded some economic research, AHRQ is the most logical place for funding research that addresses general economic impacts. One PI said AHRQ is a better match for his research because NIH is more interested in clinical work than organizational work.

Mixed Views on AHRQ’s Grant Support Activities. The grantees were evenly divided about whether AHRQ’s grant process was a positive or a negative for the agency. Those who viewed the grant process at AHRQ as a strength made statements such as:

> “AHRQ funding has certain credibility within the research community because grant applications are reviewed by researcher peers and need to have a theoretical basis.”
>
> “AHRQ’s greatest strength is the interaction with the project officer during the funding period, from the application process through the final report.”
>
> “AHRQ’s strength is that it is more attentive than other funders.”

One PI said that her project officer was quite helpful with her grant application and checked in with her periodically over the 18-month study. Another PI said that AHRQ provided good support and feedback as she developed her proposal but thought this was because she knew the project officer before the application process.

Those grantees who thought AHRQ’s grant process was a weakness voiced complaints about the entire process from the application period through implementation and dissemination. One PI said that proposals for NIH and other foundations are shorter than AHRQ’s so he can invest less time and receive the same amount of money, or more, than he would have from AHRQ. He also noted that foundations proactively inform him of their priorities and what they are interested in funding, but AHRQ never does this. Some of the PIs also expressed frustration with AHRQ’s study section review process, with comments such as “Professional biases sometimes influence study section reviews;” “The membership of the study section is very problematic;” “It’s quite chaotic and the reviews are erratic;” “It’s difficult to know or predict your chances of funding”, and “The quality of applications has decreased.”

Most of the PIs said that they did not receive much support from AHRQ for either the design of their study or its implementation. As one researcher acknowledged,

> “Private funders have provided greater support during the grant-writing process, in terms of helping investigators focus their research topics and facilitating access to data. At Commonwealth and HCFO, there are processes to get feedback on their preliminary findings from a wide spectrum of stakeholders. Feedback practice might be difficult for a government agency, but they should do something.”

Another PI said that AHRQ “really left things up to the investigator” while another researcher said that she talked to her project officer once when the grant was funded but never again. One grantee mentioned that AHRQ should help facilitate researchers’ access to data. When he encountered problems in obtaining access to data, he went to his project officer and although he was empathetic, he offered no assistance as an intermediary.

AHRQ Weakness: Research Promotion. As discussed, dissemination activities appear to be primarily the responsibility of the grantee. Most PIs said that AHRQ did not play much of a role in dissemination other than publishing their research in their newsletter or issuing a press release when journal articles resulting from their research were published. Although the project officers whom we interviewed said that they get involved with dissemination, none of the PIs said that their project officer had assisted them with dissemination. One PI said that perhaps AHRQ didn't help because he already had ready means of getting his findings out to the public through a collaborating organization. Other grantees commented: "Other funders, like Kaiser Family Foundation, are much better at disseminating work;" and "Other organizations have a high level of interest in disseminating sponsored research so they are more pro-active at promoting investigators' research than AHRQ has been." One PI expressed frustration with what AHRQ is funding and how the projects are "never heard about again" because the researchers can never move to the next stage. AHRQ does not give them the funding to move on. He contrasted AHRQ with NIH: "NIH understands that you can't cure cancer with a grant to cure cancer. You need to start with cell biology and then go to the next stage and then the next."

However, views in this area were not unanimous. Two PIs cited research promotion as a strength of AHRQ noting, "If you do really well, they do a good job of getting your work out there" and "AHRQ is better than other funders like NIH because they seem to care more about the results and they interact with you more."

3. Overall View of AHRQ's Role

Overall, the grantees had differing opinions regarding the importance of AHRQ funds and grants for supporting health services research on costs, productivity, organization, and market forces. The PIs who believe AHRQ plays an important role noted:

> "AHRQ is still a major player in this type of research."
>
> "AHRQ plays an important role in health care quality and health policy research, including how health care is practiced. The general public and Congress don't always understand how important a role it plays, but I believe it is crucial."

Other PIs saw AHRQ's role for supporting health services research as evolving over time:

> "In the early 1990s, AHRQ played a key role in funding investigator-initiated research in this area. The agency has shifted away from its targeted focus on finance and organization and has recently placed more emphasis on quality, health information technology, and safety and these topics do not always tie back directly to finance and markets."
>
> "Their role is variable, depending on their funding levels, which fluctuate a lot."

> “AHRQ has done well in funding some really narrow clinical work, but if you want to look at a broader issue, you need to go elsewhere, like RWJ. AHRQ needs broader research and quality aims.”

The final group of PIs was most critical of AHRQ’s role and posed recommendations for what AHRQ should do differently, including changing what it funds and better promotion of the agency.

> “AHRQ should look at longer-term issues. AHRQ-sponsored publications are typically showing up in very narrow second- or third-tier journals. It would be beneficial for AHRQ to establish themselves as dominant in some areas like hospital pricing, cost competition/markets, and possibly patient safety.”
>
> “AHRQ better get back to self-service research and funding basic things. They’re all over the place. I say fund quality studies. One problem with AHRQ is that they try too hard to respond to the Congressional groups. AHRQ doesn’t spend time educating us on why they’re different and why they need to be funded.”
>
> “The problem with AHRQ is that they’ve lost their sense of direction. They’re doing NIH stuff (quality stuff, comparative value stuff) and NIH does it a hell of a lot better. NIH knows how to distribute money. If you ask AHRQ for $200,000, they say that they can’t do it. NIH doesn’t have that problem.”
>
> “AHRQ grants play a minimal role in investigator-initiated health services research. The agency generally does things through contracting mechanisms and the budget for investigator-initiated research is small. It’s more probable to get health services research funding through NIH and other social services research organizations.”

The grantee interviews provide a good starting point for answering the question of what AHRQ’s role is in supporting market forces research and how its role compares to that of other funders. We will delve deeper into this in Phase II of the study when we survey the grantees and conduct interviews with comparable funding organizations.

APPENDIX B

SUPPLEMENTARY TABLES OF FINDINGS

Table B.1. Relevant Research Reviewed by the HSOD and SSPS Review Committees and Funded by the NIH in 2007, by Institution*

Project Title	PI	Institution	Study Section
NATIONAL INSTITUTE ON AGING			
A Spatial Analysis of Nursing Home Deficiency Citations	Carter, Mary W.	West Virginia University	HSOD
Nursing Homes Quality and Variations in State Regulations	Mukamel, Dana B.	University Of California Irvine	HSOD
Hospital Integration and Medicare Reimbursement Policy	Kessler, Daniel P.	National Bureau Of Economic Research	SSPS
Effects of Hospitalists in Medicare Data	Meltzer, David O.	University Of Chicago	HSOD
LTC Policies and Elderly Living and Care Arrangements	Pezzin, Liliana E.	Medical College Of Wisconsin	HSOD
Medicare Study of Cost-sharing Ramifications and Prescription Drug Benefits	Hsu, John	Kaiser Foundation Research Institute	HSOD
Enhancing Work Efficacy of Skilled Nursing Assistant	Parmelee, Patricia A.	Emory University	HSOD
Physician Care in Assisted Living	Schumacher, John G.	University of Maryland Balt Co Campus	HSOD
Impact of Medicare Drug Benefit on Use and Cost-related Underuse of Medicines	Soumerai, Stephen B.	Harvard Pilgrim Health Care, Inc.	HSOD
A Family-Staff Partnership to Improve LTC Quality	Zimmerman, Sheryl	University of North Carolina Chapel Hill	HSOD
Stakeholder's Models of Quality in Assisted Living	Morgan, Leslie A.	University of Maryland Balt Co Campus	HSOD
NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE			
Use of Complementary and Alternative Medical (CAM) Providers by Cancer Patients	Lafferty, William E.	University Of Washington	HSOD
NATIONAL CANCER INSTITUTE			
A Physician-Based Trial to Increase Colorectal Cancer Screening in Chinese	Liang, Wenchi	Georgetown University	HSOD
Practice Outcomes in Community & Healthcare Systems	Stange, Kurt C.	Case Western Reserve University	HSOD
For-Profit Ownership and End-of-Life Care	Bradley, Elizabeth H.	Yale University	HSOD
Systems of Support (SOS) to Increase Colon Cancer Screening and Follow-up	Green, Beverly Beth	Center For Health Studies	HSOD
NATIONAL INSTITUTE FOR DIABETES & DIGESTIVE & KIDNEY DISEASES (NIDDK)			
Enhanced Continuity of Pharmacy Care for Cardiovascular or Pulmonary Diseases	Carter, Barry L.	University Of Iowa	HSOD

Table B.1 *(continued)*

Project Title	PI	Institution	Study Section
NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT			
Family Decision Making and Burden Under High-Deductible Health Plans	Lieu, Tracy A.	Harvard Pilgrim Health Care, Inc.	HSOD
NATIONAL HEART LUNG AND BLOOD INSTITUTE			
Cardiac care in specialty and general hospitals	Cram, Peter M.	University Of Iowa	HSOD
Effect of home care agency providers and visits of heart failure patient outcomes	Madigan, Elizabeth A.	Case Western Reserve University	HSOD
New Cardiac Surgery Programs: Patients, Outcomes, Access	Lucas, Frances Lee	Maine Medical Center	HSOD
Improving Ventilator Management and Preventing Injury to Patients with ARF	Rubenfeld, Gordon D.	University of Washington	HSOD
Use of Automated Phone Calls to Promote Adherence with Inhaled Corticosteroids	Vollmer, William M.	Kaiser Foundation Research Institute	HSOD
Effect of Paramedic Airway Experience on Patient Outcomes	Wang, Henry E.	University of Pittsburgh At Pittsburgh	HSOD
Safety Net Hospitals and Minority Access to Health Care	Bazzoli, Gloria J.	Virginia Commonwealth University	HSOD

*Source: 2007 SNAP reports.

Table B.2. NIH-Funded Studies Reviewed by SSPS Review Committee, 2004-2007

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
RESEARCH GRANTS POTENTIALLY RELEVANT TO AHRQ			
Factors Associated with Variation in Cesarean Rates	Tanfer, Koray	2004	Organizational effects
Life Cycle Health, Work, Aging, Insurance and Pensions	Todd, Petra	2004	Financial effects on consumers
Market Failure, Public Policy & Long Term Care Insurance	Finkelstein, Amy	2004	Financial effects on consumers
Whom Does Medicare Benefit	Lakdawalla, Darius	2004	Financial effects on consumers
Microcredit and Health Services Experiment in Bangladesh	Becker, Stan	2005	Financial effects on consumers
Hospital Integration and Medicare Reimbursement Policy	Kessler, Daniel	2006	Organizational effects
Impact of Medicare on Utilization and Health Disparities	Card, David	2006	Financial effects on consumers
The Cost of Dementia	Hurd, Michael	2007	Financial effects on consumers
OTHER RESEARCH GRANTS			
Biodemography of Health, Social Factors & Life Challenge	Weinstein, Maxine; Goldman, Noreen	2004	
Demographic Analysis of Healthy Longevity in China	Zeng, Yi	2004	
Family Formation in an Era of Family Change	Landale, Nancy	2004	
Health Conditions of Elderly Puerto Ricans	Palloni, Alberto	2004	
Integrated Health Interview Series	Blewett, Lynn	2004	
Integrated Samples of European Censuses	Mccaa, Robert	2004	
Language, Community, and Older Immigrant Households	Burr, Jeffrey	2004	
Longevity and mortality in industrialized societies	Wilmoth, John	2004	
Migration and Health in Thailand	Vanlandingham, Mark	2004	
Poverty Health and Adolescent Risk Behavior	Gertler, Paul	2004	
Seniority and Aging	Shepsle, Kenneth	2004	
Testing Segmented Assimilation Theory with Add Health	Xie, Yu	2004	
The Human Life Course and the Biodemography of Aging	Kaplan, Hillard	2004	
US Minority Migration and Metropolitan Change	Frey, William	2004	
Assessing & Improving the Measurement of Sexual Behavior	Mensch, Barbara	2005	
Behavioral Analysis in Structural Retirement Models	Gustman, Alan	2005	

Table B.2 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Biomarkers of Stress and Health for Los Angeles Children	Sastry, Narayan	2005	
Children's Health & Nutrition, Adult Outcomes & Mobility	Pitt, Mark	2005	
Contraceptive Decision Making Among Dating Couples	Grady, William	2005	
English Longitudinal Study of Ageing	Marmot, Professor Sir Michael	2005	
Evidence on Child Health and Long-run Outcomes in Kenya	Miguel, Edward	2005	
Explaining Very Low Fertility	Kertzer, David	2005	
Female Income and Family Welfare in India	Munshi, Kaivan	2005	
Health Conditions Among Elderly in Latin America	Palloni, Alberto; Wong, Rebeca	2005	
Housing Price Risk, Home Ownership, and Wealth	Smith, James	2005	
Integrating Retirement Models	Gustman, Alan	2005	
Macroeconomic Demography of Intergenerational Transfers	Lee, Ronald; Mason, Andrew	2005	
Oral Contraceptive Use along the US-Mexico Border	Potter, Joseph	2005	
Preferences and Economic Decision-Making	Thomas, Duncan	2005	
Schools, Parents and Outcomes in Adolescence & Adulthood	Astone, Nan	2005	
Second and Third Waves of the Mexican Family Life Survey	Thomas, Duncan	2005	
Self-Employment in Older Ages	Karoly, Lynn	2005	
Social Demography and Adolescent Obesity	Sandefur, Gary	2005	
Understanding Social Disparities in Health and Aging	Lantz, Paula	2005	
Variable Tempo of Dimensions of Immigrant Assimilation	Myers, Dowell	2005	
Welfare and Employment Dynamics Using Matched Data	Moffitt, Robert	2005	
American Time Use Survey: Data Access System	Abraham, Katharine	2006	
Biodemography of Disease and Death in Moscow	Vaupel, James	2006	
Concepts and Measures of Race and Ethnic Identities	Hirschman, Charles	2006	
Demographic Responses to Community and Family Context	Lee, James	2006	
Depression in Pregnancy and the Postpartum Period	Tanfer, Koray	2006	
Disease, Disability and Death in an Aging Workforce	Cullen, Mark	2006	

Table B.2 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Dynamics of Family Well-Being in a Low Income Setting	Strauss, John	2006	
Fragile Families and Child Wellbeing in Middle Childhood	Mclanahan, Sara	2006	
Immigration and Metropolitan Residential Segregation	Iceland, John	2006	
Measuring Effect of Aging on Perceptions and Behavior	Mcfadden, Daniel	2006	
Modeling the Effect of Health on Retirement	Bound, John	2006	
Mortality in Central Asia	Guillot, Michel	2006	
North Atlantic Population Project	Ruggles, Steven	2006	
School Choice Maternal Employment and Child Achievement	Mroz, Thomas	2006	
Spatial Epidemiology of Syphilis and Gonorrhea in North Carolina	Miller, William	2006	
The Fourth Indonesia Family Life Survey of Aging	Strauss, John	2006	
The New Immigrant Survey	Smith, James	2006	
Urban Social Context, Health and Health Disparities	House, James	2006	
Women Empowerment & Child Health in Developing Countries (continuation)	Duflo, Esther	2006	
Work-Family Policies and Child and Family Well-Being	Waldfogel, Jane	2006	
Children in Transition to Adulthood: Family and Sibling Connections	Stafford, Frank	2007	
Consequences of High Morbidity and Mortality in a Low-Income Country	Kohler, Hans-Peter	2007	
Continuation of Risk, Insurance, and the Family	Townsend, Robert	2007	
Data Collection for Older NLSY Children	Cooksey, Elizabeth	2007	
Developing and Enacting Racial/Ethnic Identities	Eccles, Jacquelynne	2007	
Dynamic relationship of BMI and SES over the life cycle and between generations	Chang, Virginia	2007	
Effects of the Minimum Drinking Age on Mortality, Nonfatal Injury, and Crime	Carpenter, Christopher	2007	
Environmental Stress, Social Networks, and Older Age Health and Mortality	Costa, Dora	2007	
Evaluating New Genetic Effects on Health and Aging from Longitudinal Data	Yashin, Anatoliy	2007	
Genetically Informed Studies of Family Life: Effects on Adults and children	Emery, Robert	2007	
Health Effects of Racial Segregation on Aging Adults	Sudano, Joseph	2007	
Health Wealth and Pensions Over the Life Course in a Long Panel	Schoeni, Robert	2007	

Table B.2 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Health, Poverty and Place: Modeling Inequalities in Accra Using RS and GIS	Weeks, John	2007	
Incorporating Immigrants and Minorities into Late 19th Century Cities	Logan, John	2007	
Integrating U.S. Fertility Surveys	Smock, Pamela	2007	
Integrating Information About Aging Surveys	Kapteyn, Arie	2007	
Intergenerational Influences on Family Formation in a Changing Social Context	Axinn, William	2007	
IPUMS 1930 Sample: Competing Continuation	Ruggles, Steven	2007	
Kin and Community Support for Orphans in Cambodia	Heuveline, Patrick	2007	
Longer Term Effects of a Natural Disaster on Health and Socio-Economic Status	Frankenberg, Elizabeth	2007	
Marriage and Cohabitation among Single Mothers: Consequences for Two Generations	Williams, Kristi	2007	
Marriage and Economic Opportunity in the U.S., 1960-2000	Fitch, Catherine	2007	
Military Service and Health Outcomes in Later Life	Wilmoth, Janet	2007	
Neighborhoods, Women and Coronary Heart Disease: A Prospective Study	Bird, Chloe	2007	
New Data Resources form the 1960 U.S. Census	Ruggles, Steven	2007	
Perceived Risk for Sexually Transmitted Diseases	Ellen, Jonathan	2007	
Population and Environment in the U.S. Great Plains	Gutmann, Myron	2007	
Social Disparities in Health Among Latinos	Pebley, Anne	2007	
Synthesizing and Interpreting the Evidence on Early Interventions	Heckman, James	2007	
The Intergenerational Transmission of Human Capital	Figlio, David	2007	
The Role of Firms in Immigrant Assimilation and Labor Market Adjustment	Haltiwanger, John	2007	
The Social Contexts of Children of Immigrants in the US	Alba, Richard	2007	
Transitions from Preschool through High School: Family, Schools & Neighborhoods	Stafford, Frank	2007	
Young Women's Relationships, Contraception, and Unintended Pregnancy	Barber, Jennifer	2007	

Table B.3. NIH-Funded Studies Reviewed by HSOD Review Committee, 2004-2007

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
RESEARCH GRANTS POTENTIALLY RELEVANT TO AHRQ			
Life Cycle Effects of Health Insurance on Elderly Health	Polsky, Daniel; Doshi, Jalpa	2004	Financial effects on consumers
Effects of Health Plan Report Cards on Quality of Care	Bundorf, Mary	2004	Market effects
Impact of Changing Medicaid Policies on NH Quality	Mor, Vincent	2004	Market effects
The Impact of Outcomes on Transplant Center Choice	Howard, David	2004	Market effects
Analysis Methods for Volume-Outcome Studies	Panageas, Katherine	2004	Organizational effects
Practice Outcomes in Community & Healthcare Systems	Stange, Kurt	2004	Organizational effects
Reducing Clinical Inertia in Diabetes Care	O'Connor, Patrick	2004	Organizational effects
Role of Physicians and Their Groups in Cancer Screening	Wright, George	2004	Organizational effects
B-blocker Compliance Post-MI: Costs, Causes, Disparities	Vogt, William	2005	Financial effects on consumers
Cohort Study of Medication Adherence Among Older Adults	Krousel-Wood, Marie	2005	Financial effects on consumers
Competitive Continuation of Insurance Financing of Integrative Medicine	Lafferty, William	2005	Financial effects on consumers
In-Home Caregiving and Use of Medical Services	Wolff, Jennifer	2005	Financial effects on consumers
LTC Policies and Elderly Living and Care Arrangements	Pezzin, Liliana	2005	Financial effects on consumers
The Balanced Budget Act of 1997 and Home Care for Cancer	Kilgore, Meredith	2005	Financial effects on consumers
Access to Care for Myocardial Infarction in Rural Areas	Riley, Steven	2005	Market effects
Effect of Medical Malpractice on Costs & Tech Adoption	Lakdawalla, Darius	2005	Market effects
Depression Care Among Elderly Nursing Home Residents	Crystal, Stephen	2005	Organizational effects
Feeding Tube Use Among Persons with Advanced Dementia	Teno, Joan	2005	Organizational effects
Financial Incentives to Translate ALLHAT into Practice	Petersen, Laura	2005	Organizational effects
Nursing Homes: Medical Staff Models and Care Correlates	Katz, Paul	2005	Organizational effects
Team Performance and Quality of Care in Nursing Homes	Temkin-Greener, Helena	2005	Organizational effects
The Effect of Patient Volume on Outcome in the ICU	Kahn, Jeremy	2005	Organizational effects

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Toward Optimal End-of-Life Care in the PICU	Truog, Robert	2005	Organizational effects
Volume-Outcomes in Incontinence Surgery	Anger, Jennifer	2005	Organizational effects
Wage Mandate, Labor Turnover, and NH Quality	Mor, Vincent	2005	Organizational effects
Impact of Medicare Drug Benefit on Use and Cost-related Underuse of Medicines	Soumerai, Stephen	2006	Financial effects on consumers
Impact of Certificate of Need on the Use of Revascularization for AMI	Vaughan Sarrazin, Mary	2006	Market effects
A Family-Staff Partnership to Improve LTC Quality	Zimmerman, Sheryl	2006	Organizational effects
A Spatial Analysis of Nursing Home Deficiency Citations	Carter, Mary	2006	Organizational effects
Enhancing Work Efficacy of Skilled Nursing Assistant	Parmelee, Patricia	2006	Organizational effects
New Cardiac Surgery Programs: Patients, Outcomes, Access	Lucas, Frances	2006	Organizational effects
Preventive Service Provision by Area Agencies on Aging	Force, Lawrence	2006	Organizational effects
Dental Coverage Transitions, Utilization and Retirement	Manski, Richard	2007	Financial effects on consumers
Family Decision Making and Burden Under High-Deductible Health Plans	Lieu, Tracy	2007	Financial effects on consumers
Medicare Study of Cost-sharing Ramifications and Prescription Drug Benefits	Hsu, John	2007	Financial effects on consumers
The Safety Net, Medicaid, and Child Health Outcomes	Losasso, Anthony	2007	Financial effects on consumers
The Spillover Effects of Health Insurance Coverage and Generosity	Baicker, Katherine	2007	Financial effects on consumers
Implications of cardiovascular technology diffusion among Medicare beneficiaries	Groeneveld, Peter	2007	Market effects
Nursing Homes Quality and Variations in State Regulations	Mukamel, Dana	2007	Market effects
Safety Net Hospitals and Minority Access to Health Care	Bazzoli, Gloria	2007	Market effects
Billing Based Measures of Nursing Home Medical Staff Organization	Intrator, Orna	2007	Organizational effects
Cardiac care in specialty and general hospitals	Cram, Peter	2007	Organizational effects
Effect of home care agency providers and visits of heart failure patient outcomes	Madigan, Elizabeth	2007	Organizational effects
Effects of Hospitalists in Medicare Data	Meltzer, David	2007	Organizational effects
For-Profit Ownership and End-of-Life Care	Bradley, Elizabeth	2007	Organizational effects
Physician Care in Assisted Living	Schumacher, John	2007	Organizational effects

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
OTHER RESEARCH GRANTS			
Alabama Dental Practice Research Network Development	Gilbert, Gregg	2004	
Cancer Surveillance in Patients with Autoimmune Diseases	Parikh-Patel, Arti	2004	
Clinical Performance Measures & Outcomes in Adolescents	Furth, Susan	2004	
Cost-effectiveness of genetic screening for colon cancer	Vijan, Sandeep	2004	
Determinants of Surgical Outcomes in Chronic Sinusitis	Smith, Timothy	2004	
Developing Quality Indicators for Advanced Cancer Care	Earle, Craig	2004	
Diseases/function/self-health in risk indices for elders	Covinsky, Kenneth	2004	
Effectiveness of the TB Contact Priority Model	Gerald, Lynn	2004	
Ethnic Disparities in Diabetes Complications	Karter, Andrew	2004	
Explaining Disparities in the Care of Older Patients	Irish, Julie	2004	
Geographic Variation of Breast Cancer Survival	Schootman, Mario	2004	
Health Care Partners in Cancer Prevention & Care of Aged	Kahana, Eva	2004	
Identifying Low-Risk Patients with Pulmonary Embolism	Aujesky, Drahomir	2004	
In-Depth Examination of Disparities in Cancer Outcomes	Bradley, Cathy	2004	
Integrative Service for Substance Abusing Battered Women	Downs, William	2004	
Multifaceted Interventions to Ameliorate Pain/Symptoms	Teno, Joan	2004	
Multi-State Migrant Farmworker Surveillance Study	May, John	2004	
Patient Assistance to Reduce Breast Cancer Disparities	Bickell, Nina	2004	
Predictors of Quality of Life in Adult Rhinitis	Chen, Hubert	2004	
Psychosocial Influences on Medical Decision Making	Aberegg, Scott	2004	
Screening for Colorectal Cancer: An Integrated Approach	Phillips, Kathryn	2004	
Shared Decision-Making in End-Stage Heart & Lung Disease	Sullivan, Mark	2004	
Telecolposcopy in a Primary Care Women's Health Clinic	Lopez, Ana Maria	2004	

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Transitions in Assisted Living: Physician Practices	Eckert, John	2004	
Understanding Variability in Community Mammography	Elmore, Joann	2004	
Using Illness Visits to Provide Health Behavior Advice	Flocke, Susan	2004	
Validation of Medicare Claims to Define Chemotherapy Use	Schrag, Deborah	2004	
Adolescent Preventive Services: Disparities and Outcomes	Adams, Sally	2005	
Assessing Individual Preferences for End-of-Life Care	Bryce, Cindy	2005	
Assessment of Growth Hormone Use in Short Children	Cuttler, Leona	2005	
Bariatric Surgery Outcome/Cost in Medicare Beneficiaries	Flum, David	2005	
Barriers to Seeking and Sustaining Cardiovascular Care	Harralson, Tina	2005	
Chronic Back and Neck Pain: Care Seeking and Evidence	Carey, Timothy	2005	
Clinical Trial to Increase tPA Use in Stroke Treatment	Scott, Phillip	2005	
Functional Outcomes in Pediatric Liver Transplantation	Alonso, Estella	2005	
GnRH Agonists For Prostate Cancer: Role of the Urologist	Shahinian, Vahakn	2005	
Health Patterns: Hispanic and Non-Hispanic Children	Johnson, William	2005	
Item Banking and CAT for Quality of Life Outcomes	Cella, David	2005	
Local Therapy of Breast Cancer in Community Populations	Keating, Nancy	2005	
Patients' and families' home care service priorities	Casarett, David	2005	
Preference Shift & Spousal utility for Cancer Treatments	Bruner, Deborah	2005	
Race as a Proxy for Genetic Variation in Heart Failure	Durant, Raegan	2005	
Racial Segregation & Disparities in Cancer Outcomes	Haas, Jennifer	2005	
Roots of Health Disparities: The Quality of Primary Care	Bach, Peter	2005	
Spatial Impact Factors and Mammography Screening	Mobley, Lee	2005	
Stakeholder's Models of Quality in Assisted Living	Morgan, Leslie	2005	

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Subjective/Objective Health Measures by Race/Ethnicity	Sudano, Joseph	2005	
Surveillance Strategies Following Treatment for CIN	Melnikow, Joy	2005	
Telemonitoring to improve heart failure outcomes	Krumholz, Harlan	2005	
Treatment and Costs of Neonatal Jaundice in a Large HMO	Newman, Thomas	2005	
Use of Complementary and Alternative Medical (CAM) Providers by Cancer Patients	Lafferty, William	2005	
Visual Impairment, Treatment and Effects on the Elderly	Sloan, Frank	2005	
Addressing Fertility Issues with Female Cancer Patients	Allen, Susan	2006	
Adherence and the Economics of Colon Cancer Screening	Inadomi, John	2006	
Adolescent Smoking Cessation in Pediatric Primary Care	Klein, Jonathan	2006	
Better Surgical Quality Indicators for the Elderly	Birkmeyer, John	2006	
Breast Cancer Care and Survivorship in Underserved Women	Maly, Rose	2006	
Comparison of Comorbidity Collection Methods	Piccirillo, Jay	2006	
Developing Quality Indicators to Improve the Care in Elderly Surgery Patients	Ko, Clifford	2006	
Early-Stage Breast Cancer Treatment Decisions by Women with Physical Disabilities	Iezzoni, Lisa	2006	
Emergency Department Use-African American with Diabetes	Jenkins, Carolyn	2006	
Evaluating Cognitive Function Cost Utility and Outcomes after Liver Transplant	Russell, Robert	2006	
Evaluation of Palliative Prostate Cancer Among Elderly Men	Lu-Yao, Grace	2006	
Evaluation of False Positive Mammography in Community Practice	Yankaskas, Bonnie	2006	
Expanded Prenatal Testing Options and Informed Choice	Kuppermann, Miriam	2006	
Heart Failure: Epidemiology & Outcomes in the Elderly	Curtis, Lesley	2006	
HRQL Impact of Chronic Conditions and Comorbidity Burden	Sullivan, Patrick	2006	
Improving Decision-Making about Feeding Options for Dementia Patients	Hanson, Laura	2006	

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Improving Self Care Behavior/Outcomes in Rural Patients	Dracup, Kathleen	2006	
Improving Ventilator Management and Preventing Injury to Patients with ARF	Rubenfeld, Gordon	2006	
Internet Based Patient-Centered Asthma Management System	Christakis, Dimitri	2006	
Is Stroke a Late Effect of Chemotherapy?	Geiger, Ann	2006	
Knee OA: Setting Priorities for Care, Policy, Research	Losina, Elena	2006	
Length Postpartum Hospital Stays Health Mothers/Newborns	Evans, William	2006	
Long-Term Outcomes of Nonmelanoma Skin Cancer	Chren, Mary-Margaret	2006	
Lung Transplant for COPD: Outcomes/Technology Assessment	Yusen, Roger	2006	
Modeling Breast Carcinoma In Situ: Implications for Prevention and Control	Stout, Natasha	2006	
Obesity Among Older Americans	Goldman, Dana	2006	
Outcomes of Omission of Radiation With Lumpectomy (BCS) Among Low-Income Women	Anderson, Roger	2006	
Patient Visits to Physician Offices and/or Emergency Rooms for Dental Problems	Cohen, Leonard	2006	
Phone Calls to Promote Adherence with Inhaled Corticoste	Vollmer, William	2006	
Psychological and Financial Burden of Cancer Caregiving in Elderly Spouses	Christakis, Nicholas	2006	
Racial/Ethnic Disparities in Management of Diabetes	Kart, Cary	2006	
Risk Indices for Disability among Hospitalized Older Persons	Landefeld, Seth	2006	
Self-Mgmt Barriers & Resources Among Vulnerable Elders	Clark, Daniel	2006	
The ADEPT Study: Estimating Prognosis in Advanced Dementia	Mitchell, Susan	2006	
The Clinical Effectiveness of Pharmacy Adherence Information for Diabetes Control	Pladevall, Manel	2006	
The Enigma of Placebo Adherence and Health Outcomes	Avins, Andrew	2006	
The significance of racial segregation for CV disease	Vaughan Sarrazin, Mary	2006	
Variation in surgical care for early-stage kidney cancer	Miller, David	2006	
Variations of care in older men with prostate cancer	Jayadevappa, Ravishankar	2006	
A Multi-State Study of Cancer Treatment and Outcomes Among American Indians	Ramsey, Scott	2007	

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
A Physician-Based Trial to Increase Colorectal Cancer Screening in Chinese	Liang, Wenchi	2007	
Alzheimer Screening in Primary Care: PRISM-PC Study	Boustani, Malaz	2007	
Clinical & Cost Effectiveness of HPV Vaccination in the US	Goldie, Sue	2007	
Continuity of Care and Health Outcomes: Does It Really Matter?	Wolinsky, Fredric	2007	
Depressive Symptoms, Aging, Disability and Health Outcomes	Covinsky, Kenneth	2007	
Effect of Paramedic Airway Experience on Patient Outcomes	Wang, Henry	2007	
Enhanced Continuity of Pharmacy Care for Cardiovascular or Pulmonary Diseases	Carter, Barry	2007	
Evaluating the Effectiveness of Lung Cancer Treatment in the Elderly	Wisnivesky, Juan	2007	
Expanding Quality Care for Glaucoma through a Provider-Patient Partnership	Lee, Paul	2007	
Feasibility of Alcohol and Tobacco Use Surveillance via Personal Health Records	Weitzman, Elissa	2007	
Hearing Loss and Quality of Life of Children and Youth	Patrick, Donald	2007	
HIV Risk and Access to Health Care Among Mexican Migrants	Martinez-Donate, Ana	2007	
Identifying Receipt of Colorectal Cancer Screening	Peterson, Neeraja	2007	
Improving cancer case & chemotherapy capture rates from oncology practices	Penberthy, Lynne	2007	
Improving Communication during Pediatric Visits for Acute Respiratory Illness	Mangione-Smith, Rita	2007	
Improving Outcomes in Acute Rehabilitation for TBI	Horn, Susan	2007	
Improving patient outcomes in end-of-life care provided by physicians and nurses	Curtis, J	2007	
Increasing Participation in Cancer Clinical Trials	Somkin, Carol	2007	
Long Term Outcomes of Carotid Endarterectomy in the Elderly	Halm, Ethan	2007	
Measuring Cultural Competence and Racial Bias Among Physicians	Saha, Somnath	2007	
Patient-reported Measures of Cultural and Linguistic Competence	Napoles-Springer, Anna	2007	
Perceived Bias in Medical Care among Ethnically Diverse Adults with Diabetes	Hargraves, J	2007	
Race, Comorbidity & Long Term Prostate Cancer Outcomes	Penson, David	2007	

Table B.3 *(continued)*

Project Title	PI Name	Year	Research Focus: Markets Effects, Organizational Effects or Financial Effects on Consumers
Racial Differences in Physician-Patient Communication for Cancer Pain Management	Shields, Cleveland	2007	
Surveillance for Hepatocellular Carcinoma among HCV-infected Veterans	El-Serag, Hashem	2007	
Systems of Support (SOS) to Increase Colon Cancer Screening and Follow-up	Green, Beverly	2007	
Use of Automated Phone Calls to Promote Adherence with Inhaled Corticosteroids	Vollmer, William	2007	
Using Physiological Age to Predict Chemotherapy Toxicity	Mandelblatt, Jeanne	2007	
Web-based Family History Screening for Hereditary Breast Cancer Risk	Acheson, Louise	2007	

Table B.4. HCFO Research Projects Started in 2006 and 2007*

Grant Title	PI	Institution	Award
HCFO RESEARCH STARTED IN 2007 (TOTAL VALUE: $5,842,683)			
Waiting for Outpatient Care and Choice in Financing	Julia Prentice, Ph.D.	Boston VA Research Institute Inc.	$99,986
Impact of Profitability on Hospital Responses to Financial Stress	Kevin Volpp, M.D., Ph.D.	University of Pennsylvania School of Medicine	$455,218
The Provision and Reporting of Community Benefits by Hospitals: Lessons from Maryland	Bradford Gray, Ph.D.	Urban Institute	$184,057
Economic Impact of Adverse Health Events on the Uninsured Near Elderly	David Dranove, Ph.D.	Northwestern University, Kellogg School of Management	$98,210
How Do Rising Healthcare Costs Affect Worker Compensation?	Bradley Herring, Ph.D.	Johns Hopkins University (Bloomberg School of Public Health)	$54,750
Health Savings Accounts, High Deductible Policies, and the Uninsured: Simulating the Effects of HSA Tax Policy	James Cardon, Ph.D.	Brigham Young University	$116,606
Identifying Best Practices in the Coordination of Care	Ann S. O'Malley, M.D., M.P.H.	Center for Studying Health System Change	$99,445
Effects of Prior Authorization of New Medications among Medicaid Beneficiaries with Bipolar Disorder	Stephen B. Soumerai, Sc.D.	Harvard Pilgrim Health Care Inc.	$231,641
Paying Physician Group Practices for Quality: A Regional Natural Experiment	Douglas A. Conrad, Ph.D.	University of Washington School of Public Health and Community Medicine	$328,829
Medical Spending and Health of the Elderly	Jack Hadley, Ph.D.	George Mason University	$416,888
Financing American Indian Health Care: Impacts and Options for Improving Access and Quality of Care	Kathryn Langwell	Sanford Research/University of South Dakota	$138,427
Reimbursement Policy and Cancer Chemotherapy Treatment and Outcomes	Joseph P. Newhouse, Ph.D.	Harvard Medical School	$398,283
Examining the Impact of Informational Messages on Seniors' Choice of Medicare Drug Plans	Eldar Shafir, Ph.D.	Princeton University	$99,961
The Impact of Assisted Living Growth on the Market for Nursing Home Care	David Grabowski, Ph.D.	Harvard Medical School	$281,784
Evaluating Cost Efficiency of Specialist Physicians	J. William Thomas, Ph.D.	University of Southern Maine	$376,366
Physicians' Responses to Variations in Medicare Fees for Specific Services	James D. Reschovsky, Ph.D.	Center for Studying Health System Change	$246,076

Table B.4 *(continued)*

Grant Title	PI	Institution	Award
Examining the Quality of Hospital Care and Simulating the Impact of Several Pay-for-Performance Scoring Methods on Hospital Rankings	Joel S. Weissman, Ph.D./Lisa I. Iezzoni, M.D.	Massachusetts General Hospital Institute for Health Policy	$175,981
Study of the Effects of High-Deductible Health Plans on Families with Chronic Conditions	Alison Galbraith, M.D.	Harvard Pilgrim Health Care, Inc.	$403,958
Impact of MMA Part D on Medicare Residents in Nursing Homes	Becky Briesacher, Ph.D.	University of Massachusetts Medical School	$221,483
Examining Effective Strategies that Local Communities Have Used to Meet Expanded Public Health Workforce Needs	Robert Hurley, Ph.D.	Center for Studying Health System Change	$56,652
Incorporating Disparities into State Strategies to Monitor and Improve Health Status	Marsha Gold, Sc.D.	Mathematica Policy Research Inc.	$199,135
Local Community Strategies to Develop their Public Health Surge Capacity to Handle Emergencies Affecting Many People	Laurie Felland	Center for Studying Health System Change	$67,173
Comparison of Public Health Organizational Structures Using Dynamic Network Analysis	Jacqueline Merrill, D.N.Sc.	Columbia University	$209,952
Assessment of Training Needs for Public Health Financial Managers	Julia Costich, Ph.D., J.D.	University of Kentucky	$124,970
Understanding and Assessing Partnership Connections in Public Health Departments	Danielle Vogenbeck, Ph.D.	RAND Corporation	$195,991
Public Health Funding and Population Health	David E. Grembowski, Ph.D.	University of Washington	$161,789
Public Health System Organization and Performance in Rural Communities	Douglas R. Wholey, Ph.D.	University of Minnesota	$199,070
An Academic Health Center and Public Health Practice Collaboration: Disseminating Continuous Quality Improvement Capability to Local and State Public Health Agencies	William J. Riley, Ph.D.	University of Minnesota	$200,002
HCFO RESEARCH STARTED IN 2006 (TOTAL VALUE: $3,070,386)			
Changes in Drug Utilization for Seniors without Prior Prescription Drug Insurance	Sebastian Schneeweiss, M.D., Sc.D.	Brigham & Women's Hospital, Inc.	$100,000
Defensive Medicine as a Response to Medical Malpractice Liability in the United States	J. William Thomas, Ph.D.	University of Southern Maine	$247,111
Peer Pressure: Hospital Ownership Mix and Medical Service Provision	Jill R. Horwitz, Ph.D., J.D., M.P.P	University of Michigan Law School	$104,442
Study on Informed Choice of Drug Coverage for Medicare Beneficiaries	Bryan E. Dowd, Ph.D.	University of Minnesota School of Public Health	$106,009

Table B.4 *(continued)*

Grant Title	PI	Institution	Award
Medicare Beneficiaries Response to Coverage Gaps Versus Actuarially Equivalent Continuous Coverage for Prescription Drugs	Bruce Stuart, Ph.D.	University of Maryland at Baltimore	$157,992
Evaluation of Maine's Dirigo Health Reform	James M. Verdier, Ph.D.	Mathematica Policy Research, Inc.	$234,530
Impact of the Washington State Diabetes Collaborative on Patient Health and Economic Outcomes	Amira El-Bastawissi, Ph.D.	Washington State Department of Health	$349,927
Measuring the Value of Public Health Systems	Peter Jacobson, J.D.	The University of Michigan	$125,000
Causes and Consequences of Change in Local Public Health Spending	Glenn Mays, Ph.D., M.P.H.	University of Arkansas for Medical Sciences	$115,973
Involving Consumers in Physician Choice: Making Data into Useable Information for Chronically Ill Patients in Consumer-Directed Health Plans	David Blumenthal, M.D.	Massachusetts General Hospital	$215,448
Hospital Pricing and the Uninsured	Glenn Melnick, Ph.D.	RAND	$249,823
Regionalization in Local Public Health Systems: Variation in Rationale, Implementation, and Impact on Public Health Preparedness	Michael Stoto, Ph.D.	RAND	$147,325
Structural Capacities, Processes and Performance of Essential Public Health Services by Small Local Public Health Systems	Susan Zahner, Ph.D.	University of Wisconsin	$105,453
The Effects of Health Plan Concentration on Hospital Prices, Costs, Capacity, Charity Care, and Outcomes	Glenn Melnick, Ph.D.	RAND	$374,137
Effect of State Parity Laws on Children with Mental Health Care Needs	Susan Busch, Ph.D.	Yale University	$64,871
Strategies to Reduce Health Care Providers' Administrative Burden Related to Quality Performance Measurement and Reporting	Paul Ginsburg, Ph.D.	Center for Studying Health Systems Change	$99,518
Single Specialty Hospitals and Competition in the Hospital Industry	Kathleen Carey, Ph.D.	Boston University	$91,680
Duration Limitations and Adherence to Chronic Medication	Marisa Domino, Ph.D.	University of North Carolina at Chapel Hill	$181,147

*Source: HCFO Website. Available at http://www.hcfo.net/grantees/grantslist.cfm. Last accessed August 21, 2008.

APPENDIX E

PERSPECTIVES OF RESEARCH TRANSLATORS

OVERVIEW OF FINDINGS FROM DISCUSSIONS WITH SELECTED RESEARCH TRANSLATORS

By Marsha Gold, Sc.D.
August 6, 2008

Rationale and Approach

The project for which this analysis was conducted aims to learn more about AHRQ's grant funded health services research on health care costs, productivity, organization, and markets. To complement what we are learning from case studies and their targeted review of research use, we also held telephone discussions with staff of a small number of organizations that translate findings from this body of health services research. These organizations, which typically we refer to as "intermediaries," most often are governmental or quasi-governmental entities with an analytical staff, and a mission that calls on them to conduct analysis and use research to address public policy questions. For the most part, these questions have short to intermediate time horizons.

These discussions were semi-structured, conducted with individuals based in organizations that are potential important users of research. We sought to identify answers to questions such as:

- Do they use this kind of health services research, and if so, how?
- Where do they get information?
- What is their awareness of AHRQ's work in this area?
- What do they see as the strengths and weaknesses of health services research and its quality and scope?
- What impact does this kind of research have on policymaking?

These discussions were held with Bruce Steinwald (Government Accountability Office [GAO]), Jim Baumgardner (Congressional Budget Office [CBO]), Joan Sokolovsky (the Medicare Payment Advisory Commission [MedPAC]), Paul Pautler (Federal Trade Commission [FTC]), Robert Liebenluft (formerly FTC), and Greg Vistnes (former FTC and Department of Justice [DOJ]). To enhance our understanding of context, we also added general questions to a few discussions that were held as part of developing the selected case studies—in particular, those with Shawn Bishop (Senate Finance Committee staffer) and Jack Hoadley (former ASPE (HHS) and MedPAC staffer). Because we spoke with only a small number of people from readily identifiable organizations, we have framed our findings generally to avoid identifying respondents.

The individuals with whom we spoke as part of our translator discussions framed their responses in terms of their organizational missions and the resultant demands created for their work. Knowing these organizations' missions is important to understanding how research may be used. In the Appendix, we review the mission of each, with a focus on the relevance for the research under consideration in this evaluation.

The nature of these organizations provided us insight into two main types of translation: general public policy on health care (GAO, CBO, MedPAC), and the regulation of private markets (FTC, DOJ).The review illustrates the role of health services research in particular organizations of these two types. While there are many more such organizations than we were able to talk with, the general insights gained may also provide more general insight that extends beyond the organizations we spoke with.

Use of Health Services Research on Costs, Productivity, Organization and Markets

Each of these individuals portrayed their organizations as using health services research of the type focused on here, although the use varies with the organization's culture and the way it carries out its work.

Policy-Focused Entities. Organizations such as CBO, GAO, and MedPAC exist to provide analysis to the policymakers who are their primary audience, but also generate publicly available reports that reach a larger audience. The work of these organizations is heavily analytic.

These organizations make heavy use of health services research. Staff noted their familiarity with major bodies of relevant research and the people who conduct it. As a basis for their work, they typically will conduct a literature review on a new topic. They gather their knowledge from multiple sources, often doing formal searches (using search engines), working back to key references, reviewing selected websites, and discussing the topic with experts. The Internet appears to have changed how they locate articles and find research. Some organizations are more consistent with citing each source, whereas at other times analysts may mainly conclude "the literature indicates."

Reviews rarely omit major sources. This is because they are cited so frequently. The cumulative weight of citations means that a researcher comes to be known as an expert on a topic, and so is more likely to be called upon with questions. In addition, supervisors often request that certain sources "not be missed."

Reviews place value on the quality of work, often distinguishing high-quality studies and weeding out others. Peer-reviewed publications, one person said, make it easier to assess quality, because of the way they are structured. These organizations also use non peer reviewed sources, however, which are subject to quality considerations and to assessment of their objectivity. Such sources include the National Bureau of Economic Research and contractor studies, among others.

Current data are favored over old data, particularly for behavioral variables. However, earlier rigorous studies may be favored over those that are more recent but less well done (although this leads to concerns about whether a given parameter remains accurate in the current environment. Earlier studies of a very high quality may become classics, and often are widely cited even if dated (e.g., the RAND national health insurance experiment).

An organization's orientation and its staff members' training backgrounds appear to influence the sources used. In particular, many of these organizations have economists on board; some gravitate to the economics or health economics literature, but also will access key journals in both the general health services research literature and prestigious medical journals. Quantitative sources appear to be more heavily favored, but qualitative sources may help to educate staff on an issue.

The way the literature is approached depends on the time demands of a project. Often these offices have a timeframe that allows them to do a formal review of the literature. In other cases, given time constraints, they do not. An analyst may search for a particular parameter estimate to model costs. A policy office in the executive branch may need an answer in hours to a question. When timing is tight, an analyst might check three to five key websites, as well as any material associated with recent meetings on the topic, with the goal of finding selected study abstracts and policy briefs. (In this situation, there might not be time to read full articles.) When time is tight, staff also might call an expert known to have published on a topic.

By contrast, our discussion with a Senate committee staffer indicates that these committee staff pursue information very differently from intermediaries. They look at it from the "50,000 foot level." Studies come to their attention via newspapers and other major media. A particularly seminal study may be widely read (e.g., the McGlynn quality study), although this would be the exception since these staff usually do not have time to read a full article. They may call up experts for a five-minute briefing, and also tend to rely heavily on Blackberries for communication in real time with information sources.

Questions of concern include how current programs are faring and what new trends are arising. These may suggest new issues for members to consider and familiarize staff with what was referred to as "topics du jour"—the framing and development of short term interest in particular approaches. Studies are more valuable for some windows of opportunity than afterwards—such as when strategy is being formulated; once strategy is formulated, results that challenge it may be less positively received. However the vetting process of legislation is lengthy so new findings typically have some bearing on ultimate policy.

Ultimate policy users, such as those on Congressional committee staffs, look to intermediary organizations for information, but the mandates of those organizations do not necessarily address Congress's immediate information needs. Intermediaries that produce reports on predictable schedules are valued because the timing of information availability is predictable. Also of particular value are intermediaries providing information on study results that can be viewed very quickly as, for example, on the initial message screen of a Blackberry, and accessed in full with only a few clicks.

Regulatory Entities. FTC and DOJ use research to support their antitrust work, although their focus specifically appears to be studies framed in economic terms. Typically, their concerns are about (1) understanding how markets work, and what they can learn retrospectively about the effects of mergers and related changes generally; and (2) applying knowledge to support decision making on specific cases. Hospital mergers remain a core area of focus, although other variables such as for-profit versus nonprofit status or monopolies also may be involved. Economists provide the main source of analytical talent for this work. In many cases, there is little staff specialization by industry, so the economist may not know the particulars of health economics. The discussions revealed that, in the 1990s, there was more awareness of the importance of health services research than there is today, and that agency leadership views will influence the way competition is viewed. Those we talked with perceive that there are only a small number of people with whom they are familiar doing the relevant research in this area.

FTC and DOJ, along with the private firms that represent those with a stake their decisions, spend a great deal of money doing research, most of which is very market- and case-specific and will never become public because it is proprietary or legally restricted in its release. Health services research in the public domain of the type we are studying provides valuable context to understand market behavior more generally and provides insight on how institutions of a given type respond to change as a complement to more case focused and market specific research. The research also is used to formulate more general policies. For example, it may be used to develop guidelines such as “safe harbors,” that those being regulated can assume define allowable behavior.

Awareness of AHRQ as an Information Source

These intermediaries all said that they are never aware of a study’s funder, only the results or researcher. Organizations such as the Kaiser Family Foundation and the Commonwealth Fund, which have active dissemination efforts, tend to find their names more closely linked with given studies. Such “branding” may not be feasible for an organization such as AHRQ, which funds grants.

Intermediaries do perceive, however, that some organizations are more likely than others to be a source of information on given topics. In our discussions, AHRQ was not perceived as a major source of research on health care costs, productivity, organization, and market forces, at least not at this point. For the most part, those to whom we spoke associated AHRQ more with its databases (MEPS and HCUP, especially) or clinical work. They did not refer to the website frequently. One person who did noted that there was not a lot of information on markets on the site; the most recent articles are from 1999 and 2000, along with a few conferences on market outcomes in 2003. One intermediary noted having used an AHRQ-funded study without knowing that AHRQ had funded it; the person’s perception was that AHRQ focused on patient safety and clinical guidelines, not economics. Another said he had found research by Herb Wong to be relevant, and enjoyed earlier efforts to establish better communications between regulatory offices and AHRQ about mutual research interests; he was sorry that these exchanges no longer occurred. We also heard that AHRQ’s replication of a study on the relationship between prescription drugs and long life had given the results of the study more traction than it would otherwise have had. These examples suggest that AHRQ does have credibility.

Perception of the Quality and Scope of Available Health Services Research

The intermediary organizations with which we spoke do some original research, but typically they are limited to analysis of secondary databases or short–term, and often qualitative, studies. They all rely on the existing body of research to differing extents. They saw some critical gaps. One expressed this as the “age-old problem of policy relevance and the currency of information," for which there is no overall solution except "flexibility, mobility, and a responsive research agenda."

In the policy area, interviewees provided examples of questions and topics that require more original research or synthesis, and that they would consider valuable:

- What is an individual physician firm typically trying to optimize? Understanding this issue, they believe, is critical to predicting how physicians may respond to a payment change.
- How does technology affect health care spending? Interviewees thought that understanding this would be of substantial policy relevance.
- Why do different studies show different results on the number of uninsured, the role of Medicaid, or length of time for which people have no insurance? A variety of studies exist on this topic but questions remain.
- How would managed competition work if it were implemented in diverse markets? Studies of how employees of a single employer choose health insurance from a single market are not as valuable as those that provide insight into how the policy would work nationally if everyone were required to participate.

These examples are not meant to be definitive, but illustrate the types of questions on the minds of these types of intermediary organizations.

In the regulatory area, the needs appear more targeted, but no less desired. Those working on antitrust issues say they are constrained, both because some health services research does not coincide with their needs, and also because study results may not necessarily be framed in a way that highlights their relevance. They say that the products produced are not developed with their needs in mind. For example, they would be interested in more research on physician joint ventures and on understanding the kinds of policies and integration necessary for joint outcomes. As regulators, they do not want to block efficient integration, but also do not want costs to get out of control. As one person said, health services research can prove very relevant for these questions. They also expressed a need to understand the reasons for market failure, most of which go unexplained.

We also heard from someone familiar with both researcher and user perspectives about more generic barriers that limit the applicability of research. For example, this individual said that most academic researchers are not "policy savvy" and do not think like policy analysts, and that the concluding paragraphs in policy-relevant papers often are perfunctory. He advised that "framing" the research question was critical, particularly for topics whose relevance may not be generally obvious. Because "hot issues" come and go quickly, more general frames may be more useful than those very specific to the issues of the day.

Impact of Health Services Research on Decision-Making

All of those with whom we talked viewed research as only one influence, and often a minor one, on specific policy decisions, whose outcomes often are heavily influenced by interest group politics and other considerations.

Nonetheless, they said that research was very valuable, often in ways not fully recognized. The knowledge that develops cumulatively through research is what supports much of the work of these intermediaries. Research provides the coefficients for cost estimates CBO generates, which, under “pay-as-you-go” rules are critical to Congressional action. When groups such as MedPAC use research to make recommendations on a particular payment area, that recommendation can have a major influence over policy formulation for payment reform. GAO’s endorsement of DRGs contributed to making them more acceptable to Congress. Safe harbors, reflecting information across a body of research, provide guidance that will influence behavior in the private sector.

APPENDIX
MISSIONS OF ORGANIZATIONS OF INTEREST, WITH A FOCUS ON RELEVANCE TO THIS STUDY

- ***GAO.*** According to its website, "The U.S. Government Accountability Office (GAO) is an independent, nonpartisan agency that works for Congress. Often called the 'congressional watchdog,' GAO investigates how the federal government spends taxpayer dollars." GAO does no self-initiated research, but responds to questions from Congress, with committee staff getting a higher priority. They work with Congressional staff to frame questions.

- ***CBO.*** CBO's website states that its "mandate is to provide the Congress with: (1) objective, nonpartisan, and timely analyses to aid in economic and budgetary decisions on the wide array of programs covered by the federal budget and; (2) the information and estimates required for the Congressional budget process." CBO's interests span a broad spectrum in health care, including both public programs and how the private market works. Their staffing is dominated heavily by economists.

- ***MedPAC.*** MedPAC indicates on its website that it is "an independent Congressional agency established by the Balanced Budget Act of 1997 (P.L. 105-33) to advise the U.S. Congress on issues affecting the Medicare program. The Commission's statutory mandate is quite broad: In addition to advising the Congress on payments to private health plans participating in Medicare and providers in Medicare's traditional fee-for-service program, MedPAC is also tasked with analyzing access to care, quality of care, and other issues affecting Medicare." The Commission produces two annual reports to Congress (in March and June), as well as special reports, testimony, and other analyses.

- ***FTC.*** On its website, the FTC notes that it "deals with issues that touch the economic life of every American. It is the only federal agency with both consumer protection and competition jurisdiction in broad sectors of the economy." In our discussions, we were particularly interested in the FTC's work on antitrust issues, since such issues have the potential to be applicable to the kinds of health services research whose use we are examining. "Antitrust work: (1) reviews mergers and acquisitions, and challenges those that would likely lead to higher prices, fewer choices, or less innovation; (2) seeks out and challenges anticompetitive conduct in the marketplace, including monopolization and agreements between competitors; (3) promotes competition in industries where consumer impact is high, such as health care, real estate, oil & gas, technology, and consumer goods; and (4) provides information, and holds conferences and workshops, for consumers, businesses, and policy makers on competition issues and market analysis." The FTC also has a Bureau of Economic Analysis to support public policy analysis relevant to issues of concern.

- ***Department of Justice.*** The DOJ's website indicates that its overall mission is to "enforce the law and defend the interests of the United States according to the law; to ensure public safety against threats foreign and domestic; to provide federal leadership in preventing and controlling crime; to seek just punishment for those guilty of unlawful behavior; and to ensure fair and impartial administration of justice for all Americans." In our discussions, we were particularly interested in the Antitrust Division which has responsibility for enforcement of the antitrust laws. These laws apply to virtually all industries and to every level of business, including manufacturing, transportation, distribution, and marketing. They prohibit a variety of practices that restrain trade, such as price-fixing conspiracies, corporate mergers likely to reduce the competitive vigor of particular markets, and predatory acts designed to achieve or maintain monopoly power. The Division prosecutes serious and willful violations of the antitrust laws by filing criminal suits that can lead to large fines and jail sentences. Where criminal prosecution is not appropriate, the Division institutes civil actions seeking court orders forbidding future violations of the law, and requiring steps to remedy the anti-competitive effects of past violations.

APPENDIX F

SURVEY OF AHRQ-FUNDED PRINCIPAL INVESTIGATORS STUDYING ISSUES RELATED TO HEALTH CARE COSTS, PRODUCTIVITY, ORGANIZATION, AND MARKET FORCES

"TOP LINE" REVIEW OF FINDINGS

SUMMARY OF FINDINGS FROM A 2008 SURVEY OF AHRQ-FUNDED PRINCIPAL INVESTIGATORS WITH RECENT GRANTS STUDYING ISSUES RELATED TO HEALTH CARE COSTS, PRODUCTIVITY, ORGANIZATION, AND MARKET FORCES

by

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November 2008

EXECUTIVE SUMMARY

BACKGROUND

The Agency for Healthcare Research and Quality (AHRQ) funds investigator-initiated research on health care costs, productivity, organization, and market forces, which serves both to advance general knowledge and provide critical information for public and private policymakers. However, the manner and extent to which AHRQ-funded, investigator-initiated research is used by policymakers and end-users, as well as other researchers, is not well documented. This information may be useful for better understanding AHRQ's relative importance in funding basic and applied policy-relevant research.

During our evaluation of AHRQ's investigator-initiated research on health care costs, productivity, organization, and market forces, Mathematica Policy Research (MPR) has developed criteria that define and identify 149 projects on these topics funded by AHRQ since the late 1990s (Krissik et al. 2007). This report presents findings from a survey of the principal investigators (PIs) of those previously identified studies, to clarify the type of research AHRQ has funded, primary findings from the research, methods of dissemination, and interaction with policymakers. In addition, to inform AHRQ about the strengths and weaknesses of its grants management and technical assistance, we asked PIs to rate the quality of technical and other support provided by AHRQ, along with that of other relevant funders (for example. the Robert Wood Johnson Foundation's Health Care Financing and Organization (HCFO) program, the NIH, and others).

We invited 138 PIs who had led at least one AHRQ-funded, investigator-initiated research study since 1997 to participate in a web-based survey conducted between July 10 and August 20, 2008. Ninety-seven PIs completed the survey, for an overall response rate of 70 percent.

RESULTS

AHRQ-Funded Research

Most of the research projects AHRQ funded addressed particular policy-relevant questions (60 percent), or basic knowledge or methods development (39 percent). These studies most commonly evaluated the impact of various factors on quality of care outcomes, health care utilization and access to care, health care costs and expenditures, mortality, racial and ethnic disparities, and health care markets. These studies also provided important information on these outcomes in hospitals, nursing homes, physician practices, and other provider settings. Many describe how health insurance coverage (e.g. managed care, Medicaid, State Children's Health Insurance Program (SCHIP), Medicare, etc.) affects outcomes in various settings. Research findings often varied across study populations and settings, underscoring the importance of broad-based research to understand how specific factors may impact outcomes.

Dissemination

PIs make findings from their research available publicly, though their focus is more likely to be on publication, especially in peer-reviewed journals, and on conferences. Few respondents reported that conducting briefings for policymakers, managers, or other interest groups was a major approach to dissemination. In addition, investigators reported little help with dissemination from their institutions. The most frequent type of dissemination help received was from a press office for interaction with the media, but the help they reported in this area was generally rated as “limited.” Institutional assistance with other forms of dissemination, including newsletters, research briefs, working paper series, and training to work with policymakers, was scant.

Impacts of AHRQ-Funded Research

The survey shows that AHRQ-funded, investigator-initiated research on health care costs, market forces, productivity, and organization since the late 1990’s has contributed to both driving research agendas and informing policy even though there may be areas for improvement in dissemination. Among the 85 investigators who rated the impacts of their research (12 noted it was too soon to describe the impact), 37 (44 percent) reported it had a large bearing in at least one area and many noted several effects. Impacts were related to (1) providing important new information; (2) wide citations in the research literature and use by other researchers; (3) informing policymakers and end users through testimony and presentations; (4) actual use by policymakers; and (5) widespread media attention. While PIs may be motivated to overstate the effects, the open-ended descriptions they provided are evidence that the research is being used even if it could be used more.

Characteristics of Investigators

Most respondents work at academic institutions (85 percent), and all investigators had either a medical degree, a Ph.D., or both. Non-respondents were less likely to be affiliated with academic institutions (68 percent versus 85 percent) and had larger grants on average than respondents ($528,000 versus $413,000). Respondents reported they would like to have more interaction with policymakers than currently. They generally prefer to spend their time conducting original research on questions they pose and collaborating with other researchers on projects as opposed to applying existing research to particular policy questions or synthesizing the literature.

AHRQ-Specific Feedback

Investigators rated AHRQ technical assistance highest on pre-award guidance, grant award, and grant management activities. Technical assistance in terms of dissemination and communication of findings and linkages with others received the lowest scores. When investigators described AHRQ strengths and weaknesses in open-ended responses, many of the same themes, including funding, interaction with AHRQ personnel, facets of the review process and dissemination and communication activities, appeared as both strengths and weaknesses. For example, 15 percent noted the fact that AHRQ funds research on health care costs, market forces, productivity, and organization as a key strength of the institution, but conversely 37 percent noted lack of funding for this research as an important weakness. In addition, some investigators reported positive interactions with AHRQ grants management personnel and project officers, while others reported problems with these interactions. Almost equal numbers rated components of the review process positively and negatively. Those who rated it as a strength noted the usefulness of the feedback on the grant application, while those who had negative comments noted issues related to transparency, and lack of resources and infrastructure available for the review process. Similarly, several respondents highlighted AHRQ's efforts at dissemination and communication activities, particularly its website and newsletter, while others noted there is little assistance for nonacademic audiences.

The lack of consensus on AHRQ strengths and weaknesses highlights the varied experiences among investigators who have received its grants. While it is not unexpected that the experiences of different investigators with AHRQ vary, there may be opportunities for the agency to develop staff to ensure that all investigators report positive staff interactions.

Conclusions

AHRQ has funded a broad array of research on health care costs, market forces, productivity, and organization that has made its way to the policy arena. While most investigators focus dissemination on peer-reviewed publications and conference presentations, much of this research has been picked up and used by various policymakers and end-users. Investigators appear to have little help from their own institutions in disseminating information to policymakers. In the future, AHRQ may want to devise mechanisms to help investigators target dissemination at policy audiences. Finally, investigators described AHRQ as an important source of funding for this type of research, and lamented the insufficient levels of funding devoted to this research.

A. INTRODUCTION

Health services research, as defined by the Institute of Medicine, is an interdisciplinary field that investigates the structure, organization, and processes of health services delivery and financing as well as its effects on people and population (Gray et al 2003). Research on health care costs, productivity, organization, and markets is a core component because it speaks to the issue of how the organization and financing of care influence system performance. From its origins in the National Center for Health Services Research, the Agency for Healthcare Research and Quality (AHRQ) has always played a central role in financing research in this field (Gray et al 2003; Coalition for Health Services Research 2004, 2005). But there has been little synthesis of the work that has been supported, what has been learned, and how it has been used.

To address this gap, AHRQ contracted with Mathematica Policy Research Inc. (MPR) in 2006 to systematically review its grant-funded research on health care costs, productivity, organization, and market forces. We worked with AHRQ to define the relevant research studies (see Krissik et al. 2007).[1] One component of the evaluation was a survey of all relevant research grantees, which is the focus of this paper. The survey addressed multiple concerns (see Table 1 for topics covered). The goals were to better understand the type of research AHRQ has funded, the primary findings from that research, methods of disseminating the findings, and researchers' interactions with policymakers. Such information is crucial, since AHRQ increasingly views its mission as not just supporting research but also encouraging its translation into policy and practice (Clancy 2004). The survey aimed to develop an understanding of the pathways through which AHRQ-funded project findings are considered in policymaking (Gold 2008). It also was designed to collect information on what these grant-funded studies have contributed to the field and where their findings might be found. To do so, the survey went beyond the usual closed-ended questions to elicit from researchers what they viewed to be the central findings of their research and to obtain citations to central sources that documented or summarized those findings.

Another goal was to address operational concerns. The survey gathered information that promote AHRQ's understanding of its strengths and weaknesses in grants management and technical assistance, and how investigators perceive AHRQ as a funding source and how they compare AHRQ to other funders of research in this area.

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[1] To be included, studies had to have been first funded in fiscal year 1998 or later (fiscal year 2006 was the most recent year available at the time this project began). We first identified a pool of 265 grants that met at least one of three criteria: (1) funded through the health care systems research study section; (2) overseen by one of eight project officers active in this area; or (3) assigned for oversight to the two AHRQ centers most relevant to this work (CDOM or CFACT). A total of 265 grants were identified, including 180 research grants that were the focus of the study (the rest involved conferences, methods, or implementation grants). We reviewed the project description on the Query View Report Systems (part of the application process) for each grant. Eligible grants examined organizational or consumer decision making, with independent variables that included a focus on market forces, financial incentives, or resource constraints. Of the 180 research grants, 149 were deemed eligible for study including 102 large (over $100,000) grants and 47 smaller grants ($100,000 or less). Most commonly (N = 97) these involved organization-level studies with hospital (N = 40) or health plan (N = 29) studies most common. There were 37 consumer-focused studies (that examined effects on insurance, price incentives, or supply constraints) and 15 market- or purchaser-level studies. Cost, utilization, and quality were common outcome variables.

Table 1. Survey Topics

- ***Nature of Research.*** The primary goal of the study (for example, knowledge development, methods, policy issues); where the study "fits" within the ongoing work of the principal investigator; cofunding for the study; modifications from the initial grant submission, reasons for any modifications, and the impact of any modifications on the success of the project.
- ***Grant Outcomes.*** Methods used to document and disseminate the findings, main substantive findings of the research (up to three) as viewed by the researcher, key references that describe research findings (up to four); and the impact of the research on various outcomes (for example, general knowledge, methods development, and informing policy debates,).
- ***Grant Process.*** Ratings of AHRQ's support at various stages (for example, pre-award guidance, grants management, dissemination), what PIs viewed to be AHRQ's most substantial strengths in managing this kind of research and areas for improvement, the role AHRQ plays as sponsor of this kind of research vis-a-vis other funding agencies, and ratings of other funders (where relevant).
- ***Researcher and Organizational Characteristics.*** Most advanced degree, professional setting (for example, academia or "think tank"), sources of financial support, availability of organizational support to support dissemination, and preferred and current use of professional time.

This paper provides a first, top-line summary of findings, for a primary audience of AHRQ staff and grantees, including those participating in this survey who are interested in the overall findings. Given the diverse audience, different sections are likely to be of interest to different portions of the audience. For example, the sections highlighting what was learned as a result of AHRQ research, and insights on bridging the research/policy gap, are likely to have a wide audience. In contrast, interest in AHRQ's performance and where AHRQ fits within the broader span of funding organizations is likely to be much narrower. If resources are available, it would be useful to expand these analyses, particularly those related to research findings and their use, and develop additional products for target audiences concerned with particular topics.[2]

The results presented here reflect survey responses from the principal investigators. This is appropriate since these investigators know their research best and are best positioned to answer questions about it or about their perspectives in conducting research. However, it is possible that investigators and users may not always view research (especially its use) in the same way. Other components of the evaluation, particularly the case studies and discussions with selected users of this kind of research, provide insights from other perspectives.

B. METHODS

MPR developed a web-based survey using Opinio that included both open- and closed-ended questions about the nature of the AHRQ-funded research (for example, methods development, feasibility studies, or addressing specific policy questions), primary findings,

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[2] The most critical area where additional analysis would be valuable involves a synthesis of what the survey shows to be the main findings from AHRQ-funded research under these grants. While this project supported a database incorporating results and published sources on the different studies, the current analysis focuses mainly on an overview of survey responses on important findings.

methods of dissemination (for example, journal articles, books, issue briefs, or presentations), perceived impact (for example, impact on general knowledge, work of other researchers, methods development, and policy debates), AHRQ's strengths and weaknesses, and the relative importance of other organizations as funders of research on health care costs, market forces, organization and productivity, as well as ratings of AHRQ and other funders' technical assistance.

We invited 138 PIs who had led at least one AHRQ-funded, investigator-initiated research study since 1997 to participate in the survey.[3] An email invitation was sent to all PIs, explaining the purpose of the survey and providing a link to the instrument. The invitation indicated that responses would be kept confidential, although individual study findings or citations (as provided by PIs) might be publicly reported. In addition, we sent a letter through the mail thanking respondents who had completed the survey for their participation, and reminding those who had not yet completed the survey to please do so. Up to three email reminders were also sent to non-responders to encourage participation, in addition to two reminder phone calls. Data were collected over a six-week period from July 10 to August 20, 2008. One PI was deceased at the time of the survey; 97 PIs completed the survey for a response rate of 70 percent.

We compared survey respondents with non-respondents on the average size of grants and academic affiliation (based on available contact information). Non-respondents had somewhat larger grants, on average, than respondents ($528,000 versus $413,000) and were less likely to have a university affiliation (68 percent versus 84 percent). The extent to which our results would change if we had data from non-responders is unclear; we recognize there may be some differences between respondents and non-respondents.

We tabulated responses to all closed-ended questions, using appropriate denominators. For example, respondents who noted it was too soon to rate the impact of their research or who noted that certain types of impacts were not relevant to their grant goals were excluded from analyses of perceived impacts. Similarly, we included only PIs who received funding from other organizations in analyses of other funders' technical assistance. All tabulations were conducted using SAS 9.1 (Cary, NC). Open ended responses were output to Excel, and coded using key words to identify common themes.

C. GOALS OF AHRQ-FUNDED RESEARCH

Health services research projects can serve a variety of purposes. For example, some aim to develop basic knowledge about the health system, whereas others may build on that knowledge to address specific policy concerns. Individual projects often can be part of a larger body of related work. Results from this survey describe the primary goals of AHRQ-funded research and the broader context in which the research was conducted. Most (60 percent) of AHRQ-funded, investigator-initiated research since the late 1990s was designed to address specific policy-relevant questions (Table 2). The second most common focus was on exploratory analysis to

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[3] Of the 149 AHRQ-funded research projects on health care costs, market forces, organization, and productivity identified by MPR, there were 138 principal investigators (seven PIs led two projects and two PIs led three projects each). Investigators with more than one AHRQ grant were only surveyed about one grant.

Table 2. The Nature of the Research Projects Funded

	Number	Percentage
Primary Goal		
Addressing particular policy-relevant questions	58	59.8
Basic knowledge development in a relevant area	33	34.0
Methods development	5	5.2
Feasibility study/pilot test	1	1.0
Developing a database to support future research	0	0.0
Focus of Research		
Continuation of previous research	59	60.8
New focus	38	39.2
Co-Funders		
Yes	20	20.6
Received Follow-up Funds		
No	66	68.0
Yes, for further research	30	30.9
Yes, for dissemination	3	3.1

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

develop basic knowledge in specific areas (34 percent). A small proportion (5 percent) involved methods development. The majority of research projects (61 percent) were described as continuation of previous research, while 39 percent represented a new focus of the research. Co-funding for projects was relatively uncommon, with only 21 percent of PIs reporting support from any other funders for their particular research project.

Support from other funders was more common for research following up on work completed with AHRQ grants. About one-third (32 percent) of PIs received additional funding from other sources to continue their research. In three cases, PIs reported that the additional funding specifically was targeted for dissemination. These activities included development of websites and workshops, additional publications and presentations to state government, and office-based interventions to improve quality of care (data not shown). Although most projects did not receive additional funding for research or dissemination, we do not know whether PIs applied for additional support and were turned down.

D. OUTCOMES OF AHRQ-FUNDED RESEARCH

Generating findings through research and making them available publicly are necessary first steps for research use (Gold 2008). To clarify the contribution that AHRQ-funded research has made to the body of research on health care costs, organization, productivity, and market forces, we asked investigators to list up to three main substantive findings from their research (if available), as well as up to four citations, along with the types of dissemination undertaken. This information is crucial to understanding how AHRQ-funded research has contributed to the general body of research on health care systems, and how these findings may reach various audiences.

Eighty-three of the 97 survey respondents complied with the survey's request to summarize briefly, in their own words, the main substantive findings of the research; eight of the 14 others stated that it was too soon to report findings from their research grant and the remaining six did not respond to this question. Seventy-seven provided at least one citation, including 70 who cited one or more peer-reviewed publication. While it is beyond the scope of this analysis to provide a thorough review of the contribution of this body of work, the PIs' summary of key findings illuminates the issues this research has explored and the factors (independent variables) whose effects (outcomes) it seeks to understand.

1. Focus of Studies and Examples of Findings

Focus of Research. This body of research on health care costs, productivity, organization, and market forces generally is concerned about processes that influence major outcomes of health care and health care systems (Table 3). The research generates findings for a range of health system outcomes. Most commonly, studies focus on quality of care (that is, clinical quality, patient satisfaction, and patient safety (N = 31)), health care utilization and access (N = 28), health care costs and expenditures (N = 13), and disparities (N = 11) though other outcomes are considered and many studies report on more than one outcome. Outcomes are examined in provider settings (for example, hospitals, physicians' practices, and nursing homes), for specific types of services (for example, prescription drugs) and across insurance or payer types (for example, managed care or Medicare). The outcomes studied are closely associated with those identified by the Institute of Medicine (2001) and others such as the Commonwealth Fund's Commission on a High Performance Health System as critical to health system performance.

In Appendix A we have provided more detail on key variables considered to be factors driving differences in various forms of outcomes, and what PIs say their results show about those factors (Table A-1); key findings by provider setting (Table A-2); and what has been learned about the role of insurance coverage (Table A-3). Readers should note that each study was conducted on specific populations and settings. Thus findings may or may not be generalizable or robust to other populations and settings, and the findings obviously need to be applied within the context of the full range of research relevant to particular topics of interest.

Factors of Interest. For the most part, this body of health services research focused on how specific outcomes were influenced by economic factors (for example, provider payment, insurance coverage), organizational characteristics (such as nurse leadership or volume), systems and markets (for example, HMO penetration, capacity), policies (for example, certificate of need, direct to consumer advertising), specific patient populations (such as minorities) and patient preferences (for example, do not resuscitate orders).

Illustrative Findings. Study findings show that within the contexts being studied, pay-for-performance effects on quality of care were modest, SCHIP enrollment improved access and quality for children enrolled in the program, nursing workgroup culture enhanced patient outcomes, safety-net hospitals tended to perform more poorly (and administrators said that,

Table 3. Summary of Various Study Outcomes, Key Independent Variables, and Settings or Populations in Which Studies Were Conducted

Outcome	Key Independent Variables	Settings or Populations Studied
Quality of care	• Payment	• Nursing homes • Physician practices
	• Insurance type (e.g., managed care, fee-for-service, SCHIP, Medicaid) or features (e.g., case management)	• Children • Adults • Various, unspecified
	• Nurse staffing /nurse climate and culture	• Hospitals • Nursing homes
	• Risk aversion	• Provider settings, unspecified
	• Variations in prescribing patterns	• Physician practices
	• Institutional characteristics (e.g., specialty hospitals, safety net providers, etc.), volume, time of service (e.g., weekends) and services provided	• Hospitals • Outpatient settings
	• Organizational commitment	• Nursing homes • Hospitals • Unspecified settings
	• Patient-centered care	• Unspecified settings
	• Patient populations served (e.g., percent minority)	• Physician practices
Utilization and access	• Insurance coverage (e.g., Medicaid, SCHIP, managed care, fee-for-service, Medicare)	• Children • Women • Medicare beneficiaries • Various, unspecified populations
	• Cost-sharing policies (e.g., prescription drug formularies, premiums, co-payments)	• Low-income adults • Patients with chronic illnesses • Various, unspecified populations
	• Institutional capacity (e.g., nurse staffing, availability of specialty hospitals, etc.)	• Hospitals • Home health

Table 3 *(continued)*

Outcome	Key Independent Variables	Settings or Populations Studied
Utilization and access *(continued)*	• Geography (e.g., rural versus urban)	• Nursing homes • Medicare populations
	• Patient populations	• Mental health patients • Children with special needs • Disabled patients • Women • Infants and mothers
	• Direct-to-consumer-advertising	• Patients prescribed statin or cox-2 inhibitors
Costs / expenditures	• Variations in practice patterns	• Hospitals • Various, unspecified settings and populations
	• Insurance (e.g., FSAs, managed care, drug formularies)	• Various, unspecified populations
	• Availability of new technologies	• Various, unspecified populations
	• Quality improvement activities	• Outpatient settings • Unspecified settings
	• Institutional factors	• Hospitals
	• Market share	• Health insurance companies
	• Patient preferences	• Nursing homes
Mortality	• Insurance status (e.g., uninsured vs. insured)	• Adults
	• Medicare managed care versus fee-for-service	• Medicare beneficiaries
	• Nurse staffing levels, membership in a hospital-system, and high volume	• Hospitals
Disparities	• Insurance (e.g., managed care, SCHIP)	• Hospitals • Various, unspecified settings
	• Institutional capacity	• Hospitals
	• Reporting to providers and cultural competence programs	• Physician practices
	• Patient populations	• Children • Adults • Patients with various conditions (e.g., asthma, HIV, etc)

Table 3 *(continued)*

Outcome	Key Independent Variables	Settings or Populations Studied
Market responses (e.g., market penetration, market entry, membership in health systems)	• Geography	• Managed care companies
	• Payment rates	• Managed care companies
	• Patient preferences	• Managed care companies
	• Market competition	• Hospitals
	• Financial and technological advantages	• Hospitals

Source: Authors' analyses of survey responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 83.

at least in part, this was due to resource constraints), and that the racial composition of primary care practice had little impact on the content of office visits.

In the area of cost or expenditures, findings showed that variations in prescribing patterns affected health care costs but not outcomes; outcomes were better for heart patients discharged earlier, indicating that physicians were identifying appropriate candidates for early discharge; concurrent review resulted in high institutional costs; and HMO market share was associated with differences in health care delivery, outcomes, and spending.

Studies of health care access and utilization found that high rates of uninsurance were negatively associated with breast cancer screening; coverage of colorectal cancer screening did not increase screening rates at the margin; the opening of a cardiac specialty hospital led to higher rates of revascularization systemwide for Medicare beneficiaries; and children with mental health conditions used more non-mental health resources than those without.

Studies of disparities found that SCHIP coverage reduced pre-existing racial and ethnic disparities in health care among enrollees, although studies of other populations found racial and ethnic disparities among patients with the same type of insurance. Other studies found that certificate of need programs may lead hospitals to reduce services to minority patients, and that disparities varied by clinical conditions and geography.

2. Dissemination Activities

PIs make findings from their research available publicly, though their focus is more likely to be on publications, especially in peer-reviewed journals, than on other vehicles. Almost all PIs (97 percent) reported that publishing was their major dissemination activity, particularly journal articles (Table 4). Dissemination at research and policy- and user-focused conferences was also important, with 64 percent categorizing at least one of these types of conferences as a major focus of dissemination. Less than 30 percent reported a major focus on policymaker briefings as a form of dissemination; among those who did, we do not know whether policymakers responded to published information with a request for a briefing or whether researchers sought out policymakers to brief them about the results. Relatively few PIs reported other forms of dissemination, including mass media, federal or state testimony, expert witness, or other dissemination, as a major focus. However, 28 percent of researchers reported at least a minor focus on the mass media. Most likely these researchers view mass media attention as a complement to publications, which appear to be the primary goal of dissemination.

We asked survey respondents to list up to four citations where we may find results of their research. Seventy investigators listed at least one citation in a peer-reviewed journal, including citations “in press.” In total, 189 peer-reviewed publications were cited by these respondents for an average of approximately three publications per grant. Among these respondents, we counted the number of articles published by journal to understand where investigators have published their findings. The journals that were most frequently mentioned include: *Pediatrics* (N = 13), *Medical Care* (N = 12), *Health Services Research* (N = 11), *Inquiry* (N = 10), *Health Affairs* (N = 8), *Journal of Health Economics* (N = 6), *Journal of General Internal Medicine* (N = 5), *Journal of the American Medical Association* (N = 5), *New England Journal of Medicine* (N = 5), *American Journal of Managed Care* (N = 4) and *Medical Care Research and Review* (N = 4).

Appendix Table 4 lists all journals that published at least one paper from AHRQ-funded research. This list probably undercounts the number of papers published in these and other journals, as investigators may have published additional papers not listed in our survey or may be in the process of developing additional manuscripts based on this research, and we did not account for publications by investigators who did not complete the survey or who did not respond to this survey question. Regardless, the number of publications and the ability to publish in well-known medical and health services research journals suggest that AHRQ-funded investigators were successful in disseminating results to the broader research community.

We also list citations provided to us by respondents in Appendix Table 5. This table offers a partial listing of publications from AHRQ-funded investigator-initiated research, as many grants likely published more than four articles and not all investigators responded to our survey. However, this information may be useful to AHRQ to better track publications and other publicly-available information from AHRQ-funded research grants.

The extent to which investigators disseminated results to audiences that may not read professional journals is less clear. Investigators reported limited or minimal assistance available from their workplace or affiliated organizations to disseminate results of their research (Table 5). The most frequently reported forms of dissemination support was use of a press office for interaction with the media, and newsletters reporting on key findings from research, but substantial assistance with these activities was reported by less than 10 percent of investigators; 40 percent reported no assistance from their press office and 54 percent reported no assistance with newsletters. Most other forms of institutional dissemination assistance were used in a limited way or not at all. These findings suggest that there is little institutional infrastructure available to regularly assist with dissemination activities.

Table 4. Share of Investigators Who Focused on Specific Methods of Dissemination (Percentages Unless Otherwise Noted)

	Major Focus	Minor Focus
Publications (any)	**96.9**	**2.1**
Journal article(s)	90.7	5.2
Research report/working paper	28.9	26.8
User-focused research brief/issue paper	12.4	18.6
Chapter	6.2	17.5
Book	3.1	0.0
Conference Presentations (any)	**63.9**	**27.8**
Paper or poster at research conference	56.7	27.8
Presentation at policy-/user-focused meeting	34.0	32.0
Briefings (any)	**26.8**	**25.8**
Policymaker briefings	17.5	18.6
Managerial briefings	11.3	16.5
Interest group briefings	11.3	17.5
Other Forms of Dissemination (any)	**9.3**	**26.8**
Mass media	5.2	22.7
Federal or state testimony	2.1	8.3
Expert witness	0.0	3.1
Other	3.1	4.1

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Table 5. Share of Respondents Reporting Various Forms of Dissemination Support from Their Institutions (Percentages Unless Otherwise Noted)

	Amount of Assistance			
	Substantial	Moderate	Limited	None/Did Not Use Resource
Any Type of Assistance				
Press office for interaction with media	8.8	27.5	24.2	39.6
Newsletters reporting on key findings from research	9.9	16.5	19.8	53.9
Established working paper series	3.3	11.0	6.6	79.1
Established series of research/issue briefs	5.5	6.6	14.3	73.7
Funds available to develop user-oriented materials	0.0	2.2	4.4	93.4
Information or training on how to understand and interact with potential users of research	1.1	3.3	13.2	82.5

Source: MPR Survey of AHRQ-Funded Principal Investigators

Notes: N = 91. These analyses exclude N = 6 respondents who did not respond to any questions about dissemination support.

3. Impacts

Although 12 PIs (12 percent) said it was too soon to report impacts from their research, the rest were able to assess the impact of their work to date. All researchers reported that it was relevant to their grants goals to examine the way research contributed to general knowledge and informed other research. Most (92 percent) said contributions to the policy debate also were important and 87 percent hoped their research would help better target future research. Fewer, but still a majority, said findings were relevant to developing new methods (73 percent), helping organizations to improve their effectiveness (69 percent), and developing new models of care delivery or policy design (67 percent), as shown in Figure 1.

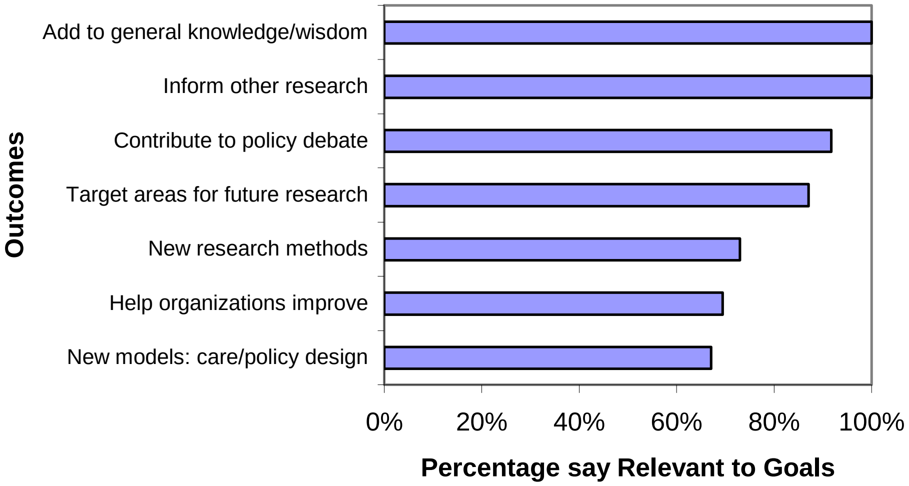
Table 6 shows how PIs rated the impact of their research on outcomes that were relevant to their grants. More than 94 percent reported that their research contributed at least a little to general knowledge or wisdom, including 26 percent who rated their research as having a large impact. Similar impacts were reported for informing the work of other researchers. Approximately 88 percent noted that their research contributed, at least a little, to more effective targeting for how future research should be focused including 18 percent who reported a large impact. Similarly, 82 percent noted that their research contributed at least a little to the policy debate on a particular issue including 23 percent who reported a large impact. Fewer projects had large or any impacts on changing organizations to make them more effective, developing new methods, or developing new models of care delivery or policy design.

There were 37 principal investigators who reported that their research had a large impact on one or more of the outcomes listed in Table 6. They were asked to provide a brief explanation or evidence of this impact. Of the 37 unique PIs, 32 provided open-ended responses clarifying why their research had a large impact. Most responses fell into the following categories: (1) the research provided important new information (N = 22); (2) the research was cited widely in the research literature and used by other researchers (N = 21); (3) the research was used by policymakers (N = 8); (4) the research informed policymakers and end users through various pathways, including testimony and presentations (N = 8); and (5) the research received widespread media attention (N = 1). Many of these research projects also provided evidence of impacts in multiple categories, as shown in the excerpts provided in Table 7. Appendix table 6 provides full responses from all 32 respondents about the impacts of their research.

4. Challenges Encountered with the Research and Modifications Made to Research Protocols

Most of the research findings and impacts described above are based on the study protocols submitted to AHRQ as part of the grant application. However, some projects required non-trivial modifications to the protocol, including 29 (30 percent) projects that made substantive changes to the research and 3 (3 percent) that made many or major changes to the research (Table 8).

Figure 1. Share of Respondents Who Report Specific Outcomes Relevant to Goals of Their Study



Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 85.

Table 6. Share Who Reported AHRQ-Funded Research Had Large, Some, Little, or No Impact on Specific Outcomes (Percentages Unless Otherwise Noted)

	Large Impact	Some Impact	Little Impact	No Impact	Refused/ Don't Know
Specific Outcomes					
Contributed in a significant way to general knowledge or wisdom (N = 85)	25.9	60.0	8.2	4.7	1.2
Informed the work of other researchers (N = 85)	25.9	56.5	11.8	4.7	1.2
Helped to target better how future research should be focused (N = 74)	17.6	48.7	21.6	9.5	2.7
Contributed substantially to the policy debate on a particular issue (N = 78)	23.1	42.3	16.7	15.4	2.6
Contributed in a substantial way to changing organizations to make them more effective (N = 59)	8.5	30.5	28.8	28.8	3.4
Developed new methods for conducting research (N = 62)	8.1	40.3	30.7	16.1	4.8
Developed new models of care delivery or policy design (N =57)	5.3	29.8	38.6	21.1	5.3

Source: MPR Survey of AHRQ-Funded Principal Investigators

Table 7. Reported Evidence for Impacts of Research

Sample Responses

- *"…These findings have been cited in the literature and we have made presentations to industry representatives on them. In addition, some of the newer methods we used in analysis have attracted the attention of researchers who have used our analysis in their studies"*
- *"Our work has appeared in several national, state, and local policy briefs, and other reports published by the Commonwealth fund, Kaiser Family Foundation, etc. Our work has been used in congressional testimony. Most importantly, our work was used by state lawmakers to substantially change the Medicaid program…"*
- *"The home healthcare nurses job satisfaction scale (HHNJS) developed with AHRQ grant funding has been requested by over 30 different researchers to use in their evaluation programs or research studies. The work has been cited in various white papers (Center for Home Care Policy & Research, Promoting Excellence in Geriatric Home Care, and Visiting Nurse Service of New York) and journal articles. The results added knowledge of home healthcare nurse job satisfaction and retention—areas previously unknown and established the importance of organization management and environment—with the recommendations for change."*
- *"… Our work has helped inform collaborative projects (including those supported by AHRQ and RWJF) that assist health plans to explicitly measure and address disparities among their own plan members… Last, there has been considerable debate regarding the accuracy of hospital data for race and ethnicity, but few hard data. Our study based on California hospital data suggests that these data are fairly reliable for many, but not all"*
- *"The two published papers from the grant helped to shift the long-standing notion among researchers regarding the relationship between Medicaid payment and nursing home quality... These papers have been well-cited and have led to a new generation of studies largely substantiating this positive relationship."*
- *"We introduced new methods for the study of nurse staffing and quality of care that have now been adopted. Our work is frequently cited in the research literature..."*
- *"This study helped demonstrate the value of linking birth records with discharge data for neonatal research. It created the first 10 years of the California linked birth records/discharge data, which are now available to other researchers, and these data have already been used [by] many other studies, including AHRQ funded studies. The results provided the most convincing data to date on the impacts of the de-regionalization of neonatal intensive care. The main findings were published as a NEJM special article. Based on the NEJM paper, the Leapfrog group has revised its volume criteria for VLBW infants for its Evidence-based Hospital Referral program."*
- *"The work highlighted disparities in HIV care at a national level, influenced the reauthorization of the Ryan-White Act as it pertains to case management, promoted the use of probability-based sampling in research, and has led to a similar study being conducted on an ongoing basis at a national level by CDC."*
- *"New Methods: Used of theoretically based computational modeling programs to create virtual units that allow managers/administrators to make substantive changes in the virtual unit and assess the impact on patient outcomes. Changing Organizations: Administrators used findings related to unit turbulence and unit workgroup culture to improve the working environment in study hospitals."*
- *"We were among the first group of researchers to systematically study the application of pay-for-performance models to healthcare and published some of the initial conceptual and empirical papers addressing the topic. My team and I have been invited speakers to many academic and industry meetings to present our work, which has contributed substantially to educating researchers and practitioners about pay-for-performance in the healthcare industry."*

Table 7 *(continued)*

Sample Responses
• *"There will be … a major series of letters in JAMA in response to our recent JAMA article…We have testified on the need to consider safety net hospitals' issues in Sacramento and at policy meetings of national groups such as Leapfrog, and have shared the information with safety net hospitals and insurers."*
• *"The research has been cited by the Department of Justice/Federal Trade Commission joint report entitled 'Improving Health Care: A Dose of Competition' as well as state policy briefs and commissions. It has affected the types of mergers that are challenged (system mergers instead of facility consolidations) and also when it is best to allow a hospital to close rather than subsidize its existence. The methods developed and refined in this grant have been used to advise hospital administrators on what services are most valued by the community. The research supported by this grant will likely be more influential over time as the methods become more common..."*
• *"It wasn't until after my visit study that MedPac began questioning the visit volume for those receiving hospice. I shared with MedPac my AHRQ visit final report and manuscript. Since then, MedPac funded researchers … [who] used the same provider data I had used … to basically replicate my study.… Now, CMS has begun to require hospice providers to report the number of visits provided (for a limited number of disciplines)."*
• *"New England Journal article cited over 350 times as measured by Web of Science, and over 600 times by Google Scholar. The study received extensive media coverage when published in The New England Journal of Medicine, including primary coverage in the New York Times, Wall Street Journal, Baltimore Sun, Newsday, Orlando Sentinel, Baltimore Herald, All Things Considered (NPR), Associated Press, Reuters, CNN Radio and CNN.com, AP Radio, and ABC Radio. The article led off a feature on nursing aired by CBS 60 Minutes, and was carried by many other outlets, including the Washington Post, Chicago Tribune, Los Angeles Times, San Francisco Chronicle, Miami Herald, International Herald Tribune (and others), and many health newsletters and trade press. It has been referenced in editorials and op eds, and other news stories on nursing shortage. One measure identified, failure to rescue, [was] incorporated into AHRQ PSIs. The research on which the article was based has been cited in Congressional testimony and in state legislative efforts [to] enact nursing standards and programs to improve nursing. Shortly after the article appeared, a letter from Congresswoman Lois Capps was published in the New York Times on the need for Congress to move forward on the Nurse Reinvestment Act, legislation that addresses the nursing shortage that had been languishing in conference committee for a year. The legislation emerged from conference and was passed with broad bipartisan support and signed by President Bush within two months of the publication of the article. This research and the attention it received is widely credited as playing the key role in bringing forth this outcome. This and other research encouraged Robert Wood Johnson Foundation to fund development of nursing performance measures by the National Quality Forum. The authors were awarded the first AcademyHealth Health Services Research Impact Award for this and follow-up research."*
• *"Wide citation nationally and internationally. Led to scrutiny by officials of the United Nations, World Health Organization, and Pan American Health Organization."*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 32.

Table 8. Modifications Made to the Research

	Number (Percentage)
Pursued the research as originally specified	22 (22.7)
Made non-substantive changes to the research	43 (44.3)
Made some substantive changes to the research	29 (29.9)
Made many or major changes to the research	3 (3.1)

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Among the 32 PIs who reported some or many substantive changes to the research, 31 provided open-ended responses to questions about (1) the most significant change made, (2) reason(s) for the change, and (3) the impact it had on the success of the project. The most significant changes made to the research can be described along three dimensions: (1) changes in scope, including analyses of only a subset of proposed study aims due to budget, recruitment or data issues, expanding analyses to include additional populations or diseases, and expanding study aims to include other related questions (N = 19); (2) modifications to methods, including changes in data collection procedures, how variables were defined and measured, sample sizes, and modifications to analytic approaches (N = 9); and (3) changes in data, including use of different data than initially proposed or use of fewer years of data (N = 5).

Reasons for making substantive changes to the project most typically stemmed from data or method issues even though in some cases initial work suggested that a modification in the project would be a benefit. Reasons for change included data limitations (N = 11), difficulties with institutional review boards (IRBs) and collecting primary data (N = 6), new knowledge gained during the research project (N = 11), methodological challenges (N = 3), funding-related decisions (N = 2), and changes in the marketplace that affected the research (N = 1). Appendix table A-7 and table A-8 provide more detailed information about important changes made and reasons for these changes, respectively, among the 31 PIs who reported some or many substantive changes to the research protocol and who provided open-ended responses to these questions.

The effect of these modifications on the research projects varied (Table 9). While six PIs noted that the changes diminished the impact of the research or they experienced difficulty getting their research published, nine noted that the modifications had no or minimal impact on their research, six reported that the modifications improved their research, four reported making important contributions to the literature, and two noted that the changes allowed them to explore additional issues. Two PIs noted the impacts on their research were unclear and two said their research was conducted on smaller sample sizes than anticipated.

Table 9. Impacts of Modifications on Success of Research Projects

	Number (Percentage)
No or minimal impact	9 (29.0)
Improved research project	6 (19.4)
Diminished the impact of the research or had difficulty publishing	6 (19.4)
Made important contributions to the literature	4 (12.9)
Able to explore additional issues	2 (6.5)
Impacts unclear	2 (6.5)
Research was conducted on smaller sample size than anticipated	2 (6.5)

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 31.

E. CHARACTERISTICS OF PRINCIPAL INVESTIGATORS

1. Education and Institutional Affiliation

All PIs have doctoral or medical degrees and some have both; almost three quarters (72 percent) have a PhD or equivalent. Almost 85 percent work at academic institutions; the remainder work in independent research institutions or “think tanks,” (7 percent), health care delivery organizations (4 percent), or government (2 percent) (Table 10).[4]

To provide insight into the role grant funding plays in supporting health services research and researchers, we asked PIs about their primary sources of salary support (Table 11). The results indicate that grants are an important source of funding for health services research, especially in academia.

In academic settings, PIs perform multiple functions that each contribute to income. Seventy-eight percent of academic-based PIs say that their salaries tied to their teaching responsibilities provide at least a limited source of income to them, with 45 percent saying it is a major source. Such salaries provide some support for core research. However, 50 percent say that grants are a major source of funding and only 20 percent say they are not a funding source. A substantially smaller percent have funding from contract research. While they often have other responsibilities, 57 percent of academically based PIs say that one half or more of their salaried time is devoted to health services research (see Appendix Figure 1). Most (55 percent) say that this is the same as when their grant was active, with 29 percent saying they spent more time when they had the AHRQ research grant and 12 percent saying they spent less (see Appendix Table 9).

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[4] Some researchers may have switched employers since their grant was completed. This probably explains why government is cited as a source of employment for a few researchers.

Table 10. Education and Employment Information

	Number (Percentage)
Degree(s) Earned	
Medical doctor (M.D.) *and* Ph.D. or equivalent (Sc.D., Dr.P.H., D.B.A.)	6 (6.2)
Ph.D. or equivalent (Sc.D., Dr.P.H., D.B.A.)	70 (72.2)
Medical doctor (M.D.)	21 (21.7)
Employment	
Academic institution	82 (84.5)
Independent research institution or "think tank"	7 (7.2)
Government	2 (2.1)
Health care delivery	4 (4.1)
Refused/Missing	2 (2.1)

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Not surprisingly, PIs working in nonacademic settings were less likely to report academic salary tied to teaching and academic salary tied to core research funds as a major source of income. Of the 15 PIs in nonacademic settings, only 2 received income for teaching responsibilities and 3 said they had core research support. Grants, contract research, and "other" sources of income provide the main support for PIs outside of academia. Contract research was a major source of income for 27 percent of PIs in non-academic settings, compared to only 6 percent of PIs in academic settings. This group of 15 investigators in non-academic settings appears heterogeneous in their responsibilities. Forty percent report spending 90 percent or more of their time on health services research and 20 percent say they spend under 10 percent.

2. Preferences of Principal Investigators

Regardless of their setting, PIs do not spend substantial time interacting with policymakers or end users of the research but they expressed a desire to do so (Figure 2). While PIs in academic institutions say they currently spend approximately 9 percent of their time, on average, interacting with policymakers, the average amount of time they would like to spend with policymakers is closer to 15 percent. PIs in nonacademic institutions report that they spend approximately 14 percent of their time interacting with policymakers on average, and would prefer to spend approximately 19 percent of their time.

Respondents also indicated their preference to spend a substantial amount of time, moderate amount, limited amount or no time at all on activities described in Table 12. We evaluated responses to these questions for all investigators and by institutional setting (i.e., academic versus nonacademic). Overall, investigators gave highest preference to conducting original research on questions they pose (76 percent prefer to spend substantial time in this activity), followed by collaborating with other researchers (50 percent) and conducting research on questions defined by potential users of the research (30 percent). Investigators had lowest preference for applying existing research to answer particular policy questions (20 percent prefer to spend substantial time and 40 percent want to spend little or no time) and for spending their time synthesizing the literature on a given topic (7 percent prefer to spend substantial time and

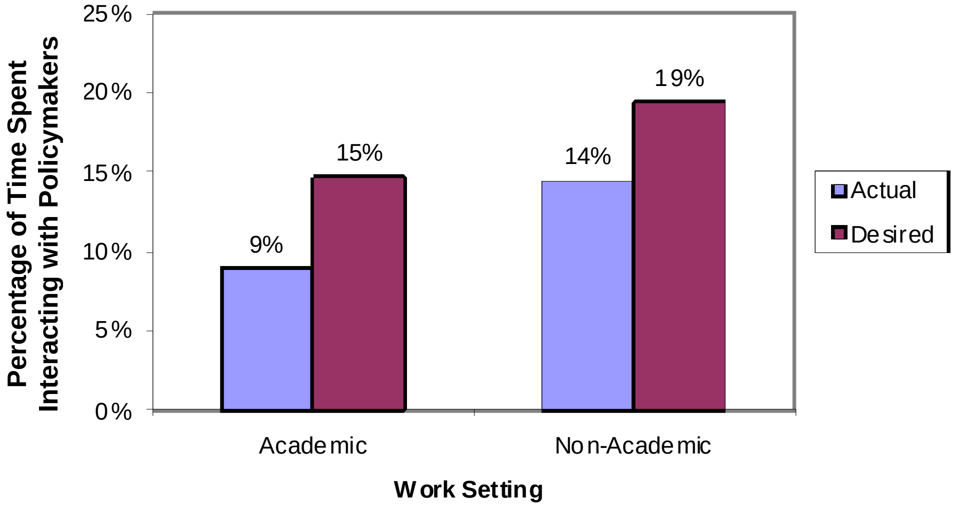
Table 11. Share of Salary/Income from Specific Sources, Overall, and by Institutional Setting (Percentages Unless Otherwise Noted)

	Major Source	Limited Source	*Not a Source*
All Respondents (N = 97)			
Academic salary, tied to teaching	40.2	27.8	32.0
Academic salary, core research funds	32.0	29.9	38.1
Other grants	49.5	30.9	19.6
Contract research	9.3	18.6	72.2
Support for administrative functions	5.2	26.8	66.0
Funded time for professional development	1.0	16.5	82.5
	1.0	17.5	81.4
External consultant			
Expert witness	0.0	3.1	96.9
Other	7.2	3.1	89.7
Respondents Working in Academic Settings (N = 82)			
Academic salary, tied to teaching	45.1	32.9	22.0
Academic salary, core research funds	35.4	34.2	30.5
Other grants	50.0	30.5	19.5
Contract research	6.1	20.7	73.2
Support for administrative functions	6.1	28.1	65.9
Funded time for professional development	1.2	18.3	80.5
	1.2	19.5	79.3
External consultant			
Expert witness	0.0	3.7	96.3
Other	4.9	3.7	91.5
Respondents Working in Nonacademic Settings (N = 15)			
Academic salary, tied to teaching	13.3	0.0	86.7
Academic salary, core research funds	13.3	6.7	80.0
Other grants	46.7	33.3	20.0
Contract research	26.7	6.7	66.7
Support for administrative functions	0.0	20.0	80.0
Funded time for professional development	0.0	6.7	93.3
	0.0	6.7	93.3
External consultant			
Expert witness	0.0	0.0	100.0
Other	20.0	0.0	80.0

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Figure 2. Share of Time Spent Interacting with Policymakers or Users of the Research: Actual and Desired



Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

65 percent want to spend little or no time). Results appear fairly similar between investigators in academic and nonacademic settings, with the exception of collaborating with other researchers. More than 50 percent of academics prefer to spend substantial time in this activity compared to only 33 percent of nonacademics. However, this may reflect differences in work settings and responsibilities as much as actual preferences (e.g., investigators in academic settings may be required to spend more time teaching than those in nonacademic settings who may have more time for collaborations).

F. FEEDBACK ON AHRQ

Survey respondents were asked to rate AHRQ on the technical support provided during the grant period. This includes activities such as pre-award guidance, grant award, grant management, research methods, dissemination and communication of findings, and linkages with others interested in the same research area. PIs could respond “not AHRQ’s job” instead of providing a rating for a particular task. We thought this was important because we were studying investigator-initiated studies and PIs are likely to differ in the types of support they view as important for the funder to provide.

Table 12. Preferences for How to Spend Professional Time (Percentages Unless Otherwise Noted)

	Prefer to Spend …			
	Substantial Time	Moderate Time	Limited/No Time	No Preference
All Respondents (N = 97)				
Conducting original research on questions you pose	76.3	20.6	1.0	2.1
Collaborating with other researchers in the field studying similar topics	49.5	43.3	3.1	4.1
Conducting original research on questions defined by potential users of the research	27.8	46.4	21.7	4.1
Synthesizing what existing research says on a topic	7.2	25.8	65.0	2.1
Applying existing research to answer particular policy questions	19.6	37.1	40.2	3.1
Influencing the information available to policymakers to support their decision making	29.9	32.0	34.0	4.1
Influencing the policy agenda to encourage certain values to be considered or issues to be addressed	24.7	30.9	39.2	5.2
Respondents Working in Academic Settings (N = 82)				
Conducting original research on questions you pose	75.6	22.0	0.0	2.4
Collaborating with other researchers in the field studying similar topics	52.4	41.5	2.4	3.7
Conducting original research on questions defined by potential users of the research	26.8	47.6	20.7	4.9
Synthesizing what existing research says on a topic	8.5	23.4	64.6	2.4
Applying existing research to answer particular policy questions	17.1	39.0	41.5	2.4
Influencing the information available to policymakers to support their decision making	29.3	31.7	35.4	3.7
Influencing the policy agenda to encourage certain values to be considered or issues to be addressed	23.2	34.2	37.8	4.9
Respondents Working in Non-academic Settings (N = 15)				
Conducting original research on questions you pose	80.0	13.3	6.7	0.0
Collaborating with other researchers in the field studying similar topics	33.3	53.3	6.7	6.7
Conducting original research on questions defined by potential users of the research	33.3	40.0	26.7	0.0
Synthesizing what existing research says on a topic	0.0	33.3	66.7	0.0
Applying existing research to answer particular policy questions	33.3	26.7	33.3	6.7
Influencing the information available to policymakers to support their decision making	33.3	33.3	26.7	6.7
Influencing the policy agenda to encourage certain values to be considered or issues to be addressed	33.3	13.3	46.7	6.7

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

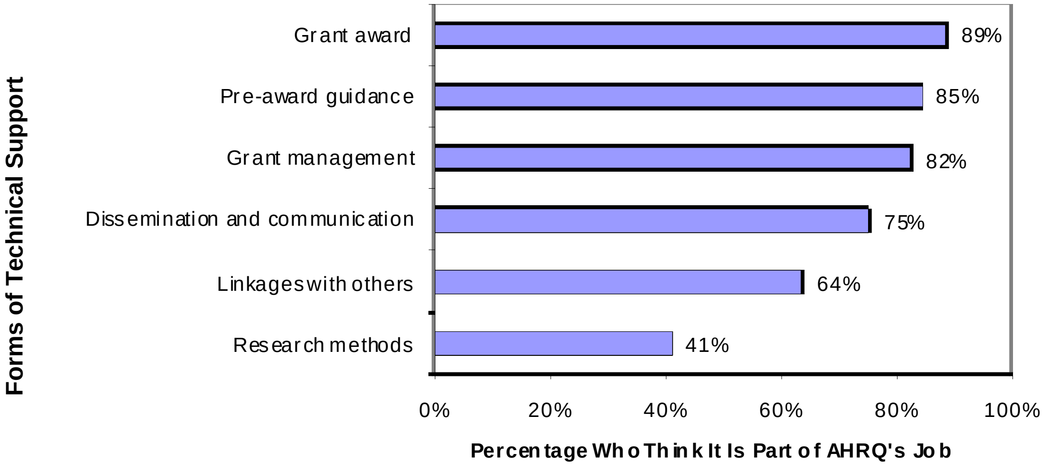
Figure 3 shows the share of respondents who rated AHRQ on specific technical assistance activities (i.e., those who considered the activity to be part of AHRQ's job). More than 88 percent, 84 percent and 82 percent thought that providing technical assistance with grant awards, pre-award guidance and grant management was part of AHRQ's job, respectively. Fewer respondents, but still a majority, thought dissemination and communication activities (75 percent), and linkages with others (64 percent) was part of AHRQ's job. Respondents were less likely to say that assistance with research methods (41 percent) was part of AHRQ's job.

Excluding those who reported that specific activities were not part of AHRQ's job, we asked PIs to rate AHRQ's performance in providing technical assistance on a scale from one to five, where one represents an excellent rating and five is poor. We then calculated average technical assistance scores for each activity as well as the percent who rated AHRQ as excellent or very good. On average, technical assistance in these categories ranged between very good and good. AHRQ scored highest overall on grant award, pre-award guidance, and grant management activities (2.01, 2.09, and 2.26, respectively), and lowest on dissemination and communication of findings (2.50) and making linkages with others (2.90). The share who gave AHRQ an excellent or very good was consistent with the average ratings. Specifically, 68 percent and 65 percent rated pre-award guidance and grant award as excellent or very good, respectively, compared to only 40 percent and 44 percent for dissemination and communication of findings and making linkages with others, respectively (Table 13). There were no significant differences in ratings of AHRQ technical assistance by PIs' institutional setting (data not shown).

We also asked respondents to describe in their own words AHRQ's strengths in managing research on health care costs, productivity, organization, and market forces. Of the 62 respondents who provided open-ended responses, 9 noted no comment or said they were not sure how to respond, and 53 noted at least one and sometimes several strengths. Those providing comments most commonly referred to grant management and assistance from project officers (N = 18) as the agency's strengths. Another 12 responses noted the expertise and knowledge of AHRQ staff, 9 cited AHRQ's ability to link grantees with other researchers, another 9 noted that AHRQ funding of research on health care costs, productivity, organization, and market forces as a strength, 7 cited AHRQ efforts in dissemination and communication, and 6 noted grants review sections or the review process itself as a strength. Table 14 provides examples of open-ended responses by category.

When asked how AHRQ could improve its research management process for investigator-initiated research on health care costs, productivity, organization and market forces, 59 PIs provided open-ended responses to this question including 13 who said they did not have any recommendations and 46 who provided suggestions. The most common response, noted by almost 50 percent of respondents, was about the low levels of funding at AHRQ and the need for additional funding for this type of research (N = 22). Other responses related to problems with grants management (N = 7), concerns about infrastructure and resources available for the grant review process (N = 7), limited networking opportunities with other researchers (N = 6), limited assistance with dissemination (N = 5), and concerns that AHRQ leadership does not appropriately support this type of investigator-initiated research (N = 4). Table 15 provides examples of responses about AHRQ's areas for improvement.

Figure 3. Share who Consider Specific Task Part of AHRQ's Job



Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Table 13. Ratings of AHRQ Technical Support

		Ratings Among Those Who Consider Task Part of AHRQ's Job	
	Consider Part of AHRQ's Job (Number)	(Mean Score (SD))	Percent Who Say Excellent or Very Good
All Respondents			
Pre-award guidance	82	2.09 (0.97)	68
Grant award	86	2.01 (0.96)	65
Grant management	80	2.26 (1.09)	59
Research methods	40	2.50 (1.06)	53
Dissemination and communication of findings	73	2.70 (1.15)	40
Linkages with others interested in the topic of your research	62	2.90 (1.46)	44

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: Mean scores calculated based on respondent ratings of AHRQ technical support, where 1 = Excellent; 2 = Very Good; 3 = Good; 4 = Fair; 5 = Poor.
SD = standard deviation.

Table 14. Descriptions of AHRQ’s Perceived Strengths

Number (Percentage)	Type of Strength and Examples of Responses
18 (29.0)	Grant management and assistance from project officers • *“Strong program officers, excellent mode of dissemination through newsletter.”* • *“AHRQ project managers are very knowledgeable and able to provide direction to researchers, especially when they face unexpected challenges/developments. Their availability regarding pre-submission consultation also is excellent.”* • *“They were very responsive to my questions. I was very happy overall.”* • *“Intramural staff is substantively knowledgeable and can make substantive contributions to work. Grants management financial staff are excellent.”* • *“In the pre-award stage, helping to frame questions and research to arrive at fundable project.* • *“The guidance from the project officer was excellent.”* • *“I appreciated that AHRQ was not very intrusive. They let me do the research without interfering.”* • *“The expertise and experience of the project officers; their knowledge of ongoing research in the field of interest….”* • *“My project officer … was PHENOMENAL! My experience with him taught me the value of reaching [out] to program officers. He really was terrific.”* • *“My program officer is very well connected and active in the health services research community. Not only was he an incredible source of support to me throughout the process, but has also helped me conceptualize my future projects.”*
12 (19.4)	AHRQ experience and expertise in this field • *“No agency has more experience and technical expertise in this area. They have compiled some of the best data sets, funded some of the best research, and developed some of the best dissemination tools.”* • *“AHRQ has national experts in these areas …”* • *“Some outstanding scholars in the field.”* • *“Very knowledgeable and talented staff …”* • *“Intramural staff is substantively knowledgeable and can make substantive contributions to work....”*
9 (14.5)	Providing linkages to other researchers • *“AHRQ provides excellent resources for networking and collaboration.”* • *“…very interested in linking to others with similar interests.”* • *“Bringing together researchers working in related areas”* • *“… There was an attempt to link researchers with similar projects together to produce some joint information, but this was challenging.”*

Table 14 *(continued)*

Number (Percentage)	Type of Strength and Examples of Responses
9 (14.5)	Funding research on health care costs, market forces, organization and productivity • *“Helping to identify and fund research projects that are primarily policy or market oriented. Mostly, these don't have comfortable homes in NIH, but are essential for policy makers.”* • *“Only group that focuses on these elements specifically, and demands large generalizable studies.”* • *“Simply having funds to allow such research to be conducted. Almost no one else does that.”* • *“It is the one federal agency that has these issues as part of its portfolio. Funding for these issues, with the exception of market forces thanks to HCFO, has really suffered at the federal level in the past 5-10 years because no other NIH agency sees these issues as critical to fund.”*
7 (11.3)	Dissemination and communication activities • *“Very skilled and dedicated staff who really want to see the results disseminated beyond narrow research community.”* • *“… efforts to disseminate findings to new audiences.”* • *“… excellent marketing / communication of findings”* • *“AHRQ makes considerable efforts to help disseminate information in user-friendly formats on areas relevant to this topic.”* • *“… Their web list is disseminated widely and read by many if not most health services researchers….”* • *“… excellent mode of dissemination through newsletter.”*
6 (9.7)	The review process and/or review sections • *“Access to potentially useful advice on the nature and significance of proposed investigations.”* • *“The review process was helpful.”* • *Putting together good review study sections, useful comments to initiate research*
8 (12.9)	Other strengths
10 (16.1)	No comment or unsure about AHRQ’s strengths

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: Percentages may add to more than 100 percent because PIs may have noted more than one strength. N = 62.

Table 15. Areas for Improvement for Investigator-Initiated Research on Healthcare Costs, Market Forces, Organization, and Productivity

Number (Percentage)	Areas for Improvement
22 (37.3)	Funding • *“Funding levels are now abysmal. The co-funder has agreed to be the sole funder as we renew the R01.”* • *“Motivate Administration, Congress, and reviewers to support critical research that doesn't necessarily accept current paradigms.”* • *“Should have double the current budget and address large system issues such as Medical Home”* • *“Award line is much too low. Agency desperately needs more funding.”* • *“Because AHRQ funding has been so constrained, it needs to partner with other funders working in the same domains to facilitate interactions with people with other support.”* • *“The agency needs to make more extramural funds consistently available to researchers.”* • *“My only suggestion is that the funding for the work that AHRQ conducts should be substantially increased.”* • *“The hope would have been for AHRQ to continue to fund this type of research, but unfortunately, the AHRQ budget was severely cut following the period of the award.”*
9 (15.3)	Grants management • *“Checking in more often…”* • *“Help revise the budget. Help with how to prepare the final report.”* • *“Closer contact with reward recipient.”* • *“More involvement of project officers in the nitty gritty process of the research team. However, I appreciate that this would be a very expensive proposition.”* • *“Dealing with staff on budget and award issues was frustrating.”* • *“We had two project directors: one was excellent and responsive to needs; the other was difficult to contact and not helpful”* • *“Better trained and more committed project officers …”*
7 (11.9)	Review process • *“It could make a greater effort to understand the importance of methodological issues in establishing the scientific basis of proposed investigations.”* • *“The delay between grant submission and award funding complicated the grant greatly. Although the project was scored at a 6.7% level at the first submission, it was not funded during the year following that score. This necessitated a revision to the application that eventuated in a score at the 0.7% range. While that score did get funding for the project, the delay of approximately two years contributed to the unavailability of records, necessitating a change in the grant. Speedy feedback regarding the likelihood of funding and/or the need for further revisions would have improved the process.”* • *“… greater integrity within the review process.”* • *“Devote more resources to peer-review and funding for investigator-initiated research…”* • *“…We had three proposals in to the AHRQ that would have answered this question [about electronic health records] and would have helped shape the initiative to improve adoption without outside funds. One was scored as outstanding, an excellent design, a great team and strong methods but not quite a good fit with the EHR adoption RFP. So we sent it in as an R01 strengthened by the minor negative comments from the reviews and just heard that it was reviewed and scored in the 49th percentile. (Someone should take a hard look at the grant review process)…”*

Table 15 *(continued)*

Number (Percentage)	Areas for Improvement
7 (11.9) *(continued)*	• *"…having spent the better part of two years developing a follow up grant and receiving positive feedback and directions from reviewers – after three submissions the proposal still did not receive funding. I am discouraged about the process - the process poses a barrier to the development of knowledge. One thing that may help is that the same reviewers review re-submissions."*
6 (10.2)	Providing more networking opportunities with other researchers • *"Although cognizant of limited resources, convening periodic sessions during which researchers can share methods and early findings could generate excitement, enrich collaboration, and spawn new questions for future related research."* • *"It would be ideal if AHRQ had some mechanism (e.g., conferences, advisory boards for funded studies) that could bring together researchers interested in these issues, particularly junior researchers, to identify novel ways to tackle these issues …"* • *"Have researchers provide annual presentations in Washington D.C."* • *"Foster multi site collaborations"* • *"Possibl[y] foster meetings of PIs to share insights."* • *"…perhaps linking investigators with others doing similar work ..."*
5 (8.5)	Dissemination and communication • *"Focus on non-academic dissemination routes earlier in the project process."* • *"Assistance with dissemination to policy-makers and media."* • *"I feel my best use is as a basic social science researcher.… I am not as good at direct translation into the policy arena; I would prefer that others with more expertise in that area think through the translation aspect. So I would prefer that AHRQ help link me with people who do that, rather than trying to teach me to do that on top of the other things that I do better."* • *"More assistance and advice on dissemination and communication especially to non-research audiences"*
2 (3.4)	Leadership • *"The fundamental problem with AHRQ is that the leadership doesn't understand what health services research is all about. They concentrate on translation and application without investing in the research needed to make sure that things being translated improve anything. Consequently, more sophisticated measurement methods are not being developed and much of the research using the old methods is flawed. Researchers and policymakers measure what they can measure rather than what should be measured.… Health services research has at least three major components: 1) a basic science dimension focused on improving methods, 2) adding to the knowledge base by building on and extending previous research, and 3) translation to the field of practice. The AHRQ leadership ignores the first of these and confuses the second and third under a generic applied research rubric that often funds research that is borderline consulting. The AHRQ leadership argues that they are under a great deal of pressure from Congress to improve translation and help providers improve their performance by funding innovations.… Now, I know that AHRQ is under pressure from Congress to make a difference, and the AHRQ leadership interprets that to mean - translate programs into action in the field. However, it seems to me that they (AHRQ) also have a responsibility to help shape the legislative funding agendas by educati[ng] key sympathetic Congress persons about the dimensions of this field and the importance of investment in all of the three dimensions. It is very difficult to establish and maintain a research program that effectively addresses the three dimensions described above. Although health services research centers are better positioned to do so they still are held hostage to the funding agencies that have their own agendas and unpredictable review processes…"*

Table 15 *(continued)*

Number (Percentage)	Areas for Improvement
	• *"When we sought to continue data collection with a refreshed sample, the then Director of AHRQ opted instead to fund without peer review an internal study of inferior design."*
3 (5.1)	Other weaknesses
13 (22.0)	None / No comment

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: Percentages may add to more than 100 percent because PIs may have noted more than one weakness. N = 59.

G. COMPARING AHRQ TO OTHER FUNDERS

Respondents provided their perspectives on AHRQ and other funding agencies as a source of funding for research on health care costs, market forces, productivity, and organization (Table 16). Approximately 40 percent rated AHRQ, NIH, and the Robert Wood Johnson Foundation's (RWJF) Healthcare Financing and Organization (HCFO) program as major sources of funding for this type of work. Other programs run by RWJF were considered a major source of funding by approximately 19 percent. Less than 10 percent rated the Centers for Medicare and Medicaid Services (CMS), other federal or state government agencies, or other private foundations as a major source of funding. The share viewing RWJF as a moderately important source of funding was higher than it was for CMS and other sources. A companion paper (Stewart et al, 2008) provides a comparative review of the three major sources noted: AHRQ, NIH, and HCFO.

Respondents also reported whether they had received funding from these various agencies and foundations and their ratings of overall technical support from each. Figure 4 shows the funding breakdown: 99 percent reported AHRQ funding,[5] followed by 67 percent with NIH funding, 51 percent with other RWJF (i.e. non-HCFO), 44 percent with other private foundation funding, 40 percent with funding from federal and state sources, 38 percent with HCFO and 18 percent with CMS funding. When we combined funding from HCFO and other RWJF programs, 62 percent reported funding from any RWJF program.

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[5] One PI reported that the grant was funded by the National Cancer Institute (NCI). Since the survey sample list of AHRQ-funded PIs was derived from AHRQ databases, we included this respondent in all analyses.

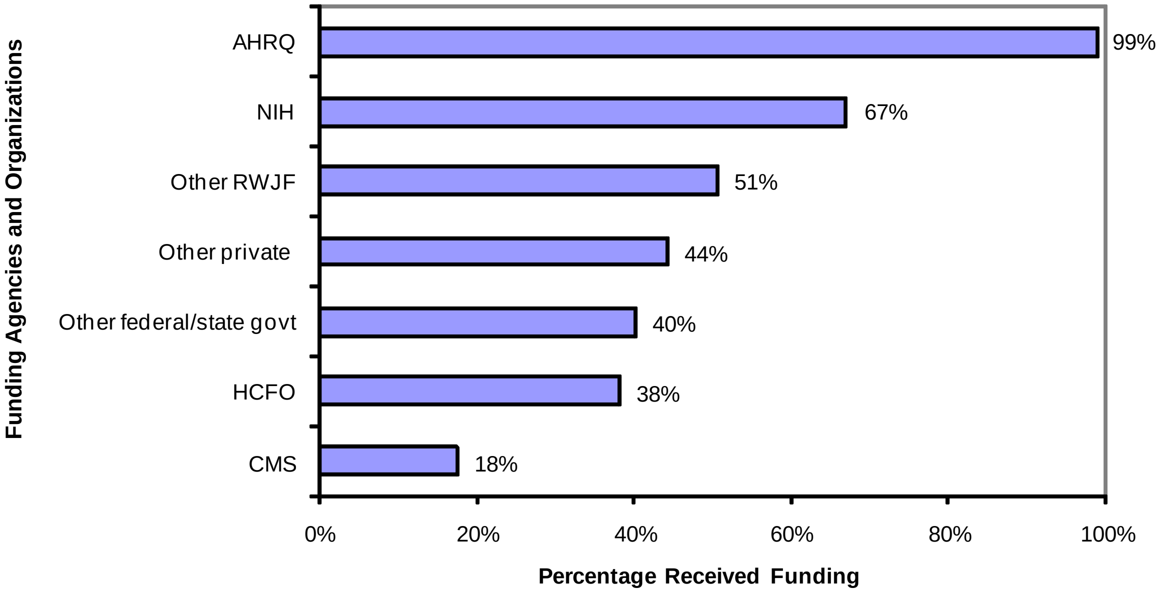
Table 16. Share of Respondents Who Consider Various Funding Organizations to be Major, Moderate, Minor, or Not a Source of Funding for Research on Health Care Costs, Productivity, Organization, and Market Forces (Percentages Unless Otherwise Noted)

	Major Source of Funding	Moderate Funding	Little Funding	No Funding	No Opinion/ Refused
Organizations					
Agency for Healthcare Research and Quality (AHRQ)	39.6	30.2	27.1	3.1	0.0
National Institutes of Health (NIH)	39.6	30.2	24.0	3.1	3.1
Robert Wood Johnson Foundation's Healthcare Financing and Organization (HCFO) program	38.5	34.4	18.8	1.0	7.3
Centers for Medicare & Medicaid Services (CMS)	7.3	12.5	61.5	6.3	12.5
Robert Wood Johnson Foundation, other programs	18.8	42.7	25.0	4.2	9.4
Other federal or state government	4.2	14.6	12.5	5.2	63.6
Other private foundations	4.2	24.0	15.6	3.1	53.1

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 96.

Figure 4. Share of PI's Who Have Received Funding from Various Private and Public Institutions



Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Among PIs with experience with each funder, we calculated average technical assistance scores on a scale from one to five, where one represents an excellent rating and five is poor. Overall, HCFO received the best average rating, 1.8, which falls between excellent and very good (Table 17). AHRQ, other RWJF programs, other private foundations, the NIH and other federal and state government received ratings between 2.3 and 2.6, between very good and good. CMS received the lowest ratings for technical assistance at 3.4.

H. SUMMARY AND CONCLUSIONS

1. AHRQ-Funded Research

Since the late 1990s, AHRQ has funded a broad array of investigator-initiated research on health care costs, market forces, productivity, and organization. Most of the research projects were targeted to address particular policy-relevant questions (60 percent) or basic knowledge or methods development (39 percent). These studies evaluated the impact of various factors on quality of care outcomes, health care utilization and access to care, health care costs and expenditures, mortality, racial and ethnic disparities, and health care markets. These studies also provided important information on these outcomes in hospitals, nursing homes, physician practices, and other provider settings. Many describe how health insurance coverage (e.g. managed care, Medicaid, State Children's Health Insurance Program (SCHIP), Medicare, etc.) affects outcomes in various settings. Research findings often varied across study populations and settings, underscoring the importance of broad-based research to understand how specific factors may impact outcomes.

2. Dissemination of AHRQ-Funded Research

The most common dissemination activities were publications, particularly journal articles, and conference presentations. Relatively few respondents reported that conducting briefings for policymakers, managers, or other interest groups was a major focus. In addition, investigators reported little help with dissemination from their institutions. The most frequent help was from a press office for interaction with the media, but this type of help was generally rated as "limited." Institutional help with other forms of dissemination, including newsletters, research briefs, working paper series, and training to work with policymakers was scant.

Investigators reported a desire to spend more time interacting with policymakers and other end users of the research. For example, investigators working in academic settings reported spending approximately 9 percent of their time with policymakers and end users, but would prefer to spend closer to 15 percent of their time in such activities. Investigators in nonacademic settings reported spending approximately 14 percent of their time working with policymakers, but would prefer to spend closer to 19 percent. However, investigators prefer to spend less time applying existing research to answer policy questions and synthesizing the literature compared to professional activities such as conducting original research and collaborating with other researchers.

Table 17. Ratings of Funders' Technical Support

	Number Reported Funding from Source and Provided Rating	Mean Score (SD)
Robert Wood Johnson Foundation's Healthcare Financing and Organization (HCFO) program	35	1.8 (0.9)
Agency for Healthcare Research and Quality (AHRQ)	88	2.3 (1.1)
Robert Wood Johnson Foundation, other programs	45	2.3 (0.9)
Other private foundations	28	2.4 (0.8)
National Institutes of Health (NIH)	60	2.5 (1.1)
Other federal or state government	23	2.6 (1.2)
Centers for Medicare & Medicaid Services (CMS)	16	3.4 (1.0)

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: Mean scores calculated based on respondent ratings of funders' technical support, where 1 = Excellent; 2 = Very Good; 3 = Good; 4 = Fair; 5 = Poor.

SD = standard deviation

Previous interviews with research translators at various federal agencies found that agencies differ in how they obtain and use information (Gold, 2008b). Agencies that provide important analytical information to Congress and the broader public, such as the Congressional Budget Office, Government Accountability Office, and Medicare Payment Advisory Commission, as well as agencies involved with market regulations such as the Department of Justice and Federal Trade Commission, rely on findings from the literature to inform their work. Because of the quality review embedded in the peer reviewed literature, they consider it an important source. However, the ability of policymakers at these agencies to conduct exhaustive literature reviews is often limited to the demands of projects, and they may search only seminal papers, key websites or contact those researchers directly who are known experts in a particular field. Other policymakers, including congressional staff, do not have time to conduct literature reviews, and generally obtain information from media, direct contact with researchers to request a "five-minute briefing" on a particular topic, and daily emails from independent organizations such as Kaiser Family Foundation and the Commonwealth Fund. In addition, interviewees noted that most academic researchers lack the expertise to frame research questions to be policy-relevant, and this may limit studies' usefulness to policymakers (Gold, 2008b)

The results from the PI survey, combined with our research translator interviews, suggest that disseminating results through the peer-reviewed literature is useful for reaching translators, with the possible exception of congressional staff. Whether investigators framed their research questions usefully for translators is beyond the scope of this project. However, investigators' limited time, motivation, and resources available to apply existing research to answer policy questions and synthesize the literature may limit exposure to policy makers who often need information quickly. In addition, the lack of institutional support for dissemination activities may highlight an opportunity for AHRQ to better position itself as a source of policy-relevant research findings to translators and policymakers through more aggressive dissemination practices. The survey findings indicate gaps in the availability of this kind of support and function and it would be useful if an organization like AHRQ led such research, either through extramural (i.e. investigator-initiated processes) or intramural programs. However doing so is likely to require additional resources.

3. Impacts of AHRQ-Funded Research

The survey shows that AHRQ-funded, investigator-initiated research on health care costs, market forces, productivity, and organization since the late 1990’s has contributed to both driving research agendas and informing policy even though there may be areas for improvement in dissemination. Among the 85 investigators who rated the impacts of their research (12 noted it was too soon to describe the impact), 37 (44 percent) reported it had a large bearing in at least one area and many noted several effects. Impacts were related to (1) providing important new information; (2) wide citations in the research literature and use by other researchers; (3) informing policymakers and end users through testimony and presentations; (4) actual use by policymakers; and (5) widespread media attention. While PIs may be motivated to overstate the effects, the open-ended descriptions they provided are evidence that the research is being used even if it could be used more.

4. AHRQ-Specific Feedback

Investigators rated AHRQ technical assistance highest on pre-award guidance, grant award, and grant management activities. Technical assistance in terms of dissemination and communication of findings and linkages with others received the lowest scores. When investigators described AHRQ strengths and weaknesses in open-ended responses, many of the same themes, including funding, interaction with AHRQ personnel, facets of the review process and dissemination and communication activities, appeared as both strengths and weaknesses. For example, 15 percent noted the fact that AHRQ funds research on health care costs, market forces, productivity, and organization as a key strength of the institution, but conversely 37 percent noted lack of funding for this research as an important weakness. In addition, some investigators reported positive interactions with AHRQ grants management personnel and project officers, while others reported problems with these interactions. Almost equal numbers rated components of the review process positively and negatively. Those who rated it as a strength noted the usefulness of the feedback on the grant application, while those who had negative comments noted issues related to transparency, and lack of resources and infrastructure available for the review process. Similarly, several respondents highlighted AHRQ’s efforts at dissemination and communication activities, particularly its website and newsletter, while others noted there is little assistance for nonacademic audiences.

The lack of consensus on AHRQ strengths and weaknesses highlights the varied experiences among investigators who have received its grants. While it is not unexpected that the experiences of different investigators with AHRQ vary, there may be opportunities for the agency to develop staff to ensure that all investigators report positive staff interactions.

5. Conclusions

AHRQ has funded a broad array of research on health care costs, market forces, productivity, and organization that has made its way to the policy arena. While most investigators focus dissemination on peer-reviewed publications and conference presentations, much of this research has been picked up and used by various policymakers and end-users. Investigators appear to have little help from their own institutions in disseminating information to policymakers. In the future, AHRQ may want to devise mechanisms to help investigators target dissemination at policy audiences. Finally, investigators described AHRQ as an important source of funding for this type of research, and lamented the insufficient levels of funding devoted to this research.

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APPENDICES

Table A.1. Factors That Affect Health Care System Outcomes, as Identified in AHRQ-Funded Investigator-Initiated Research

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
1. Quality of Care/ Value (i.e. clinical quality, patient satisfaction, patient safety)	**Payment** ➢ *“Effects of pay-for-performance on quality are modest.”* ➢ *“Medicaid payment has a positive effect on risk-adjusted nursing home quality measures.”* **Insurance** ➢ *“SCHIP improved access and quality of care for children who enrolled.”* ➢ *“Transitions between fee-for-service coverage and mandated enrollment in managed care programs had no discernable impact on quality of asthma treatment among poor children.”* ➢ *“Case management improved care, including receipt of ARV [antiretroviral] treatments.”* ➢ *“Although for-profit managed care plans are as likely to provide high cost procedures as nonprofit plans, process quality of care is generally lower.”* ➢ *“Managed Care able to capture real per unit discounts compared with Fee For service, for hospital services.”* ➢ *“We found no consistent relationship between features of managed care and measures of quality of care.”* ➢ *“Managed care features may be related to patient ratings of care from specialists for patients with pain but no patients with depression.”* **Institutional Factors** ***Nurse staffing / nurse leadership*** ➢ *“The positive effect of nursing workgroup culture on patient outcomes (safety and quality).”* ➢ *“The nurse leader is critical to improving the nursing home climate and .culture.”* ➢ *“Empowering staff to participate in QI initiatives in nursing home failed”* ➢ *“Better nurse staffing is associated with better quality of care for hospitalized children.”* ➢ *“[1] Hospitals under financial pressure make cuts in aspects of quality that may not be immediately obvious to patients and physicians (e.g., human resource functions) and try to sustain core activities that relate to more visible aspects of quality. [2] Operating shortfalls do not lead to poorer patient outcomes but if shortfalls are present once all sources of revenue and expense occur (.e.g., negative total margins), one does observe deterioration in outcomes. [3] A primary area where hospitals cut back when financial pressures mount is nurse staffing. This is consistent with item #2 because the declines in patient outcomes we observed were largely related to nursing quality of care indicators.”* ***Hospital-related factors*** ➢ *“Effects of hospital volume on quality of care is not as large as previously reported.”* ➢ *“Performance at cardiac specialty hospitals is generally better for AMI and heart failure patients, but does vary across specific hospitals.”* ➢ *“The value a hospital brings to the community varies dramatically across hospitals; hospitals that eventually close are also those that tend to bring relatively little value to the community and thus should not be bailed out.”* ➢ *“[1] Safety net hospitals have lower performance on the most commonly used measures of quality of care included in report cards; [2] The gap in performance for safety net hospitals has increased over time; [3] Safety net hospital executives believe this is partly because they lack resources to measure accurately, partly because the measures do not reflect their mission.”*

Table A.1 *(continued)*

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
	➢ *“[1] Heart surgery is a distributed cognitive system, where coordinated communication increases situation awareness and promotes patient safety. [2] Preconfiguration and active replanning in the operating room help produce safe operations, and conventional notions of 'error' don't always apply.[3] Eavesdropping is normative in healthcare, with benefits for patient safety and professional practice.”* ➢ *“Outcomes [of neonatal care] did not vary, but parental rating of satisfaction with outcomes did not reflect the care so much as these outcomes.”* ➢ *“Major factors related to a number of patient safety issues in hospitals were identified.”* ***Non-specific institutional settings*** ➢ *“[1] Overall, organizational factors are not strongly related to quality of chronic disease care delivered in outpatient settings. [2]… some QI strategies appear to decrease cost of care, while others increase the cost of care. [3] Use of electronic medical records was not related to better quality diabetes care.”* ➢ *“[1] quality of care is contingent on organizational context; [2] implementation of QI programs is related to quality of care, although not always positively; [3] implementation of QI programs depends on supporting infrastructure and leadership”* ➢ *“[1] The negative effect of patient unit Turbulence on patient outcomes (safety and quality); [2] The positive effect of nursing workgroup culture on patient outcomes (safety and quality.”* **Patient-centered care / communication / practice patterns** ➢ *“[1] Patient centered care improves trust, takes more time but saves money. [2] Training in pt-centered care saves both time and money while improving trust and clinical outcomes.”* ➢ *“Quality MD communication to patients leads to increased patient satisfaction.”* ➢ *“Prescribing patterns lead to high health care costs without additional marginal value.”* ***Population-based factors*** ➢ *“Contrary to previous data, we found using national office data that the racial composition of primary care practices has little impact the on content of office visits.”* ➢ *“Persons with disabilities are less satisfied with certain aspects of their care than are others.”* ***Other findings: measurement issues*** ➢ *“Conventionally measured (early versions of HEDIS) indicators seem not to capture all the relevant dimensions of quality.”* ➢ *“[1] Hospital Prices for CABG and PTCA do not reflect overall hospital quality or severity.”*
2. Mortality	**Insurance-related factors** ➢ *“[1] Uninsured older adults more likely to die; [2] Most deaths occurred after people had a decline in their health [3] Adverse health outcomes for the previously uninsured diminished and possibly disappeared after they had been on Medicare for two years.”* ➢ *“Mortality rates of [Medicare] HMO enrollees in 1995-1998 were lower than that of FFS beneficiaries, which was partly due to favorable selection and partly due to protective benefits of HMO enrollment. It is difficult to specify the exact partial effects.”* **Hospital-related factors** ➢ *“[1. CABG] patients discharged early had lower rates of death and readmission and lower cumulative costs than those with a more typical LOS, suggesting that physicians are successfully identifying appropriate candidates for early discharge. [2] While there*

Table A.1 *(continued)*

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
	was considerable variation among hospitals in the tendency to discharge patients early, hospitals with higher rates of risk-factor specific early discharge did not have higher rates of adverse outcomes." ➢ *"Better nurse staffing is associated, in a non-linear fashion with reductions in hospital mortality."* ➢ *"[1] Multi-hospital system membership among U.S. rural hospitals is associated with better clinical outcomes as measured by risk-adjusted mortality for patients with congestive heart failure and pneumonia. [2] Among U.S. rural hospitals, greater rurality and more Critical Access Hospital beds in the referral region are associated with higher risk adjusted mortality among patients treated for acute myocardial infarction."* ➢ *"Among surgical patients, deaths among patients with serious complications are lower in hospitals with more hours of nursing per patient day."* ➢ *"[1] Mortality for high-risk newborns (VLBW) is much higher when they do not deliver in high-volume tertiary centers. [2] These mortality differences persisted over the 1990s, even though neonatal mortality fell dramatically; [3] There is a continuing deregionalization of the management of high-risk deliveries and of neonatal intensive care, and this deregionalization is causing added mortality and morbidity."* ➢ *"We documented substantial variations in inpatient care among 10 units that would have little impact on survival, but would have major cost implications."*
3. Healthcare Utilization/ Access	**Insurance** ➢ *"[1] The local uninsured rate is negatively associated with breast cancer screening & indicators of breast cancer."* ➢ *"Medicare and Medicaid managed care beneficiaries account for entire disparity in utilization associated with managed care."* ➢ *"[1] Balance budget act coverage for colorectal cancer screening was not associated with a marginal increase in colorectal screening [2] Medicare Advantage plan enrollment was not associated with higher rate of colorectal cancer screening than traditional fee-for-service plan enrollment [3] Health plan quality improvement efforts on colorectal cancer screening were somewhat limited as of 2005"* ➢ *"The high rates of denial of mental health compared to physical illness."* ➢ *"Women with female-specific conditions but no health insurance are more likely to forgo usual sources of health care for these conditions, but more likely to seek care in an emergency department."* ➢ *"[1] PCCM was associated with declines in MD Medicaid participation and children's use of care. [2] Where S-CHIP used the same provider network as Medicaid, the increased total number of covered children reduced the volume of Medicaid visits provided. [3] Utilization of care was higher in fee-for-service S-CHIP compared to S-CHIP with PCCM."* ➢ *"[1] Managed care for CSHCS reduced emergency department utilization by about 20%. [2] Managed care for CSHCS did not reduce other healthcare utilization or costs. [3] For this population, physicians will arrange the care that they feel the children need."* ➢ *"[1] Variations in HMO market share are associated with variations in health care delivery, outcomes, and spending; [2] An important mechanism by which managed care influences health care is through the availability of technologies and services."* ➢ *"Results show that children with special health care needs enrolled in HSCSN, the partially capitated managed care plan had better access to care along a variety of measures and greater compliance with guideline concordant preventive care. [2] We speculate that the case management services available under the MC option, low Medicaid FFS reimbursements and provider availability account for some of the differences in access to care and use of services that exist between MC and FFS enrollees."*

Table A.1 *(continued)*

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
	Payment ➢ *“'Substitution' of services were found in accordance with payment policy change.”* ➢ *“[1] Showed how medication compliance is affected by patient cost-sharing; [2] Preliminary evidence on how pharmacy cost-sharing affects use of medical services.”* ➢ *“The 3-tier formulary was associated with fewer people using an antidepressant. [2] There was some shifting to the drugs that the plan assigned to tiers with lower cost-sharing (‘preferred’).”* ➢ *“[1] Charging premiums and co-payments to low income adults with public insurance caused loss of insurance coverage, financial hardship, reduced access to healthcare and prescription medications. [2] Chronically ill individuals who were charged premiums and co-pays had lower rates of primary care use, and higher rates of emergency room use than those who were not charged co-pays and premiums.”*
	Capacity Issues ➢ *“Opening of cardiac specialty hospitals in a market was associated with higher rates of change in population-based revascularization rates among Medicare beneficiaries.”* ➢ *“[1] The hospital stays of infants and mothers in the study tended to be shorter than specified in the Newborns’ and Mothers’ Health Protection Act. [2] The extent of post-discharge follow-up care new mothers and their infants received through birth hospitals is not consistent with AAP and ACOG recommendations.”* ➢ *“Inpatient psychiatric general hospital units are increasingly being filled with admissions that could be prevented if there was sufficient community-based psychiatric care.”* ➢ *“Length of stay among medical patients in hospitals is lower in hospitals with more licensed nursing hours per patient day and a higher mix of registered nurses.”* ➢ *“Home health care MAY (not strong evidence) prevent future hospitalization.”*
	Geography ➢ *“[1] Among nursing home residents with dementia, feeding tube use is more common in urban than rural areas. [2] (Same population) Rural residents are at greater risk for hospitalization at the end of life.”* ➢ *“[2] Local poverty rate is negatively associated with cancer screening across the United States.”*
	Patient characteristics ➢ *“Children with mental health conditions utilized more non-mental health care resources than children without mental health conditions.”* ➢ *“Persons with disabilities experience diverse barriers to their access to care.”* ➢ *“Discontinuation rates for those persistently on medication are lower.”*
	Direct-to-Consumer Advertising ➢ *“[1] DTCA tends to increase interactions between patients and physicians, and has small class-level effects at stimulating prescriptions written. [2] DTCA tends to improve adherence to statin treatment and also to improve health outcomes by helping to reduce LDL levels. [3] DTCA tends to improve matching between patients and treatments, for both Cox-2 inhibitors and statins.”*
4. Disparities	**Insurance** ➢ *“S-CHIP reduced pre-existing racial/ethnic disparities in healthcare among enrollees.”* ➢ *“Racial disparities strongly relate to health insurance status.”* ➢ *“Most racial disparities occur among individuals with the same insurance.”* ➢ *“[1] Minorities less likely than whites to use high-volume hospitals in New York metro area. [2] Difference not explained by proximity, payer source, or SES.”*

Table A.1 *(continued)*

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
	➢ *"Patient HMO enrollment has little impact on racial and ethnic disparities in ambulatory and hospital care. The hypothesis that population management and attention to quality performance would reduce disparities in care was not born out by national data."* **Hospital factors** ➢ *"[1] Limiting hospital capacity through certificate of need can contribute to racial disparities in utilization; [2] Certificate of need can lead hospitals to reduce services to minority patients."* ➢ *"[1] Hospital racial segregation explains much of the racial disparity in outcome after injury, but does not completely explain that disparity. [2] Hospitals that serve a high proportion of racial minority patients have substantially different resources than hospitals primarily serving white patients."* **Descriptive Findings** ➢ *"Racial/ethnic disparities were found in children's use of asthma controller medications."* ➢ *"Racial disparities in health care outcomes differ across different clinical conditions."* ➢ *"There are persistent disparities in receipt of potentially life-saving treatments for HIV by demographic characteristics."* ➢ *"[1] No race difference in receipt of revascularization among those receiving a referral, no evidence of race difference in willingness to obtain heart surgery. [2] African American patients significantly less likely to obtain referral for revascularization. [3] Race difference in receipt of heart catheterization mainly a function of different healthcare 'context.'"* ➢ *"Some minorities (e.g., Hispanic/Latino) may experience better outcomes than may the majority population."* ➢ *"[1] In the years following the settlement of a claim for occupational back injury, blacks continue to fare worse on measures of clinical outcome than whites, although the impact of SES on long-term outcomes offsets the race/ethnicity effect. [2] In the years following claim settlement, blacks demonstrate a disproportional increase in legal actions associated with financial duress (although both blacks and whites demonstrate an increase in such actions after claim settlement)."*
5. Healthcare costs/ expenditures	**Practice patterns** ➢ *"Prescribing patterns lead to high health care costs without additional marginal value."* ➢ *"We documented substantial variations in inpatient care among 10 units that would have little impact on survival, but would have major cost implications."* ➢ *"[1] Patient centered care improves trust, takes more time but saves money; [2] Training in pt-centered care saves both time and money while improving trust and clinical outcomes"* ➢ *"Patients discharged early had lower rates of death and readmission and lower cumulative costs than those with a more typical LOS, suggesting that physicians are successfully identifying appropriate candidates for early discharge."* ➢ *"Incentive formularies effects are symmetric and effects on costs are somewhat smaller than prior estimates."* **Improved quality/technologies** ➢ *"However, some QI strategies appear to decrease cost of care, while others increase the cost of care."* ➢ *"The introduction of ARVs decreased the annual cost of care for people in care for HIV."*

Table A.1 *(continued)*

Outcomes Studied	Factors Affecting Outcomes (i.e. Independent Variables)
	Insurance ➤ *"[1] We documented patterns of usage of FSA accounts [2] We concluded that much of the use of FSA monies was for foreknown expenditures."* ➤ *"The high institutional cost of doing concurrent review."* ➤ *"Managed Care able to capture real per unit discounts compared with Fee For service, for hospital services"* ➤ *"Variations in HMO market share are associated with variations in health care delivery, outcomes, and spending."* ➤ *"We identified the important organizational and financial factors that influence PMPM costs of care. This provided managerial and policy information not previously available…"* **Patient preferences** ➤ *"[Among nursing home residents with dementia,] the highest end-of-life expenditures (outliers) were in urban NH residents who did not have 'do-not-resuscitate' orders."*
6. Market Outcomes	**Managed care** ➤ *"[1] Rural based provider organizations were places where M+C succeeded. [2] M+C implementation was associated with previous experience in managed care. [3] For-profit HMOs may have started rural plans, but were more likely than other M+C organizations to withdraw."* ➤ *[1] Medicare payments affect Medicare HMO entry and exit significantly, plans also compete on benefits. [2] Health plan death spirals are a possible optimal dynamic response to market incentives. [3] No evidence of bias selection between aged and disabled Medicare HMO enrollees.* ➤ *"[1] Those who chose PPOs typically were previously enrolled in FFS and POS plans, which were more expensive than the other plans. [2] The national trend against managed care could be a regional phenomenon or may be contextual, occurring when an employer offers only few plans or when an HMO is very restrictive. [3] A consumer trend of selecting preferred provider organizations over fee-for-service plans, point-of-service plans, and health maintenance organizations shows this trend continues, however, without the purported backlash against HMOs."* **Hospital Systems** ➤ *"[1] Larger and more technically advanced hospitals joined systems in the 1990s, compared to smaller, financially weak hospitals in the 1980s. [2] Safety net hospital participation in networks and systems was more common when hospitals faced less market pressure and where only a limited number of unaffiliated hospitals remained. [3] Safety net hospitals with a high percentage of their hospital's care uncompensated fared better from joining systems or networks than safety net hospitals with lower hospital uncompensated care, but who have a high uncompensated care market share."* ➤ *"[1] General hospitals demonstrated competitive reactions to entry of physician-owned specialty hospitals (SSHs). [2] Competitor hospitals increased offerings of services in direct competition with SSHs and of high technology services more than hospitals not in competition with SSHs. [3] California general hospitals in competition with SSHs appeared to reduce uncompensated care relative to CA hospitals not in competition with SSHs."*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 83.

Table A.2. Findings Related to Specific Provider Settings

Setting	Findings
1. Hospitals	**Disparities-related** ➢ *“[1] Hospital racial segregation explains much of the racial disparity in outcome after injury, but does not completely explain that disparity. [2] Hospitals that serve a high proportion of racial minority patients have substantially different resources than hospitals primarily serving white patients.”* ➢ *“[1] Limiting hospital capacity through certificate of need can contribute to racial disparities in utilization. [2] Certificate of need can lead hospitals to reduce services to minority patients.”* ➢ *“Hospitals reliably code race or ethnicity for African Americans, Asians and Hispanics. Coding for American Indians and subgroups of Asians (e.g. those from India) and Hispanics (though from Spain) is much less reliable.”* **Quality of Care/Value-related** ➢ *“[1] Hospitals under financial pressure make cuts in aspects of quality that may not be immediately obvious to patients and physicians (e.g., human resource functions) and try to sustain core activities that relate to more visible aspects of quality. [2] Operating shortfalls do not lead to poorer patient outcomes but if shortfalls are present once all sources of revenue and expense occur (.e.g., negative total margins), one does observe deterioration in outcomes. [3] A primary area where hospitals cut back when financial pressures mount is nurse staffing. This is consistent with item #2 because the declines in patient outcomes we observed were largely related to nursing quality of care indicators.”* ➢ *“[1] Hospital Prices for CABG and PTCA reflect complexity of procedure delivered to patient. [2] Hospital Prices for CABG and PTCA do not reflect overall hospital quality or severity [3] Managed Care able to capture real per unit discounts compared with Fee For service, for hospital services.”* ➢ *“[1] Safety net hospitals have lower performance on the most commonly used measures of quality of care included in report cards. [2] The gap in performance for safety net hospitals has increased over time. [3] Safety net hospital executives believe this is partly because they lack resources to measure accurately, partly because the measures do not reflect their mission.”* ➢ *The value a hospital brings to the community varies dramatically across hospitals, hospitals that eventually close are also those that tend to bring relatively little value to the community and thus should not be bailed out.”* ➢ *“[1] Better nurse staffing is associated, in a non-linear fashion with reductions in hospital mortality. [2] Better nurse staffing is associated with better quality of care for hospitalized children.”* ➢ *“[1] Among rural hospitals in the U.S. higher volumes of patients treated for acute myocardial infarction and pneumonia are associated with better risk-adjusted clinical performance for these conditions. [2] Multi-hospital system membership among U.S. rural hospitals is associated with better clinical outcomes as measured by risk-adjusted mortality for patients with congestive heart failure and pneumonia. [3] Among U.S. rural hospitals, greater rurality and more Critical Access Hospital beds in the referral region are associated with higher risk adjusted mortality among patients treated for acute myocardial infarction.”* ➢ *“[1] Mortality for high-risk newborns (VLBW) is much higher when they do not delivery in high-volume tertiary centers. [2] These mortality differences persisted over the 1990s, even though neonatal mortality fell dramatically. [3] There is a continuing deregionalization of the management of high-risk deliveries and of neonatal intensive care, and this deregionalization is causing added mortality and morbidity.”* ➢ *“[1] Effects of hospital volume on quality of care is not as large as previously reported. [2] Selective referral is small for AMI patients.”*

Table A.2 *(continued)*

Setting	Findings
	➢ *"[1] Although much interest has focused on very premature infants, most infants receiving neonatal intensive care are moderately premature. [2] We documented substantial variations in inpatient care among 10 units that would have little impact on survival, but would have major cost implications [3] Outcomes did not vary, but parental rating of satisfaction with outcomes did not reflect the care so much as these outcomes."*
	➢ *"Performance at cardiac specialty hospitals is generally better for AMI and heart failure patients, but does vary across specific hospitals."*
	➢ *"[1] Adverse complications in hospitals are lower in hospitals with more licensed nursing hours per patient day and a higher mix of registered nurses. [2] Among surgical patients, deaths among patients with serious complications are lower in hospitals with more hours of nursing per patient day. [3] Length of stay among medical patients in hospitals is lower in hospitals with more licensed nursing hours per patient day and a higher mix of registered nurses."*
	➢ *"[1] Major factors related to a number of patient safety issues in hospitals were identified. [2] Differences between urban and rural hospitals in HIT implementation were identified. [3] HIT and patient safety issues in Critical Access Hospitals were explored."*
	➢ *"We analyzed data from nearly 5 million hospital admissions in three states, and found small but significantly increased rates of several types of complications on weekends for both surgical and obstetric patients."*
	➢ *"Inpatient psychiatric general hospital units are increasingly being filled with admissions that could be prevented if there was sufficient community-based psychiatric care."*
	Competition/Hospital Systems-related
	➢ *"[1] General hospitals demonstrated competitive reactions to entry of physician-owned specialty hospitals (SSHs). [2] Competitor hospitals increased offerings of services in direct competition with SSHs and of high technology services more than hospitals not in competition with SSHs. [3] California general hospitals in competition with SSHs appeared to reduce uncompensated care relative to CA hospitals not in competition with SSHs."*
	➢ *"[1] Larger and more technically advanced hospitals joined systems in the 1990s, compared to smaller, financially weak hospitals in the 1980s. [2] Safety net hospital participation in networks and systems was more common when hospitals faced less market pressure and where only a limited number of unaffiliated hospitals remained. [3] Safety net hospitals with a high percentage of their hospital's care uncompensated fared better from joining systems or networks than safety net hospitals with lower hospital uncompensated care, but who have a high uncompensated care market share."*
	➢ *"Opening of cardiac specialty hospitals in a market was associated with higher rates of change in population-based revascularization rates among Medicare beneficiaries."*
	➢ *"[1] New general hospital based cardiac specialty units lead to increased use of intensive services because of better access not demand inducement."*
	➢ *Geographic location of for profit hospitals essentially explains the ability of for profits to use fewer nurses in producing outcomes.*
	Length of Stay
	➢ *"[1] Post-operative LOS following coronary bypass surgery decreased substantially between 1992 and 1998. [2] Patients discharged early had lower rates of death and readmission and lower cumulative costs than those with a more typical LOS, suggesting that physicians are successfully identifying appropriate candidates for early discharge. [3] While there was considerable variation among hospitals in the tendency to discharge patients early, hospitals with higher rates of risk-factor specific early discharge did not have higher rates of adverse outcomes."*

Table A.2 *(continued)*

Setting	Findings
	➢ *“[1] The hospital stays of infants and mothers in the study tended to be shorter than specified in the Newborns’ and Mothers’ Health Protection Act. [2] The extent of postdischarge follow-up care new mothers and their infants received through birth hospitals is not consistent with AAP and ACOG recommendations. [3] Among mothers and infants who leave the hospital within 48 hours of the birth, mothers are more likely to breastfeed their baby at 2 weeks when the infant is seen between discharge and day 7 by a health care professional.”*
2. Nursing Homes	**Quality/Nurse Staffing** ➢ *“[1] There is great opportunity to strengthen the nursing home climate and the culture; [2] The nurse leader is critical to improving the nursing home climate and culture; [3] Nursing homes that scored high on both measures expressed emphasis on staff, quality of communication, importance of teamwork, and presence of clear standards and expectations.”* ➢ *“[1] Empowering staff to participate in QI initiatives in nursing home failed. [2] Management participating in concrete terms led to clear beneficial outcomes. [3] management could not sustain this behavior after the research team left due to job turnover”* **Nurse Job Satisfaction** ➢ *“[1] Different job characteristics are associated with job satisfaction for licensed nurses versus for nursing assistants. [2] Many nursing homes nominally organize workers into care teams, but those teams usually do not function as teams. [3] Autonomy, task identity, and intrinsic feedback are significant correlates with job satisfaction for nursing assistants.”* **Patterns of Care** ➢ *“[1] Rehabilitation services have become nearly ubiquitous in new admits to nursing homes. [2] It is difficult to discern primary diagnosis from the MDS diagnostic lists.”* ➢ *“[1] Found no difference in total hospice visit volume when hospice provided in nursing home versus in community. [2] Found a different configuration of hospice visits was provided in the nursing home, compared to a home in the community. [3] Found visit volumes were highest at the beginning and end of hospice episodes.”* ➢ *“[1] Among nursing home residents with dementia, feeding tube use is more common in urban than rural areas. [2] (Same population) Rural residents are at greater risk for hospitalization at the end of life. [3] (Same population) The highest end-of-life expenditures (outliers) were in urban NH residents who did not have 'do-not-resuscitate' orders.”* **Payment-related** ➢ *“[1] Medicaid payment has a positive effect on risk-adjusted nursing home quality measures. [2] Certificate-of-need and other supply constraints are less relevant for today's nursing home market. [3] There are measurement issues inherent in certain nursing home quality measures (e.g., pain).”*
3. Physicians/ Physician Practices/ Outpatient care	**Quality/Pay-for-performance** ➢ *“[1] We now understand how outside claims on medical care providers affect the quality of care they produce. [2] The relative risk aversion of the provider is a critical factor in determining this effect.”* ➢ *“[1] Effects of pay-for-performance on quality are modest. [2] Physicians are comfortable with pay-for-performance as a concept. [3] Selecting unit of accountability for pay-for-performance programs entails tradeoffs between stimulating investment in quality infrastructure and engaging front-line physicians.”*

Table A.2 *(continued)*

Setting	Findings
	➢ *"[1] Overall, organizational factors are not strongly related to quality of chronic disease care delivered in outpatient settings. [2] However, some QI strategies appear to decrease cost of care, while others increase the cost of care. [3] Use of electronic medical records was not related to better quality diabetes care."* ➢ *"Contrary to previous data, we found using national office data that the racial composition of primary care practices has little impact on the content of office visits."* **Rural** ➢ *"Rural based provider organizations were places where M+C succeeded"* **Job Satisfaction Under Managed Care** ➢ *"Managed care features are correlated with physician job dissatisfaction, but the sources of the dissatisfaction appear to be being an employed physician in large medical groups, which may limit autonomy. [2] Primary physician job satisfaction is related to some measures of patient-rated quality of care."* **Physician Organizations** ➢ *"[1] We identified the important organizational and financial factors that influence PMPM costs of care. This provided managerial and policy information not previously available. [2] This project also served to improve the analytic models using ACGs, correcting for endogeneous and allocating costs to practices. [3] An important set of findings was the identification of the variable that needed to be included in the next wave of the research. To respond to this, an instrument was developed to measure the culture of medical group practices."*
4. Home Health	**Outcomes** ➢ *"Home health care MAY (not strong evidence) prevent future hospitalization."* **Job satisfaction** ➢ *"[1] The variables associated with nurse retention in home health care are: job satisfaction, individual nurse characteristics, opportunities elsewhere, and intent to stay. [2] Not only does job satisfaction directly affect retention, but it also has notable indirect effects on retention since it is the most dominant factor associated with nurses' intent to stay, and intent to stay has a strong positive effect on retention. [3] that nurses' job retention is affected by the organizational environment and other extrinsic factors over which administrators and policy makers have some control."*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 83.

Table A.3. Findings Related to Insurance Coverage

Insurance	Findings
1. Insurance - general	**Disparities-related** ➢ *"Most racial disparities occur among individuals with the same insurance."* ➢ *"Racial disparities strongly relate to health insurance status."* **Market-related** ➢ *"Health plan death spirals are a possible optimal dynamic response to market incentives."* **Utilization-related** ➢ *"[1] There is pervasive empirical evidence that any attempt to econometrically quantify the role of health insurance in health care utilization must control for the endogeneity of the insurance status. [2] Depending upon the specific type of service and subpopulation, self selection plays an important role in determining the impact of insurance status on health care utilization. [3] After controlling for self selection, the measured impact of insurance on health care use is usually much smaller than when such controls are not applied."*
2. Managed Care/ Case Management	**Utilization/Access to Care** ➢ *"[1] Managed care for CSHCS reduced emergency department utilization by about 20%. [2] Managed care for CSHCS did not reduce other healthcare utilization or costs. [3] For this population, physicians will arrange the care that they feel the children need."* ➢ *"[1] PCCM was associated with declines in MD Medicaid participation and children's use of care. [2] Utilization of care was higher in fee-for-service S-CHIP compared to S-CHIP with PCCM."* ➢ *"[1] Variations in HMO market share are associated with variations in health care delivery, outcomes, and spending. [2] Many different sources of data on HMO market share can be combined to produce composite measures of HMO activity, but the composite measures do not generally produce big differences in study results compared to use of the individual components. [3] An important mechanism by which managed care influences health care is through the availability of technologies and services."* ➢ *"[1] Results show that children with special health care needs enrolled in HSCSN, the partially capitated managed care plan had better access to care along a variety of measures and greater compliance with guideline concordant preventive care. [2] We speculate that the case management services available under the MC option, low Medicaid FFS reimbursements and provider availability account for some of the differences in access to care and use of services that exist between MC and FFS enrollees. [3] State Medicaid programs should consider MC options with ongoing case management for special needs children."* ➢ *"Medicare and Medicaid managed care beneficiaries account for entire disparity in utilization associated with managed care."* ➢ *"The high rates of denial of mental health compared to physical illness."* ➢ *Medicare Advantage plan enrollment was not associated with higher rate of colorectal cancer screening than traditional fee-for-service plan enrollment.*

Table A.3 *(continued)*

Insurance	Findings
	Quality
	➢ *“Case management improved care, including receipt of ARV [antiretroviral] treatments.”*
	➢ *“We found no consistent relationship between features of managed care and measures of quality of care.”*
	➢ *“Although for-profit managed care plans are as likely to provide high cost procedures as nonprofit plans, process quality of care is generally lower.”*
	➢ *“[1] Transitions between fee-for-service coverage and mandated enrollment in managed care programs had no discernable impact on quality of asthma treatment among poor children. [2] Managed care programs had no incentive to provide timely reports on medical encounters for study subjects, and the quality of reporting was poor.”*
	Cost/Expenditures
	➢ *“Managed Care able to capture real per unit discounts compared with Fee For service, for hospital services.”*
	➢ *“[1] The high institutional cost of doing concurrent review. [2] The low denial of reimbursement rates by managed care entities.*
	Market-related
	➢ *“[1] Medicare payments affect Medicare HMO entry and exit significantly, plans also compete on benefits. [2] Health plan death spirals are a possible optimal dynamic response to market incentives. [3] No evidence of bias selection between aged and disabled Medicare HMO enrollees.”*
	➢ *“[1] The national trend against managed care could be a regional phenomenon or may be contextual, occurring when an employer offers only few plans or when an HMO is very restrictive. [2] A consumer trend of selecting preferred provider organizations over fee-for-service plans, point-of-service plans, and health maintenance organizations shows this trend continues, however, without the purported backlash against HMOs.”*
	➢ *“[1] Medicare beneficiaries with diabetes who enrolled in Medicare HMOs in 1995-1998 were lower risk than FFS beneficiaries, so HMOs experienced (relative) favorable selection among beneficiaries with diabetes. [2] Mortality rates of HMO enrollees in 1995-1998 were lower than that of FFS beneficiaries, which was partly due to favorable selection and partly due to protective benefits of HMO enrollment. It is difficult to specify the exact partial effects. [3] Medicare beneficiaries who disenrolled from Medicare HMOs in 1995-1998 were higher risk than HMO 'stayers', indicating that favorable selection upon initial enrollment was reinforced by disenrollment of sicker beneficiaries.”*
	➢ *“[1] Rural based provider organizations were places where M+C succeeded. [2] M+C implementation was associated with previous experience in managed care. [3] For-profit HMOs may have started rural plans, but were more likely than other M+C organizations to withdraw.”*
	Enrollment/disenrollment
	➢ *“Medicare managed care enrollees with a new cancer diagnosed in 1995-2002 were less likely to disenroll than their cancer-free peers.”*

Table A.3 *(continued)*

Insurance	Findings
	Disparities ➢ *"Patient HMO enrollment has little impact on racial and ethnic disparities in ambulatory and hospital care. The hypothesis that population management and attention to quality performance would reduce disparities in care was not born out by national data."* **Job-satisfaction** ➢ *"[1] Managed care features are correlated with physician job dissatisfaction, but the sources of the dissatisfaction appear to be being an employed physician in large medical groups, which may limit autonomy. [2] Managed care features may be related to patient ratings of care from specialists for patients with pain but no patients with depression."* **Miscellaneous** ➢ *"Changing policies and personnel at MCOs can have a major impact on study conduct."*
3. FFS/PPO	**Quality** ➢ *"Transitions between fee-for-service coverage and mandated enrollment in managed care programs had no discernable impact on quality of asthma treatment among poor children."* **Utilization** ➢ *"[1] Balance budget act coverage for colorectal cancer screening was not associated with a marginal increase in colorectal screening. [2] Medicare Advantage plan enrollment was not associated with higher rate of colorectal cancer screening than traditional fee-for-service plan enrollment."* ➢ *"Utilization of care was higher in fee-for-service S-CHIP compared to S-CHIP with PCCM."* **Consumer Preferences** ➢ *"[1] Those who chose PPOs typically were previously enrolled in FFS and POS plans, which were more expensive than the other plans [2] A consumer trend of selecting preferred provider organizations over fee-for-service plans, point-of-service plans, and health maintenance organizations shows this trend continues, however, without the purported backlash against HMOs."* **Costs** ➢ *"Managed Care able to capture real per unit discounts compared with Fee For service, for hospital services."*
4. MSAs/FSAs	➢ *"We documented patterns of usage of FSA accounts. [2] We concluded that much of the use of FSA monies was for foreknown expenditures."*
5. Drug Coverage	**Formularies/cost-sharing** ➢ *"[1] Incentive formularies effects are symmetric and effects on costs are somewhat smaller than prior estimates. [2] Discontinuation rates for those persistently on medication are lower."* ➢ *"[1] Estimated the price sensitivity of prescription drugs by therapeutic class. [2] Showed how medication compliance is affected by patient cost-sharing. [3] Preliminary evidence on how pharmacy cost-sharing affects use of medical services."*

Table A.3 *(continued)*

Insurance	Findings
	➢ *"[1] The 3-tier formulary was associated with fewer people using an antidepressant. [2] There was some shifting to the drugs that the plan assigned to tiers with lower cost-sharing ('preferred'). [3] There was a shift in cost from plan to members, implying patients had some difficulty in switching medications."*
6. Cost Sharing	**Drug-related** ➢ *"[1] Incentive formularies effects are symmetric and effects on costs are somewhat smaller than prior estimates."* ➢ *"[1] Estimated the price sensitivity of prescription drugs by therapeutic class. [2] Showed how medication compliance is affected by patient cost-sharing. [3] Preliminary evidence on how pharmacy cost-sharing affects use of medical services."* ➢ *"[1] The 3-tier formulary was associated with fewer people using an antidepressant. [2] There was some shifting to the drugs that the plan assigned to tiers with lower cost-sharing ('preferred'). [3] There was a shift in cost from plan to members, implying patients had some difficulty in switching medications."* **Premiums/co-payments** ➢ *"SCHIP premium subsidies are good alternative to Medicaid look-alike programs."* ➢ *"[1] Charging premiums and copayments to low income adults with public insurance caused loss of insurance coverage, financial hardship, reduced access to healthcare and prescription medications. [2] Chronically ill individuals who were charged premiums and co-pays had lower rates of primary care use, and higher rates of emergency room use than those who were not charged co-pays and premiums."*
7. Medicaid/SCHIP	**Utilization/Access to Care** ➢ *"Medicare and Medicaid managed care beneficiaries account for entire disparity in utilization associated with managed care."* ➢ *"[1] Results show that children with special health care needs enrolled in HSCSN, the partially capitated managed care plan had better access to care along a variety of measures and greater compliance with guideline concordant preventive care. [2] We speculate that the case management services available under the MC option, low Medicaid FFS reimbursements and provider availability account for some of the differences in access to care and use of services that exist between MC and FFS enrollees. [3] State Medicaid programs should consider MC options with ongoing case management for special needs children."* ➢ *"[1] PCCM was associated with declines in MD Medicaid participation and children's use of care. [2] Where S-CHIP used the same provider network as Medicaid, the increased total number of covered children reduced the volume of Medicaid visits provided. [3] Utilization of care was higher in fee-for-service S-CHIP compared to S-CHIP with PCCM."* ➢ *"[1] Managed care for CSHCS reduced emergency department utilization by about 20%. [2] Managed care for CSHCS did not reduce other healthcare utilization or costs. [3] For this population, physicians will arrange the care that they feel the children need."*

Table A.3 *(continued)*

Insurance	Findings
	➢ *“SCHIP improved access and quality of care for children who enrolled.”* ➢ *“[1] Charging premiums and copayments to low income adults with public insurance caused loss of insurance coverage, financial hardship, reduced access to healthcare and prescription medications. [2] Chronically ill individuals who were charged premiums and co-pays had lower rates of primary care use, and higher rates of emergency room use than those who were not charged co-pays and premiums.”* **Quality** ➢ *“SCHIP improved some important health outcomes for children in general and for special needs kids.”* ➢ *“[1] Evidence of poor suboptimal use of asthma medications among low income children enrolled in the Maryland Medicaid program. [2] Transitions between fee-for-service coverage and mandated enrollment in managed care programs had no discernable impact on quality of asthma treatment among poor children. [3] Managed care programs had no incentive to provide timely reports on medical encounters for study subjects, and the quality of reporting was poor.”* ➢ *“Medicaid payment has a positive effect on risk-adjusted nursing home quality measures.”* **Populations** ➢ *“[1] CSHCN are prevalent in SCHIP population. [2] Urban community stressors, race, and child's health status were significantly associated with behavioral and emotional problems among CSHCN. [3] CSHCN should be assessed and referred appropriately for behavioral and mental health problems during routine health care visits.”* ➢ *“Rural individuals more likely to transition to public coverage from uninsurance than those in urban areas.”* **Disparities** ➢ *“SCHIP reduced pre-existing racial/ethnic disparities in healthcare among enrollees.”* **Miscellaneous** ➢ *“SCHIP premium subsidies are good alternative to Medicaid look-alike programs”* ➢ *“Medicaid beneficiaries travel much longer distances for principal care for SLE, but it is those with higher education who do so.”*
8. Medicare	**Utilization/Access** ➢ *“Medicare and Medicaid managed care beneficiaries account for entire disparity in utilization associated with managed care.”* ➢ *Medicare Advantage plan enrollment was not associated with higher rate of colorectal cancer screening than traditional fee-for-service plan enrollment.* ➢ *“Opening of cardiac specialty hospitals in a market was associated with higher rates of change in population-based revascularization rates among Medicare beneficiaries.”*

Table A.3 *(continued)*

Insurance	Findings
	Health Outcomes ➢ *"Adverse health outcomes for the previously uninsured diminished and possibly disappeared after they had been on Medicare for two years."* **Markets** ➢ *"[1] Rural based provider organizations were places where M+C succeeded. [2] M+C implementation was associated with previous experience in managed care. [3] For-profit HMOs may have started rural plans, but were more likely than other M+C organizations to withdraw."* ➢ *"[1] Medicare payments affect Medicare HMO entry and exit significantly, plans also compete on benefits. [2] Health plan death spirals are a possible optimal dynamic response to market incentives."* **Enrollment/disenrollment** ➢ *"[1] Medicare beneficiaries with diabetes who enrolled in Medicare HMOs in 1995-1998 were lower risk than FFS beneficiaries, so HMOs experienced (relative) favorable selection among beneficiaries with diabetes. [2] Mortality rates of HMO enrollees in 1995-1998 were lower than that of FFS beneficiaries, which was partly due to favorable selection and partly due to protective benefits of HMO enrollment. It is difficult to specify the exact partial effects. [3] Medicare beneficiaries who disenrolled from Medicare HMOs in 1995-1998 were higher risk than HMO 'stayers', indicating that favorable selection upon initial enrollment was reinforced by disenrollment of sicker beneficiaries."* ➢ *"Medicare managed care enrollees with a new cancer diagnosed in 1995-2002 were less likely to disenroll than their cancer-free peers."* ➢ *"No evidence of bias selection between aged and disabled Medicare HMO enrollees."*
9. Uninsurance	**Mortality-related** ➢ *"[1] Uninsured older adults more likely to die. [2] Most deaths occurred after people had a decline in their health. [3] Adverse health outcomes for the previously uninsured diminished and possibly disappeared after they had been on Medicare for two years."* **Geographically-related** ➢ *"[1] Rural individuals have longer spells of uninsurance than those in urban areas. [2] Rural individuals more likely to transition to public coverage from uninsurance than those in urban areas."* **Utilization Related** ➢ *"Women with female-specific conditions but no health insurance are more likely to forgo usual sources of health care for these conditions, but more likely to seek care in an emergency department."* ➢ *"[1] The local uninsured rate is negatively associated with breast cancer screening & indicators of breast cancer. [2] Local poverty rate is negatively associated with cancer screening across the United States."*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 83.

Table A.4. Number of Publications on AHRQ-Funded Research, by Journal

Journal	Number of Citations
Pediatrics	13
Medical Care	12
Health Services Research	11
Inquiry	10
Health Affairs	8
J Health Economics	6
J Gen Intern Med	5
JAMA	5
NEJM	5
Am J Managed Care	4
Med Care Research Review	4
Journal of Nursing Care Quality	3
Annals Family Medicine	3
Arthritis Care and Research	3
Health Care Fin Review	3
JAGS	3
Ambul Pediatr	2
American Economic Review	2
American Heart Journal	2
American J Med	2
Annals Internal Medicine	2
Arch Dis Fetal Neonatal Ed	2
Archives Internal Medicine	2
Health Care Management Review	2
J Biomed Inf	2
J of Nurse Scholarship	2
J Rural Health	2
PloS Med	2
Psychiatr Serv	2
Rand Journal of Economics	2
Research in Nursing and Health	2
J Healthcare Qual online	1
Am J Prev Med	1
J Amer Board of Fam Practice	1
J Business Economic Statistics	1
Journal of Risk and Insurance	1
AM J Geriatr Pharmacother	1
Am J Pub Health	1
American Journal of Medical Quality	1
Annals Thoracic Surgery	1
Applied Health Econ	1
Arch Gen Psychiatry	1

Table A.4 *(continued)*

Journal	Number of Citations
Arch Pediatr Adolesc Med	1
Archives of Physical Medicine and Rehabilitation	1
Archives of Psychiatric Nursing	1
BMC Health Serv Research	1
Cancer	1
Children's Health Care	1
Chronic Illness	1
Circulation	1
Clin Therapeutics	1
Current Therapeutic Research	1
Econometrics J	1
Economic Inquiry	1
Ethnicity & Disease	1
Health Policy	1
Healthcare Management Science	1
Home Healthcare Services Quarterly	1
Int J Health Care Finance Economics	1
Int J Health Services	1
Int J Med Inf	1
International Journal of Medical Informatics	1
Intl Nournal Nursing Studies	1
J Am Coll Radiology	1
J Am Med Dir Assoc	1
J Applied Econometrics	1
J Asthma	1
J Behavioral Health Services Research	1
J Clin Outcomes Management	1
J Epidemiol Community Health	1
J Health Soc Behavior	1
J Medical Systems	1
J Palliative Med	1
JNCI	1
Journal of Health Care for the Poor and Underserved	1
Journal of Health Politics, Policy, and Law.	1
Journal of Mental Health Policy and Economics	1
Journal of Nursing Administration	1
Journal of Pain and Symptom Management	1
Journal of Rheumatology,	1
Journal of the American College of Cardiology	1
Managed Care Interface	1
Maternal and Child Nursing	1
Med Sci Monit	1
Neurorehabilitation	1
Policy, Politics and Nursing Practice	1

Table A.4 *(continued)*

Journal	**Number of Citations**
Psycho-Oncology	1
Psychosomatic Medicine	1
Quality of Life Research	1
Regulation	1
Soc Sci Med	1
Women's Health Issues	1
Total Publications	**189**

Source: Authors’ analyses of open-ended responses about publications in MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 70.

Table A.5. Selected Publications from AHRQ Grant-Funded Studies on Health Care Costs, Productivity, Organization, and Market Forces, 2000-2008 Peer-Reviewed Publications

2000

- Zuckerman, I., Stuart, B., et al. (Adherence to Asthma Treatment Guidelines among Children in Maryland Medicaid. *Current Therapeutic Research* 2000;61(12):912-925.

2001

- Bozzette SA, Joyce G, McCaffrey DF, Leibowitz AA, Morton SC, Berry SH, Rastegar A, Timberlake D, Shapiro MF, Goldman DP. Expenditures for the care of HIV-infected patients in the era of highly active antiretroviral therapy. *New England Journal of Medicine* 2001;344:817-823.
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- Schneider EC, Zaslavsky AM, Epstein AM. Racial disparities in the quality of care for enrollees in Medicare managed care. *JAMA* 2002;287(10):1288-94.

2003

- Adams EK, Bronstein JM, Florence C. The Impact of Medicaid Primary Care Case Management (PCCM) on Office-Based Physician Supply in Alabama and Georgia *Inquiry* 2003;40(3):269-282.
- Aparasu RR, Mort JR, Brandt H. Psychotropic prescription use by community-dwelling elderly in the United States. *Journal of the American Geriatrics Society* 2003;51(5):671-7.
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Note: Information is based on open-ended responses from N = 74 investigators. Investigators were asked to provide up to four citations where results from their research is publicly available. We excluded citations for AHRQ final reports. Some studies may have more than four citations, and are not listed in this table. In particular, most studies included in our case studies (Appendix C) resulted in more than four publications. In addition, we do not list publications from non-respondents to the survey or respondents who did not complete this question.

Table A.6 Evidence that AHRQ-Funded Research Had Large Impacts

Complete Responses

- *“Although it makes sense that poor financial performance leads to organizational changes that could affect quality of care and patient outcomes, we did not know exactly how things in a hospital break down to lead to worse performance. Our study provided insights on the latter, focusing on reductions in staffing, poorer performance in some but not all JCAHO standards, and lower investment in plant and equipment. These findings have been cited in the literature and we have made presentations to industry representatives on them. In addition, some of the newer methods we used in analysis have attracted the attention of researchers who have used our analysis in their studies.”*
- *“Our work has appeared in several national, state, and local policy briefs, and other reports published by the Commonwealth fund, Kaiser Family Foundation, etc. Our work has been used in congressional testimony. Most importantly, our work was used by state lawmakers to substantially change the Medicaid program. Specifically, premiums were dropped for the lowest income Medicaid beneficiaries, and the 6 month required wait period for coverage was dropped. These changes occurred because our research showed that premiums were driving the lowest income Medicaid recipients off coverage, and the 6 month required waiting period was keeping people who needed coverage to care for chronic illnesses and other acute conditions out of primary care and forcing them into the emergency room.”*
- *“The home healthcare nurses job satisfaction scale (HHNJS) developed with AHRQ grant funding has been requested by over 30 different researchers to use in their evaluation programs or research studies. The work has been cited in various white papers (Center for Home Care Policy & Research, Promoting Excellence in Geriatric Home Care, and Visiting Nurse Service of New York) and journal articles. The results added knowledge of home healthcare nurse job satisfaction and retention—areas previously unknown and established the importance of organization management and environment—with the recommendations for change.”*
- *“There has been considerable debate regarding the impact of HMOs on disparities. Some have argued that HMOs worsen disparities while others have pointed towards their potential for ameliorating them. Our study strongly suggests they have little effect as HMOs are currently organized. In otherwise, generic population focus and emphasis on quality is not sufficient. Our work has helped inform collaborative projects (including those supported by AHRQ and RWJF) that assist health plans to explicitly measure and address disparities among their own plan members. Bach et al published a paper in the NEJM suggesting that practices serving large numbers of African Americans provide lower quality care. Our analysis of NAMCS/NHAMCS tends to refute this finding. Last, there has been considerable debate regarding the accuracy of hospital data for race and ethnicity, but few hard data. Our study based on California hospital data suggests that these data are fairly reliable for many, but not all.”*
- *“The two published papers from the grant helped to shift the long-standing notion among researchers regarding the relationship between Medicaid payment and nursing home quality. Historically, there was a research literature arguing that Medicaid payment was negatively related to nursing home quality. These papers helped to change this view by noting that—in an era with decreased occupancy rates—certificate-of-need no longer served as a binding bed constraint in this market. These papers have been well-cited and have led to a new generation of studies largely substantiating this positive relationship.”*
- *“We introduced new methods for the study of nurse staffing and quality of care that have now been adopted. Our work is frequently cited in the research literature...”*
- *“This study helped demonstrate the value of linking birth records with discharge data for neonatal research. It created the first 10 years of the California linked birth records/discharge data, which are now available to other researchers, and these data have already been used [by] many other studies, including AHRQ funded studies. The results provided the most convincing data to date on the impacts of the de-regionalization of neonatal intensive care. The main findings were published as a NEJM special article. Based on the NEJM paper, the Leapfrog group has revised its volume criteria for VLBW infants for its Evidence-based Hospital Referral program.”*

Table A.6 *(continued)*

Complete Responses
➢ *"The work highlighted disparities in HIV care at a national level, influenced the reauthorization of the Ryan-White Act as it pertains to case management, promoted the use of probability-based sampling in research, and has led to a similar study being conducted on an ongoing basis at a national level by CDC."*
➢ *"New Methods: Used theoretically based computational modeling programs to create virtual units that allow managers/administrators to make substantive changes in the virtual unit and assess the impact on patient outcomes. Changing Organizations: Administrators used findings related to unit turbulence and unit workgroup culture to improve the working environment in study hospitals."*
➢ *"We were among the first group of researchers to systematically study the application of pay-for-performance models to healthcare and published some of the initial conceptual and empirical papers addressing the topic. My team and I have been invited speakers to many academic and industry meetings to present our work, which has contributed substantially to educating researchers and practitioners about pay-for-performance in the healthcare industry."*
➢ *"There will be… a major series of letters in JAMA in response to our recent JAMA article from this topic. We have testified on the need to consider safety net hospitals' issues in Sacramento and at policy meetings of national groups such as Leapfrog, and have shared the information with safety net hospitals and insurers."*
➢ *"The research has been cited by the Department of Justice/Federal Trade Commission joint report entitled 'Improving Health Care: A Dose of Competition' as well as state policy briefs and commissions. It has affected the types of mergers that are challenged (system mergers instead of facility consolidations) and also when it is best to allow a hospital to close rather than subsidize its existence. The methods developed and refined in this grant have been used to advise hospital administrators on what services are most valued by the community. The research supported by this grant will likely be more influential over time as the methods become more common..."*
➢ *"It wasn't until after my visit study that MedPac began questioning the visit volume for those receiving hospice. I shared with MedPac my AHRQ visit final report and manuscript. Since then, MedPac funded researchers … [who] used the same provider data I had used … to basically replicate my study.… Now, CMS has begun to require hospice providers to report the number of visits provided (for a limited number of disciplines)."*
➢ *"New England Journal article cited over 350 times as measured by Web of Science, and over 600 times by Google Scholar. The study received extensive media coverage when published in The New England Journal of Medicine, including primary coverage in the New York Times, Wall Street Journal, Baltimore Sun, Newsday, Orlando Sentinel, Baltimore Herald, All Things Considered (NPR), Associated Press, Reuters, CNN Radio and CNN.com, AP Radio, and ABC Radio. The article led off a feature on nursing aired by CBS 60 Minutes, and was carried by many other outlets, including the Washington Post, Chicago Tribune, Los Angeles Times, San Francisco Chronicle, Miami Herald, International Herald Tribune (and others), and many health newsletters and trade press. It has been referenced in editorials and op eds, and other news stories on nursing shortage. One measure identified, failure to rescue, [was] incorporated into AHRQ PSIs. The research on which the article was based has been cited in Congressional testimony and in state legislative efforts [to] enact nursing standards and programs to improve nursing. Shortly after the article appeared, a letter from Congresswoman Lois Capps was published in the New York Times on the need for Congress to move forward on the Nurse Reinvestment Act, legislation that addresses the nursing shortage that had been languishing in conference committee for a year. The legislation emerged from conference and was passed with broad bipartisan support and signed by President Bush within two months of the publication of the article. This research and the attention it received is widely credited as playing the key role in bringing forth this outcome. This and other research encouraged Robert Wood Johnson Foundation to fund development of nursing performance measures by the National Quality Forum. The authors were awarded the first AcademyHealth Health Services Research Impact Award for this and follow-up research."*
➢ *"Wide citation nationally and internationally. Led to scrutiny by officials of the United Nations, World Health Organization, and Pan American Health Organization."*

Table A.6 *(continued)*

Complete Responses
➢ *"Several large public and private employers have used the findings of the research to implement or plan for changes in their health benefits. The research has also generated additional research on the impact on retirees of benefit changes."*
➢ *"Our first paper (JAMA 2002) looked at how demand for pharmaceuticals was affected by benefit design and patient cost-sharing. The follow-up paper, supported by AHRQ (JAMA, 2004) examined price responsiveness for each of 8 therapeutic classes, decomposing the effects into the impact on initiation (of drug therapy) versus the conditional level of use."*
➢ *"Since we started using Health and Retirement Study data to study changes in health, several other researchers have initiated projects using HRS, some of which were dealing with the uninsured and changes in health for the uninsured. See McWilliams et al. The impact has been less for policy around the uninsured, although the work has been cited by the IOM."*
➢ *"The measures of HMO market share developed in this project (and jointly with other projects over time) have been used by many other projects."*
➢ *"We've described how the health care system is a central mode of transmitting disparities in access and outcomes in SLE and now are moving on to get into the 'black box' by looking at such features as patient-physician interactions and differences in quality of care. To do that, a co-investigator, funded by multiple sources, has a developed quality indicators for SLE."*
➢ *"Our analysis has informed the debate regarding specialty hospitals and physician-ownership. The paper has been timely in that this debate continues to be ongoing and has received great attention among policy-makers in CMS and Congress."*
➢ *"Relatively few states have enrolled children with special health care needs into managed care (either partial or fully capitated) because the financial incentives inherent in such plans to control costs may result in under-treatment, disrupt provider relationships, restrict access to specialty services, and compromise quality of care. On the other hand, managed care offers several advantages over the FFS approach including improved coordination of care and case management services. Because only a handful of states have implemented a managed care option that involves some capitation for children with special needs, little research has attempted to evaluate which option is better suited to meet the needs of this vulnerable population."*
➢ *"This was one of the first in-depth studies of how both organizational and financial factors influence costs. This project helped identify the variables for the next round of research and clarify the relationships between practice level and physician level in group practices."*
➢ *"I believe presentation of early results help shift attention to racial/ethnic sorting among providers as a possible cause of disparities in care and outcomes."*
➢ *"Price dispersion for cardiac procedure not previously known on a national level. Actual transaction prices reported, not charges."*
➢ *"This work is among the very few studies of RN work (turnover) that has a longitudinal national sample, and uses both economic and sociological theories. Particularly in examining the role of the wage, this work has contributed to a broader understanding of what factors are important."*
➢ *"Large as it documented the extent and impact of inappropriate psychotropic use in the elderly."*
➢ *"To date we have published 13 peer-reviewed papers, focused either on HIT or patient safety, mostly focused on rural hospitals. This has been a traditionally understudied area and I believe that our publications add significantly to this field."*
➢ *"The finding that organizational factors and to some extent office systems have only a limited impact on quality of care has tilted us (and many others) in new research directions. If organizational factors are of limited impact, then interventions that focus on patient activation and provider behavior change are worth increased focus and exploration. The finding that ERM use was not related to better quality illustrates the limitations of early versions of that technology and underscores the importance of improving the technology in ways that support better chronic disease care, and orienting office systems around the EMR—not just installing the equipment and leaving the rest of the system alone."*

Table A.6 *(continued)*

Complete Responses
➢ *"Some new ideas: Optimal risk adjustment. Covariance of spending on one service with another service in risk adjustment. Commercial reimbursement as moderating consequences of pricing errors by Medicare. Some policy ideas: Methods of calculating health manpower shortage areas are badly flawed from failing to account for border crossing. Most racial disparities occur among persons with the same insurance, not between persons with different insurance. Some better evidence: Frequently cited study on drug copays. Level of cancer chemo reimbursement seems not to affect likelihood of chemo but does affect choice of agent."*
➢ *"People with disabilities have been little studied, with relatively few publications in major journals. Our work is helping to build critical knowledge about this understudied population. We were much cited in the July 26, 2005 Call to Action by the U.S. Surgeon General about improving care for people with disabilities."*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 32.

Table A.7. Substantive Changes Made to Research Projects

Number (Percentage)	Most Significant Changes to Research Project and Examples of Responses
5 (16.1)	Data changes • *“Use of a different data source.”* • *“Settled for many fewer cases, because of difficulties in obtaining informed consent. …”* • *“We proposed to examine data from 1983-2000, but we only used data from 1991-2000.”*
9 (29.0)	Methods changes • *“…changed operational definition of outcome measures…reduced number of independent variables”* • *“Selected nursing intensity measure different from that anticipated in proposal.”* • *“We drastically changed the data collection mechanism.”* • *“…changes in modeling approaches.”*
19 (61.3)	Changes in scope • *“In addition to completing the major aims, we explore[d] some related issues.”* • *“Reduced scope of research.”* • *“We changed some focus in the theoretical core.”* • *“Changed focus of qualitative component of the study.”* • *Adapted the analytic aims to the realities of the data available. Some of the original planned analyses would have been weaker than anticipated, given the data actually available, while things not originally envisioned were possible.”*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: Percentages may add to more than 100 percent because PIs may have noted more than one modifications to the original study proposal.

N = 31.

Table A.8. Reasons for Making Substantive Changes to Research Project

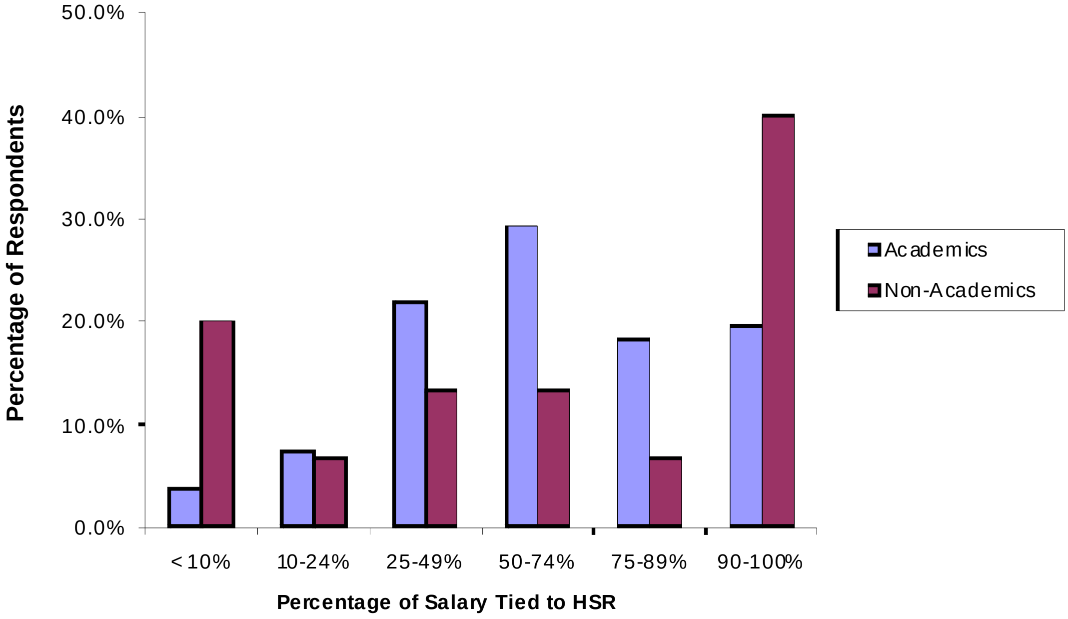
Number (Percentage)	Reasons for Change and Examples of Responses
11 (35.5)	Data limitations ➢ *“We could not do the necessary data linkages...We tried, but the success rate was too low.”* ➢ *“It turned out that our data could not be linked to patients' insurance status like we originally thought. We had specified a plan, but the proposed linkage just didn't work.”* ➢ *“Poor data quality.”* ➢ *“The…records which were to be reviewed and rated were destroyed in the interim time frame between the original grant submission and its eventual funding.…”* ➢ *Difficulty obtaining data about charity care.”*
11 (35.5)	New ideas, new knowledge gained from preliminary analyses and/or recent additions to the literature ➢ *“There is a long lag time between application and funding, and we had some new ideas in the interim.”* ➢ *“Our major hypothesis was not confirmed and we explored related issues.”* ➢ *“When we began to analyze the MEPS data we realized that we had the opportunity to address our original question and to address a broader question as well. It made sense to us to broaden the scope of our research so that we could provide a more comprehensive picture of the issues we were addressing.”* ➢ *“We had based some hypotheses on current literature, but when we actually had data, some of our assumptions turned out to be incorrect. Thus, we were not able to address all of our research questions.* ➢ *“A lower resource intensive approach was published in the literature.”*
6 (19.4)	IRB and other data collection issues ➢ *“Constraints imposed by IRBs and difficulty gaining consent from prospective study participants.”* ➢ *“…changes in state administration that inhibited cooperation.”* ➢ *“…Significant problems with IRBs.”*
3 (9.7)	Methodological challenges ➢ *“… The idea that the patients could be matched with a single propensity score was an error. We developed a technique to match on two propensity scores.”* ➢ *“Computational complexity.”* ➢ *“Improve sensitivity and specificity of measures.…”*
2 (6.5)	Funding or grant management decisions ➢ *Reduction in AHRQ-approved funding resulted in dropping the community-based studies.…”* ➢ *“…Chose to focus on two aims but realized that was even that was too ambitious. So, I ended up focusing on the main aim only.”*
1 (3.2)	Marketplace changes ➢ *“… and more importantly, changes in the managed care market, led to some other more minor changes.”*

Source: Open-ended responses to MPR Survey of AHRQ-Funded Principal Investigators

Note: Percentages may add to more than 100 percent because PIs may have noted more than one reason for modifications to the original study proposal.

N = 31.

Figure A.1. Percentage of Salary Currently Devoted to Health Services Research, by Setting



Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.

Table A.9. Amount of Salary Devoted to HSR When Grant was Underway, by Setting

	PIs in Academic Settings Number (Percentage)	PIs in Nonacademic Settings Number (Percentage)
Salary When Grant Was Underway		
Much higher	3 (3.7)	5 (33.3)
Higher	7 (8.5)	1 (6.7)
About the same	45 (54.9)	5 (33.3)
Lower	22 (26.8)	2 (13.3)
Much lower	2 (2.4)	2 (13.3)
Can't recall / Refused	3 (3.7)	0 (0.0)

Source: MPR Survey of AHRQ-Funded Principal Investigators

Note: N = 97.